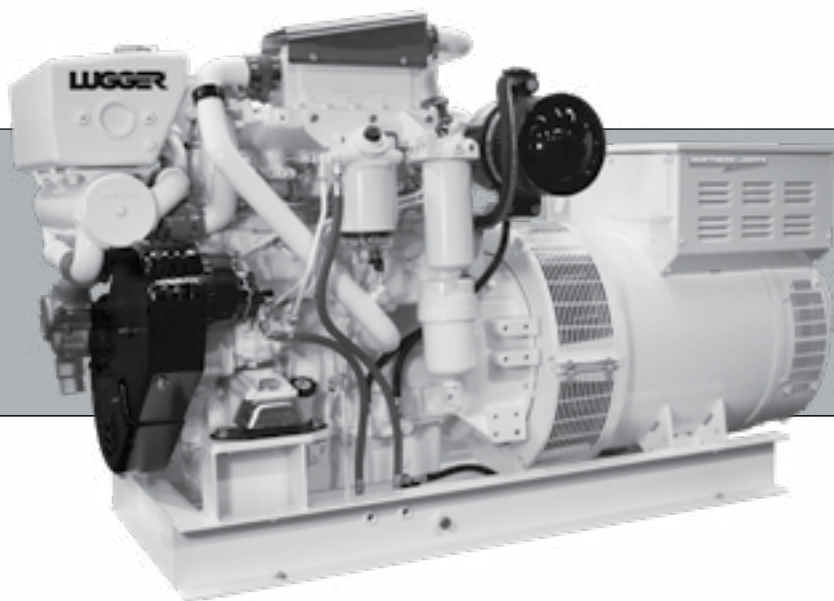




PARTS MANUAL

P4105

For Models: L4105A, L4105H,
M4105A1, M4105A2, M4105A3, M4105A4, M4105A5, M4105H1,
C4105A1, C4105A2, C4105A3, C4105A4, C4105A5, C4105A6



www.northern-lights.com



As of January 2011, U.S. EPA regulations require the application of a permanently applied label near the fuel tank fill port for diesel driven equipment. This label is to state:

ULTRA LOW SULFUR FUEL ONLY

Northern Lights is providing this label for application to the fuel inlet of the fuel supply tank for each engine or generator set. This is to be applied by the installer of the engine or gen set, or by the manufacturer of the equipment that the engine or gen set is installed in. The location of the label must be in clear site of personnel that refill the supply tank.



— CALIFORNIA —
Proposition 65 Warning:

Breathing Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

- * Always start and operate the engine in a well-ventilated area.
- * If in an enclosed area, vent the exhaust to the outside.
- * Do not modify or tamper with the exhaust system.
- * Do not idle the engine except as necessary.

For more information, go to www.P65warnings.ca.gov/diesel.

Northern Lights

4420 14th Avenue N.W.

Seattle, WA 98107

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PART NO.: P4105 4/26



PARTS CATALOG

for Models

L4105A, L4105H,

M4105H, M4105A1, M4105A2, M4105A3, M4105A4, M4105A5, M4105H1,

C4105A1, C4105A2, C4105A3, C4105A4, C4105A5, C4105A6

Please read thoroughly before attempting to use this manual:

Table of Contents	I
Model Designation & Serial Numbers	II
Reading a Parts Page	III

Table of Contents

GROUP 1 - ENGINE

Cylinder Block Assembly	0 - 1
Flywheel & Housing	2 - 3
Crankshaft	4
Piston and Connecting Rod	5
Balancing Unit	6
Intermediate Gear	7
Camshaft	8
Push Rods	9
Timing Case & Cover	10
Pulley	11
Lubricating Oil Pump	12
Oil Pan.....	13
Cylinder Head	14
Valve Cover	15
Rocker Arm.....	16
Exhaust and Intake Valve	17

GROUP 2 - INTAKE & EXHAUST

Intake Manifold	0 - 1
Air Filter and Mounting.....	2
Crankcase Breather	3
Exhaust Manifold.....	4 - 5
Exhaust Elbow.....	6 - 9

GROUP 3 - COOLING SYSTEM

Expansion Tank and Thermostat.....	0 - 1
Heat Exchanger.....	2 - 3
Water Pump.....	4
Water Separator Assembly.....	5
Filter and Oil Cooler	6

GROUP 4 - FUEL SYSTEM

High Pressure Fuel Pump	0
High Pressure Injection Rail	1
Fuel Injection System	2
Double Wall Fuel Lines.....	3
Low Pressure Fuel System.....	4 - 5

GROUP 5 - ELECTRICAL SYSTEM

Electrical Harness	0
Sensors	1
Electrical Control Unit (ECU).....	2
Starter.....	3
Alternator	4
Manual Belt Tensioner	5
Belt Guard.....	6 - 7

GROUP 6 - GASKET SETS

Cooling System Gaskets.....	0
-----------------------------	---

GROUP 8 - BASE FRAME & MOUNTING

Base Frame (M Series)	0
Base Frame (C Series)	1
Keel Cooling Mounting Kit.....	2
Engine Lifting Eyes.....	3
Engine Mounting Kit	4

GROUP 9 - ACCESSORIES & OPTIONAL

EQUIPMENT	consult factory
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INTRODUCTION

MODEL DESIGNATION

Refer to the category designations below to find the correct parts pages for your model.

L, M

L - Lugger marine propulsion engine
M - Northern Lights marine generator set
C - Northern Lights Commercial series marine generator set

4105

Base Model #
105 mm bore
4 cylinders

A, H

A - Jacket Water After-cooler
H - Sea Water After-cooler

L4105A

Lugger jacket water after-cooled marine propulsion engine with an MWM base engine and an electronically controlled fuel system.

L4105H

Lugger sea water after-cooled marine propulsion engine with an MWM base engine and an electronically controlled fuel system.

M4105A

Northern Lights jacket water after-cooled marine diesel generator set with an MWM base engine and an electronically controlled fuel system.

M4105H

Northern Lights sea water after-cooled marine diesel generator set with an MWM base engine and an electronically controlled fuel system.

C4105A

Northern Lights keel-cooled commercial series marine diesel generator set with an MWM base engine and an electronically controlled fuel system.

C4105H

Northern Lights keel-cooled commercial series marine diesel generator set with an MWM base engine and an electronically controlled fuel system.

All model numbers in parentheses will indicate an MWM base engine. All variations requiring serial numbers for proper identification will be noted as Northern Lights or MWM.

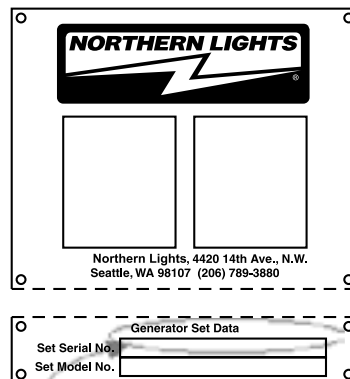
SERIAL NUMBERS

NORTHERN LIGHTS

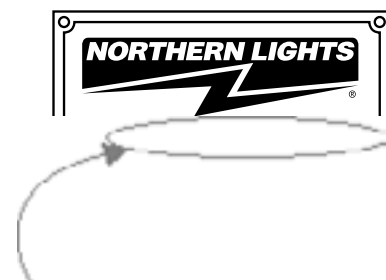
Your set has three serial numbers: ① an engine number stamped on the block, ② a generator plate, and ③ a generator set plate. Use the serial number on the generator set plate when ordering parts or in correspondence. The generator set plate is found on the service side of the generator and resembles one of the drawings below.



Lugger Serial Number



Generator Set Serial Number



Generator Set Serial Number

READING A PARTS PAGE

IMPORTANT:

Before selecting parts, be sure that you are choosing parts from the correct page.
 Check the model designation at the page top.
 Do not use this illustration for parts purchasing.

ALTERNATOR ASSEMBLY: M - NL668

KEY	PART NUMBER	QTY.	DESCRIPTION	SERIALNUMBER
0	185046210	1	Alternator Assembly	-
1	185446219	1	Flywheel, complete	-
2	185446217	1	Plate, complete	-
3	185716200	1	Plate	-
4	185446218	1	Stator, complete	-
5	040126210	2	Bearing	-
6	020210010	1	Nut	-
7	027100010	1	Spring washer	-
8	026100010	1	Washer	-
9	185446220	1	Clamp	-
10	015140408	1	Screw	-
11	015140425	2	Screw	-
12	199236510	1	Collar	-

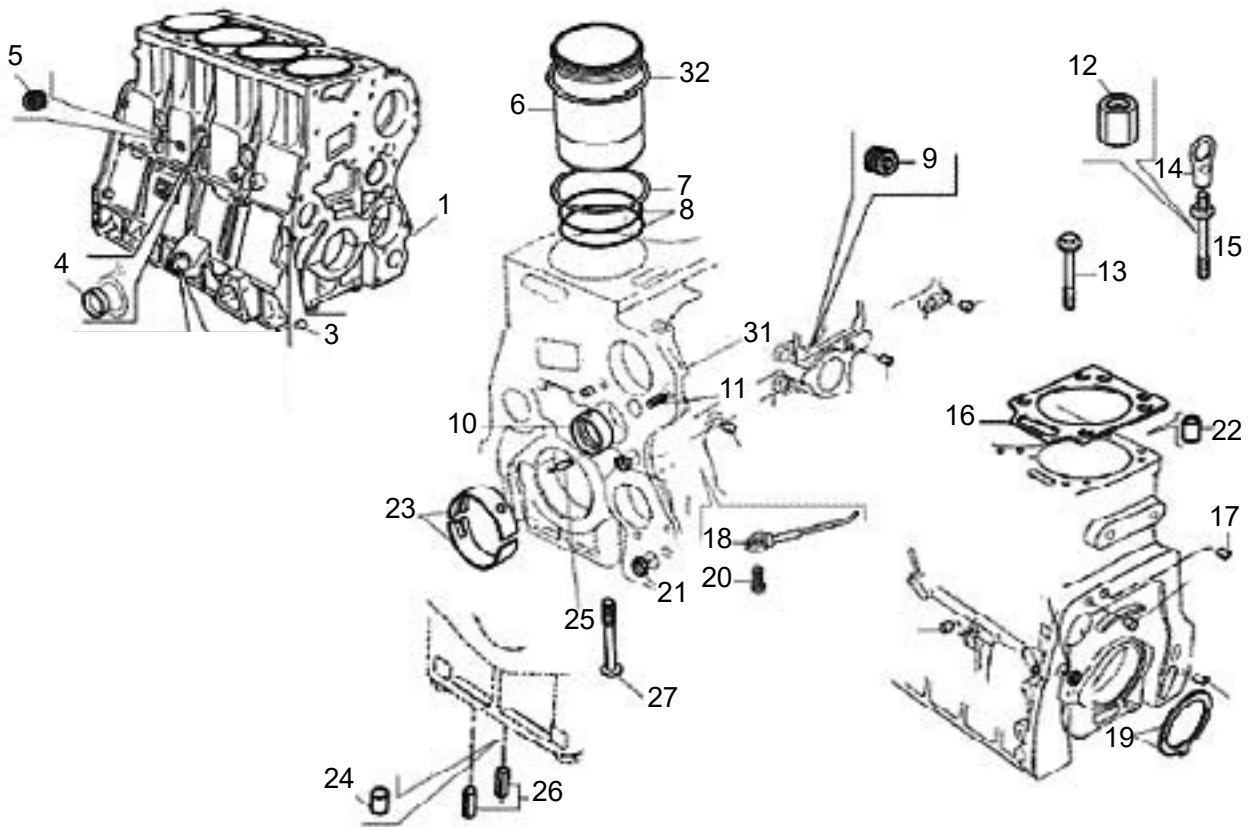
P668PT 08/00
5-2

REFERENCES:

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Grouping section title. 2. Model designation of equipment that uses parts listed on this page. 3. Title and description of assembly. 4. Drawing numbers that correspond to key column numbers for parts identification. 5. Key column for locating parts shown on drawing. 6. Part number. | <ol style="list-style-type: none"> 7. Quantity of parts used. 8. Description of each component part. 9. Serial number of unit the part fits. 10. Assembly or kit designated by Key 0 or ••/•. 11. Grouping index number. 12. Page number within the grouping index. 13. Manual title. 14. Page publication date. |
|--|--|

NOTE: ⇨ Arrows always point toward the front of the engine.

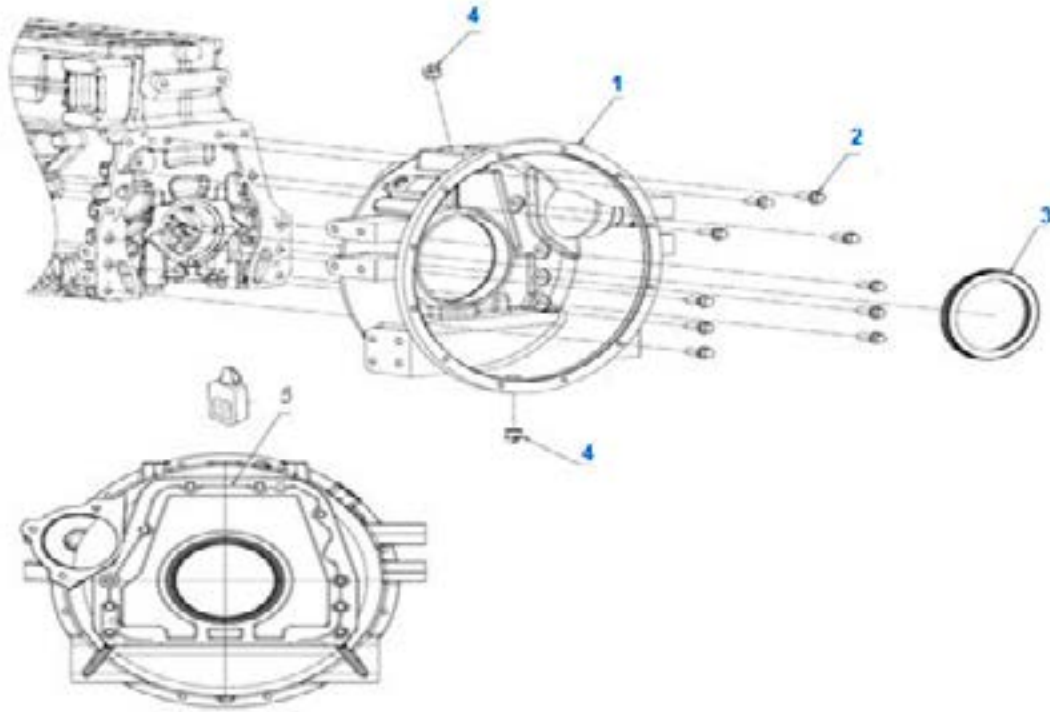
Cylinder Block



Cylinder Block

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1		1	Cylinder Block	
3	922903270044E	6	Plug	
4	602152250030E	2	Metallic seal	
5	922903520054E	1	Plug 3/8"	
6	7004892C1E	4	Liner, engine block	
7	961083400414E	4	Shim to liner - 0.40 mm	
8	7005018C1E	8	O-ring	
10	7002258C1E	1	Camshaft bushing	
14	961206200014E	2	Engine lifting hook	
17	602201101020E	2	Cylindrical pin	
19	961283400164	2	Thrust washer, set - 0.24 mm	
19	961283400154	1	Thrust washer std, set	
20	940703500024E	4	Hollow screw M8 x 15	
21	602152200025E	4	Metallic seal	
22	940703100064E	8	Guide pin	
23	941284300077	5	Main bearing 0.50	
23	941284300087	5	Main bearing 0.75	
23	941284300097	5	Main bearing 1.00	
23	941284300067	5	Main bearing 0.25	
23	941204300017	5	Main bearing std	
24	961003270044E	4	Metallic seal	
25	602201500406E	5	Expanding bushing	
27	961203500014E	10	Bolt M14 x 132	
31	602201500824E	1	Expanding bushing	
32	7002746C1E	4	O-ring	

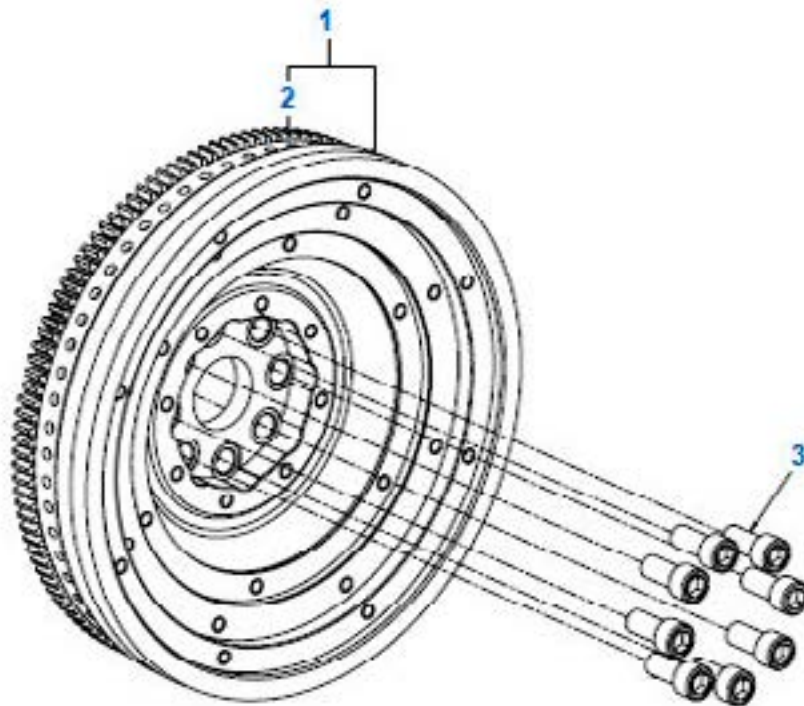
Flywheel Housing



KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	961207010214E	1	Flywheel housing	
2	902002421230E	10	Bolt 12m x 30	
3	961208560024E	1	Rear seal, crankshaft	
4	906702400101E	1	Protection cover	

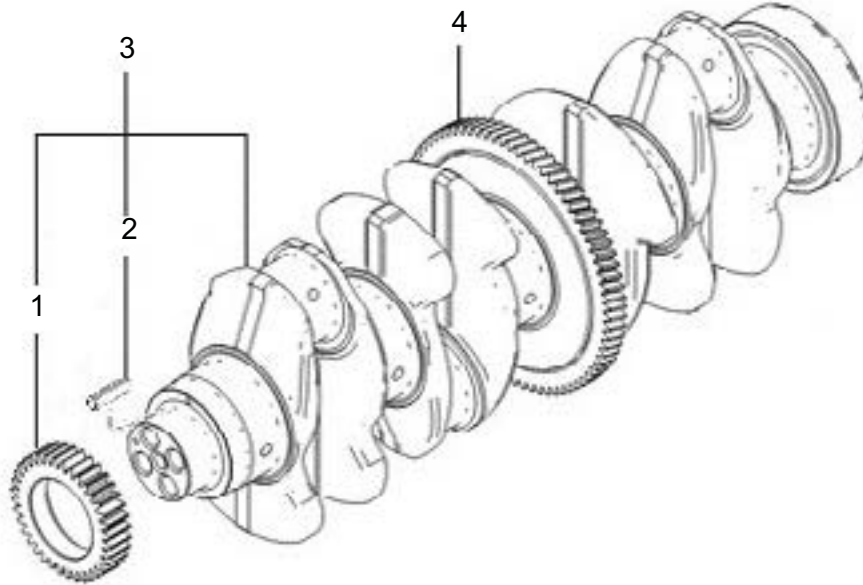
Flywheel

M4105



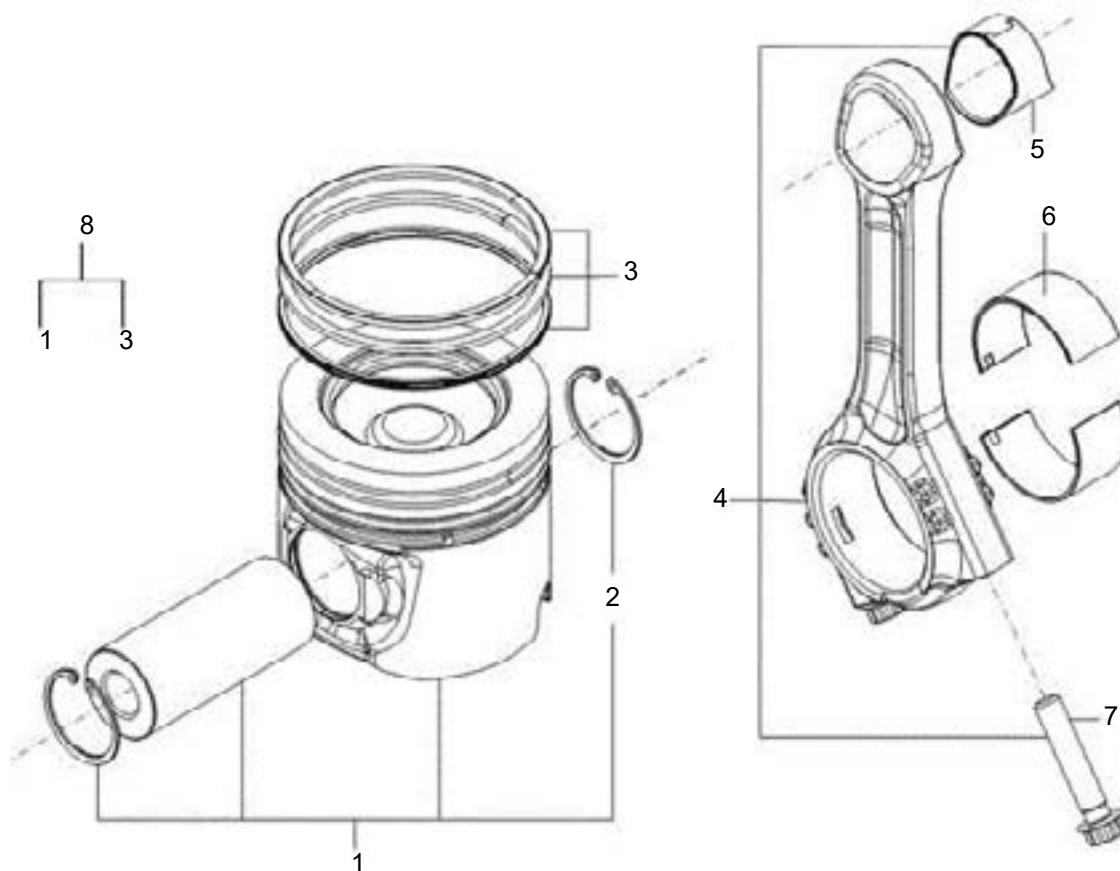
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	941201450135	1	Flywheel, Assembly	
2	922503750024E	1	Gear ring	
3	602007001635E	8	Cylindrical bolt m16 x 35	

Crankshaft



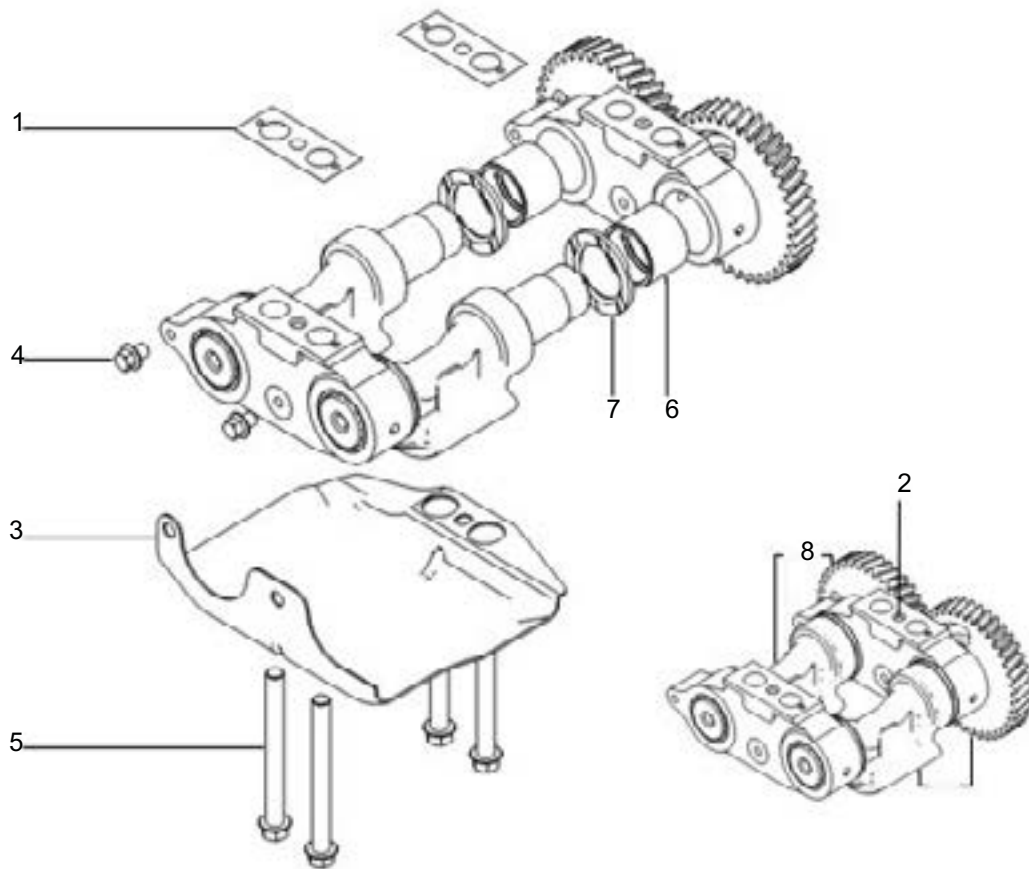
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	961203710014E	1	Crankshaft gear	
2	602201500414E	1	Roll pin	
3	7002392C91E	1	Crankshaft, Assy.	
4	941003750014E	1	Diving gear, balancer unit	

Piston and Connecting Rod

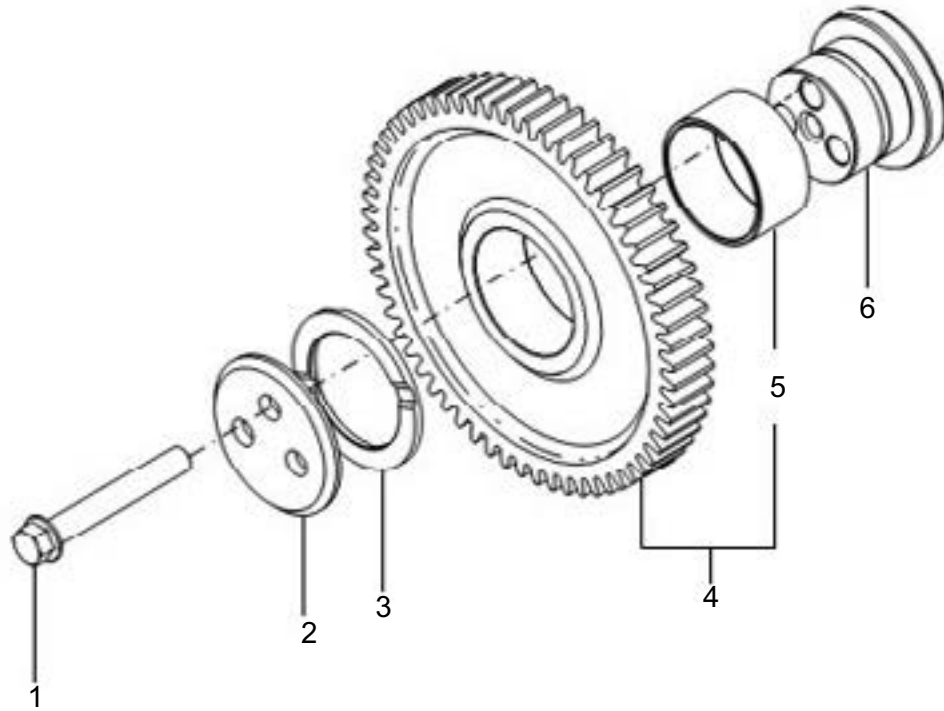


KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	7005923R91E	4	Piston, set	7
2	961203470014E	8	Circlip	
3	961280190688	4	Piston rings, set	
4	7006525C91E	4	Connecting rod	
5	7001468C1E	4	Connecting rod bushing	
6	961284300447	4	Kit, Connecting rod bearing 0,25 mm	
6	961284300437	4	Kit, Connecting rod bearing (std)	
6	R7004220C91	4	Connecting rod bearing 0.75 mm	
6	R7004219C91	4	Connecting rod bearing 0.50 mm	
7	7006576C1E	8	Bolt M12 x 58	
8	96121600128	1	Piston and rings, set	

Balancing Unit

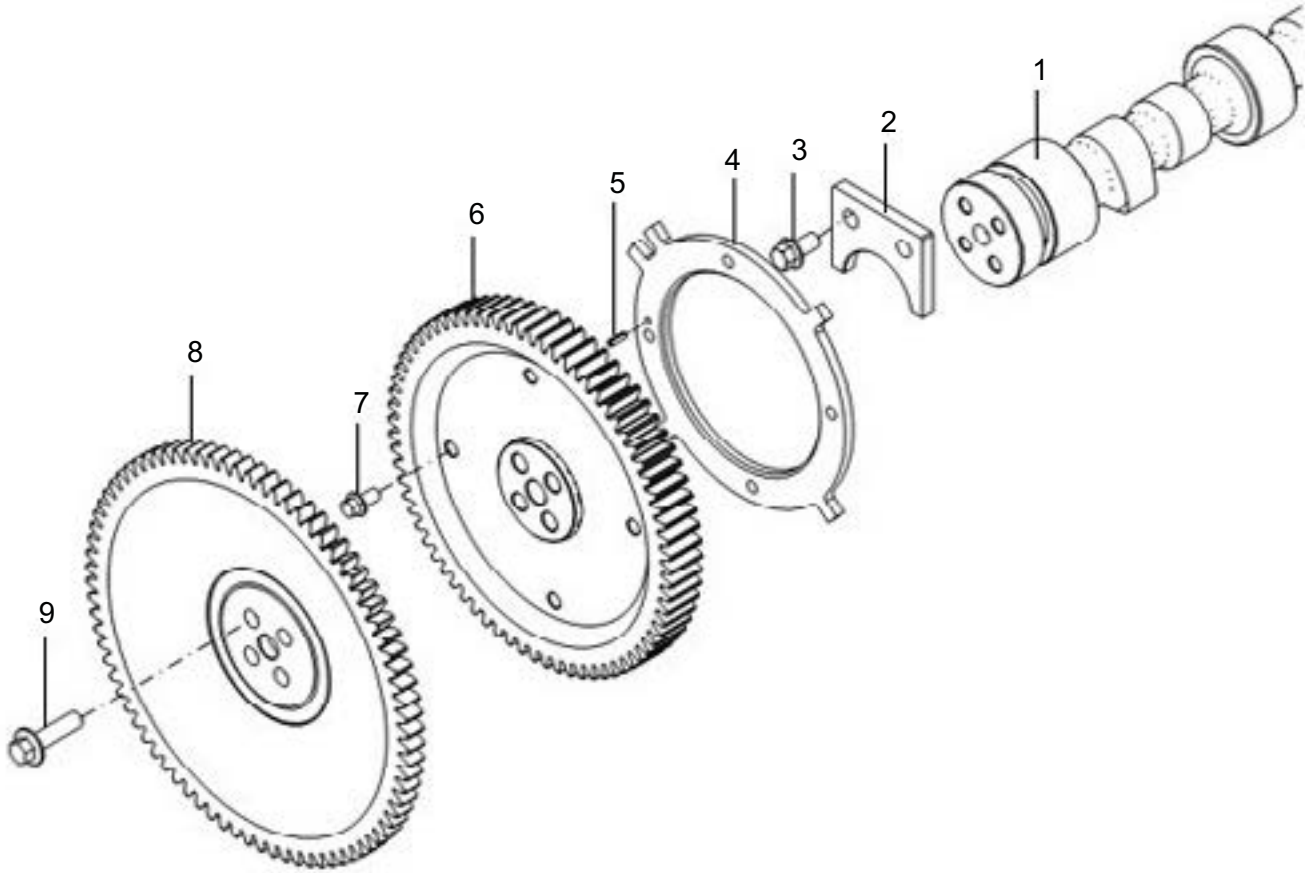


KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	941209740014E	4	Adjust shim	
2	941207040026E	1	Balancer unit, assembly	
3	941009730034E	1	Deflector	
4	902002420810E	3	Bolt M8 x 10	
5	902002431010E	4	Bolt M10 x 100	
6	941004320024E	4	Balancer unit bushing	
7	680804330034E	1	Thrust bearing - 3.6 mm	
7	922604330014E	1	Thrust bearing - 3.5 mm	
7	620804330024E	1	Thrust bearing - 3.4 mm	

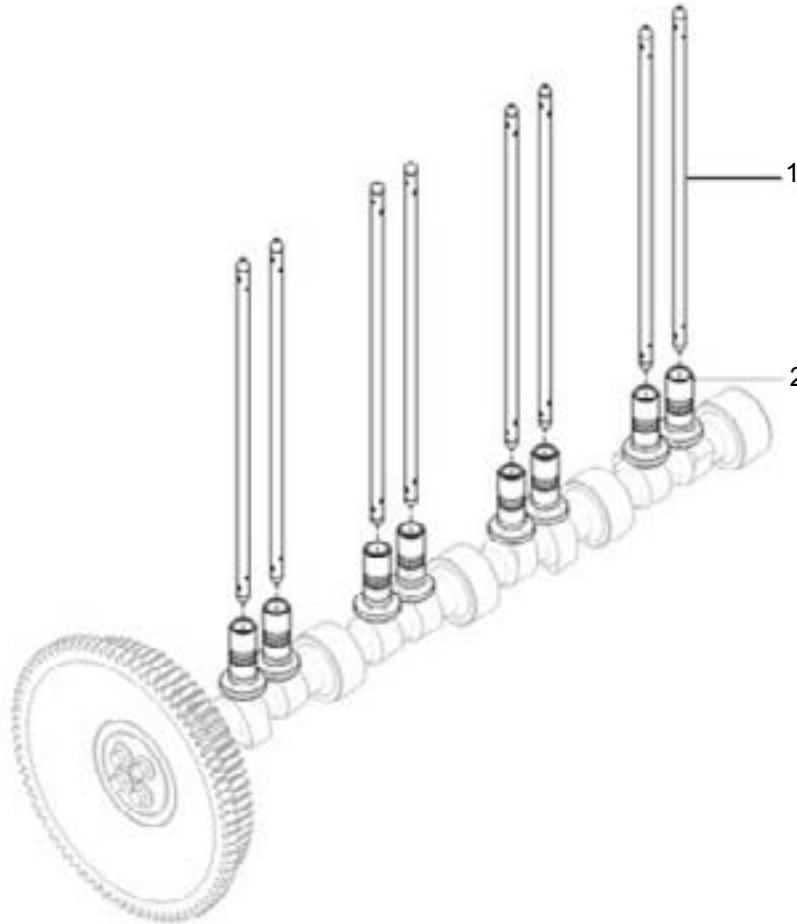


KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	902002421070E	3	Bolt M10 x 70	
2	961003400014E	1	Intermediate bearing disc	
3	961004330084E	1	Thrust bearing (3.43 mm)	
3	961004330094E	1	Optional Thrust bearing (3.48 mm)	
3	961004330104E	1	Optional Thrust bearing (3.54 mm)	
4	961203710025E	1	Intermediate gear	
5	961004320014E	1	Intermediate gear bushing	
6	961004210014E	1	Intermediate bearing	

Camshaft

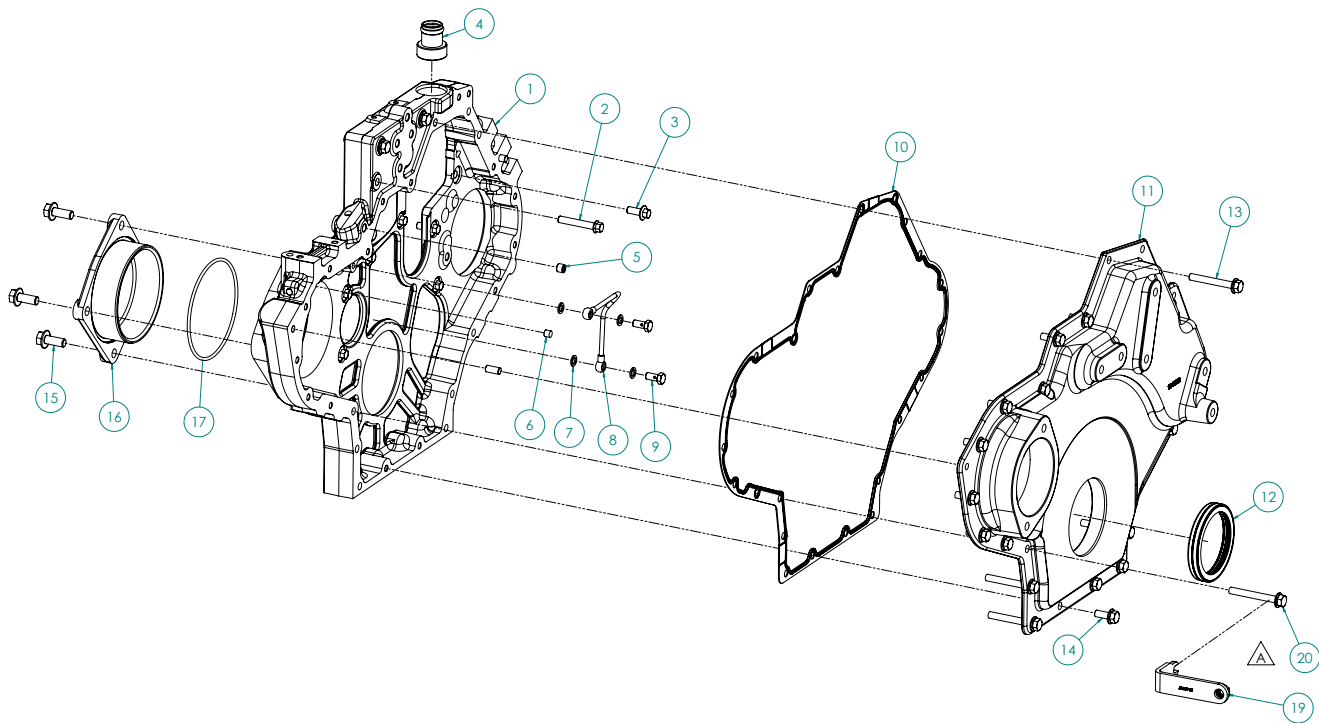


KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	7004000C91	1	Camshaft, Assembly	
2	7003026C1E	1	Lock	
3	602002600820E	2	Bolt M8 x 20	
4	961203780014E	1	Pulse wheel	
5	602201500310E	1	Expanding bushing	
6	7000475C1E	1	Camshaft gear	
7	7002017C1E	4	Bolt M6 x 12	
8	7004043C2E	1	Camshaft gear	
9	602002720830E	4	Bolt M8 x 30	

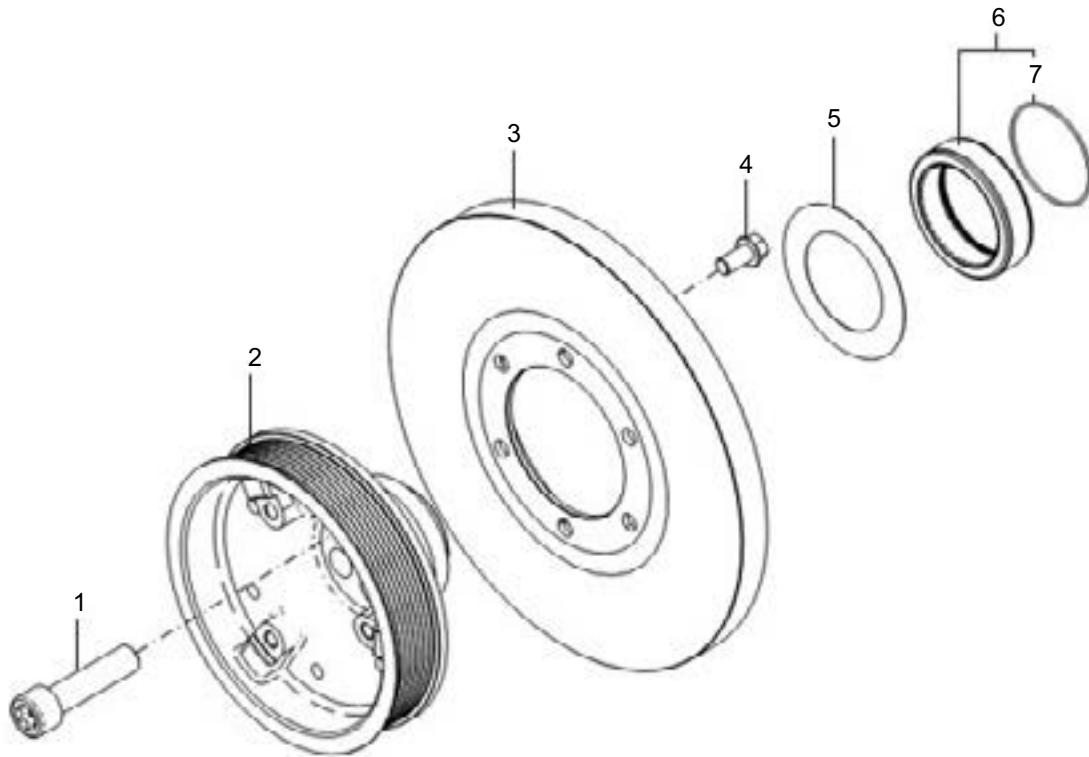


KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	7000861C1E	8	Push rod	
2	7001604C1E	8	Tappet - STD	

Timing Case and Cover

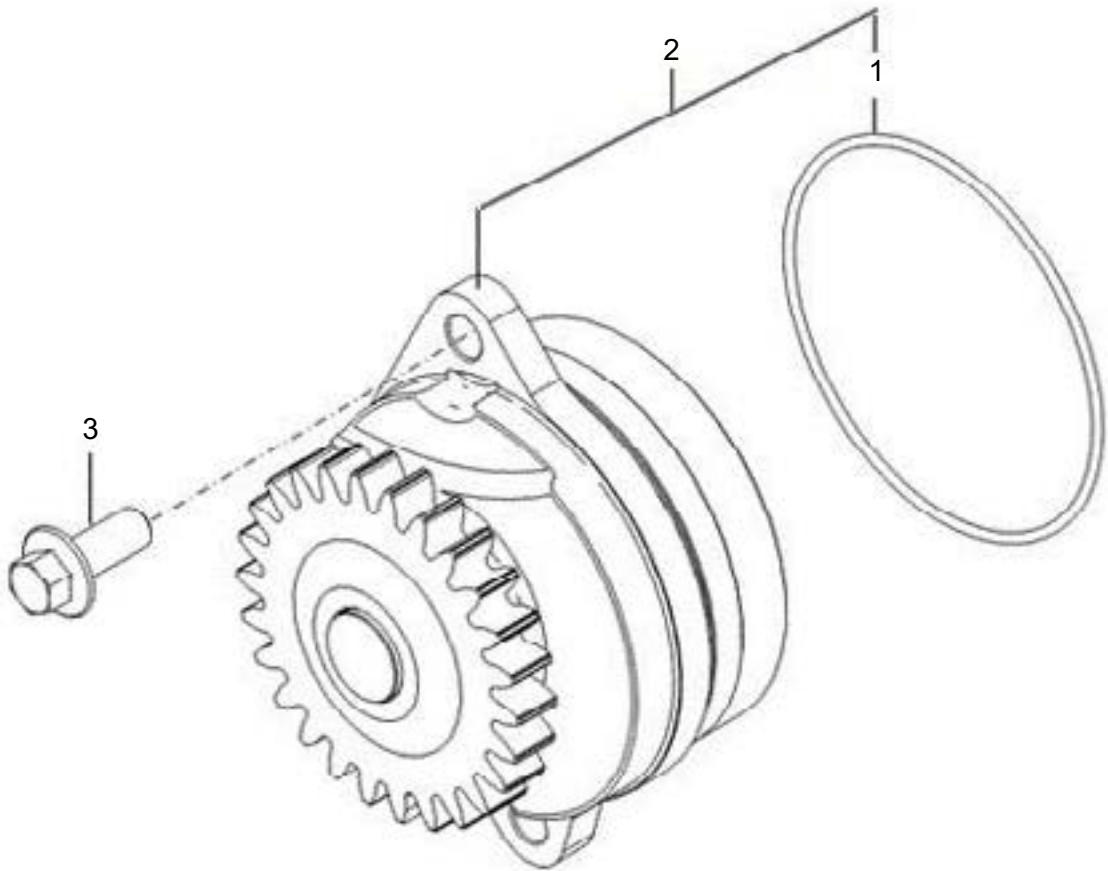


KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	7003043C1E	1	Gear housing	
2	19M7800	2	Capscrew, HX HD flanged, M8 x 1.25 x 50 mm	
2	902002420850E	1	Bolt M8 x 50 mm	
3	602002720820E	10	Bolt M8 x 20 mm	
4	941009420124E	1	Thermostat pipe connection	
5	602062101010E	1	Plug M10 x 1	
6	961003270044E	4	Metallic seal	
7	904921100814E	4	Sealing washer M8 x 2mm	
8	961209010035E	1	Pipe	
9	604043400005E	2	Hollow screw M8	
10	7002390C1E	1	Gear housing cover gasket	
11	10-06102	1	Timing gear cover	
12	7002801C1E	1	Retainer	
13	19M7801	8	Capscrew M8 x 1.25 x 60 mm	
14	19M7866	14	Capscrew M8 x 1.25 x 20 mm	
15	7001320C1E	3	Hexagonal flanged bolt M10 x 25 mm	
16	7004808C1	1	Cover, back side PTO	
17	7004980C1	1	O-ring	
19	23-06107	1	Bracket	
20	19M7802	1	Capscrew, M8 x 1.25 x 65 mm	

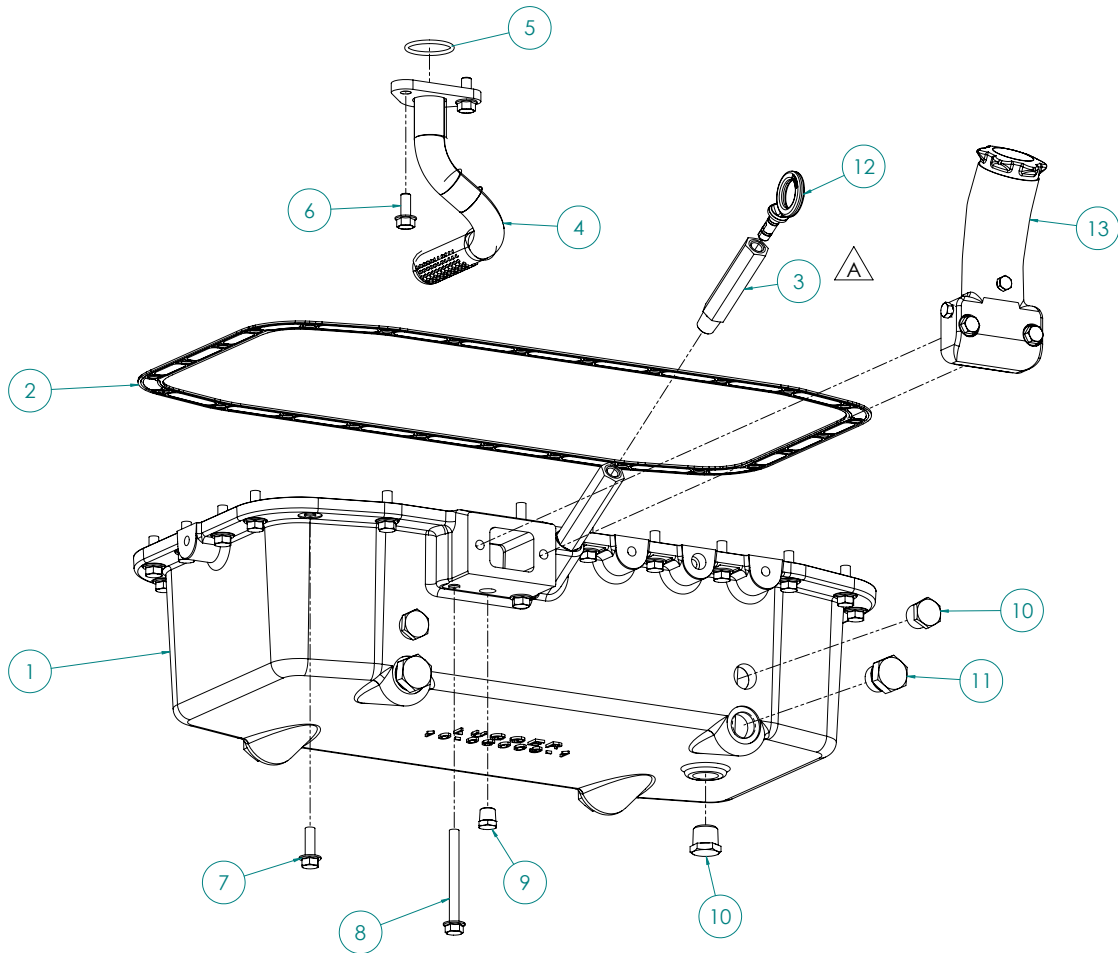


KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	7001443C1E	4	Cylindrical bolt	
2	941203810054E	1	Pulley	
3	941007030024E	1	Damper	
4	902002421020E	6	Bolt M10 x 20	
5	961209730024E	1	Protection washer	
6	961083300017	1	Crankshaft bushing (includes o-ring)	
7	7002851C1E	1	Sealing ring	

Lubricating Oil Pump

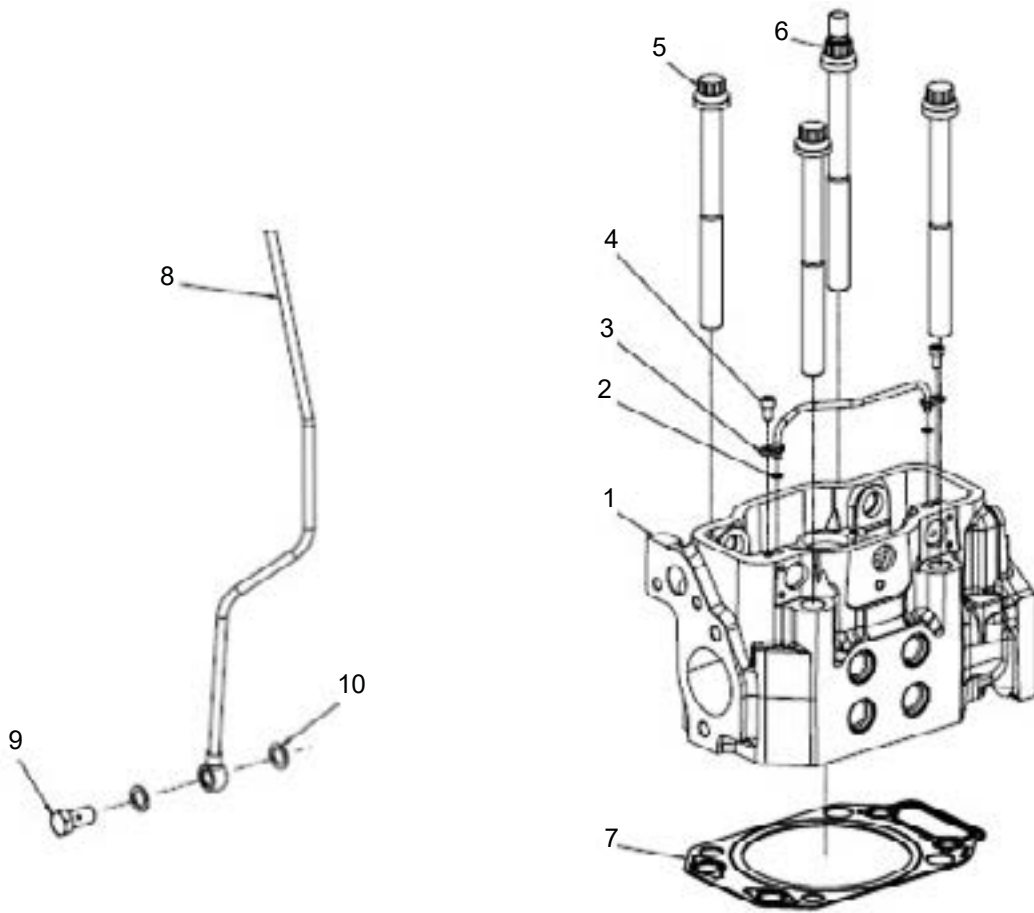


KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	904931360781E	1	O-ring	
2	7005478R91	1	Oil pump, kit	
3	602002720820E	2	Bolt M8 x 20	



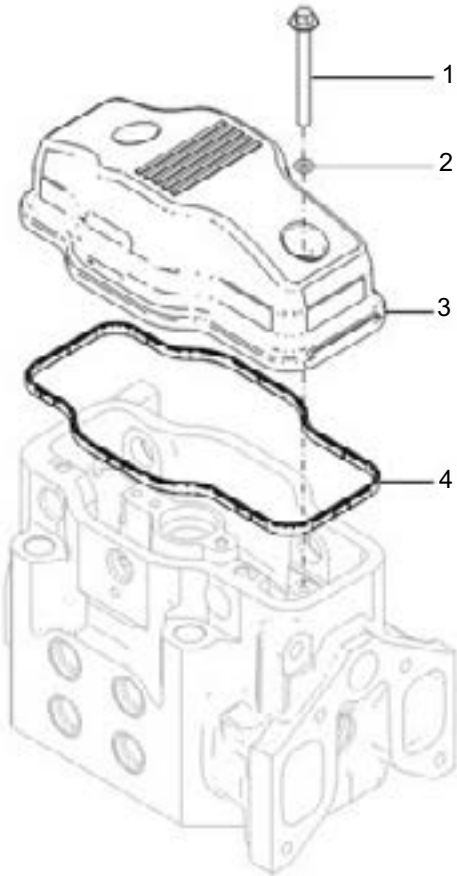
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	10-06009	1	Oil pan	
2	7006618C1E	1	Oil pan gasket	
3	31-06100	1	Adapter, oil pan dipstick	
4	94100901095E	1	Oil suction tube	
5	604931060353E	1	O-ring	
6	7004144C1E	2	Bolt M8 x 20 mm	
7	19M7867	24	Capscrew, HX HD flanged, M8 x 1.25 x 25 mm	
8	19M8039	2	Capscrew, HX HD flanged, M8 x 1.25 x 80 mm	
9	21-31624	2	Plug 1/4 NPT	
10	21-00530	5	Plug 1/2 NPT	
11	RE46687	4	Plug M22 x 1.5	
12	36-06101	1	Oil dipstick	
13	36-79500	1	Oil fill kit (w/o governor actuator)	

Cylinder Head



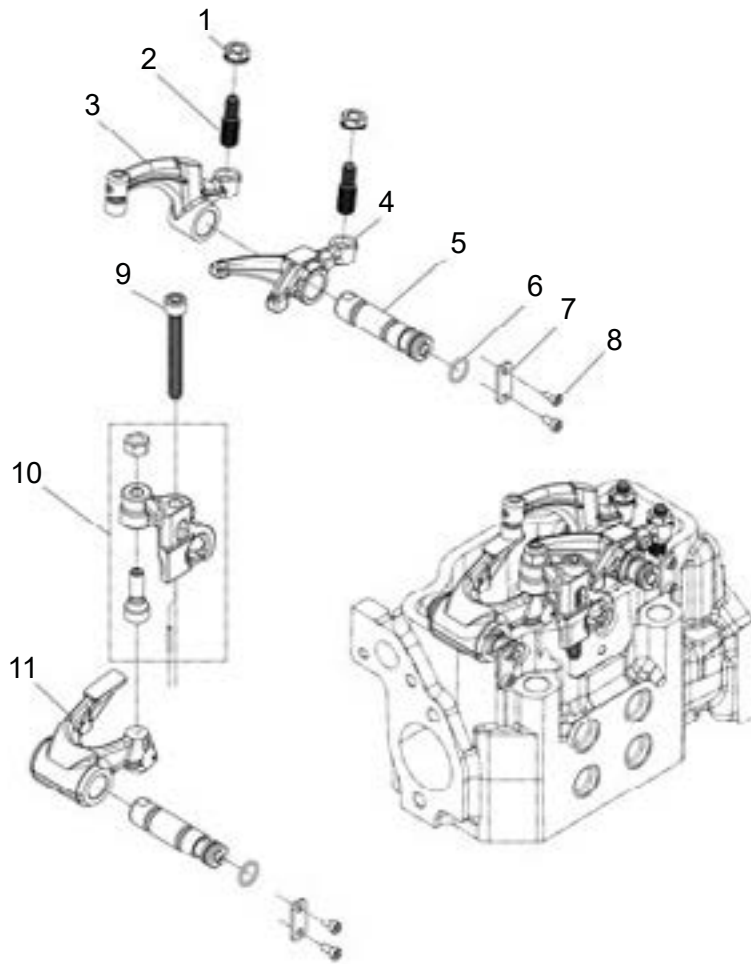
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	7005216C93	1	Cylinder head, assy	
2	7002285C1E	8	O-ring 4 x 1.5	
3	7002549C1E	4	Rockshaft lubrication assy	
4	602007300510E	8	Cylindrical bolt M5 x 10	
6	7001661C1E	16	Bolt M14 x 157	
7	7002797C1E	4	Cylinder head gasket 1.4 mm	
8	941209010475	1	Cj. valve drive lubrication tube	
9	7002085C1E	5	Hollow screw	
10	904921101016E	10	Sealing washer	

Valve Cover



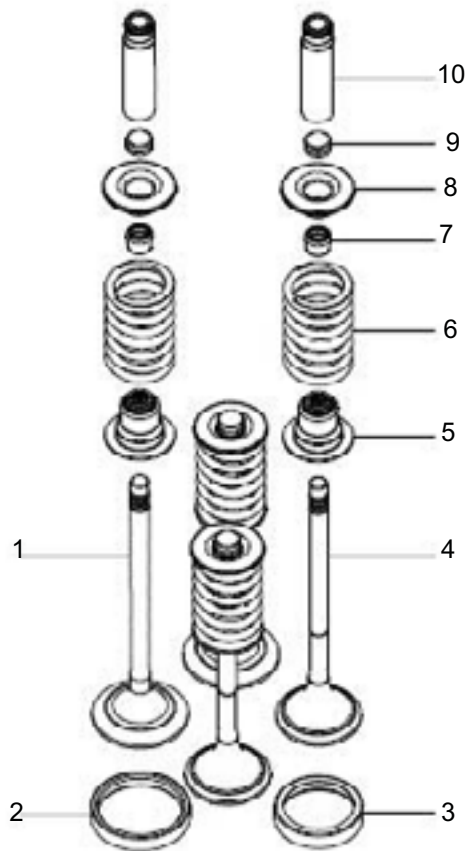
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	602002720660E	8	Bolt	
2	904931070051E	8	O-ring	
3	7003172C1E	4	Valve cover	
4	961208530104E	4	Valve cover gasket	

Rocker Arm



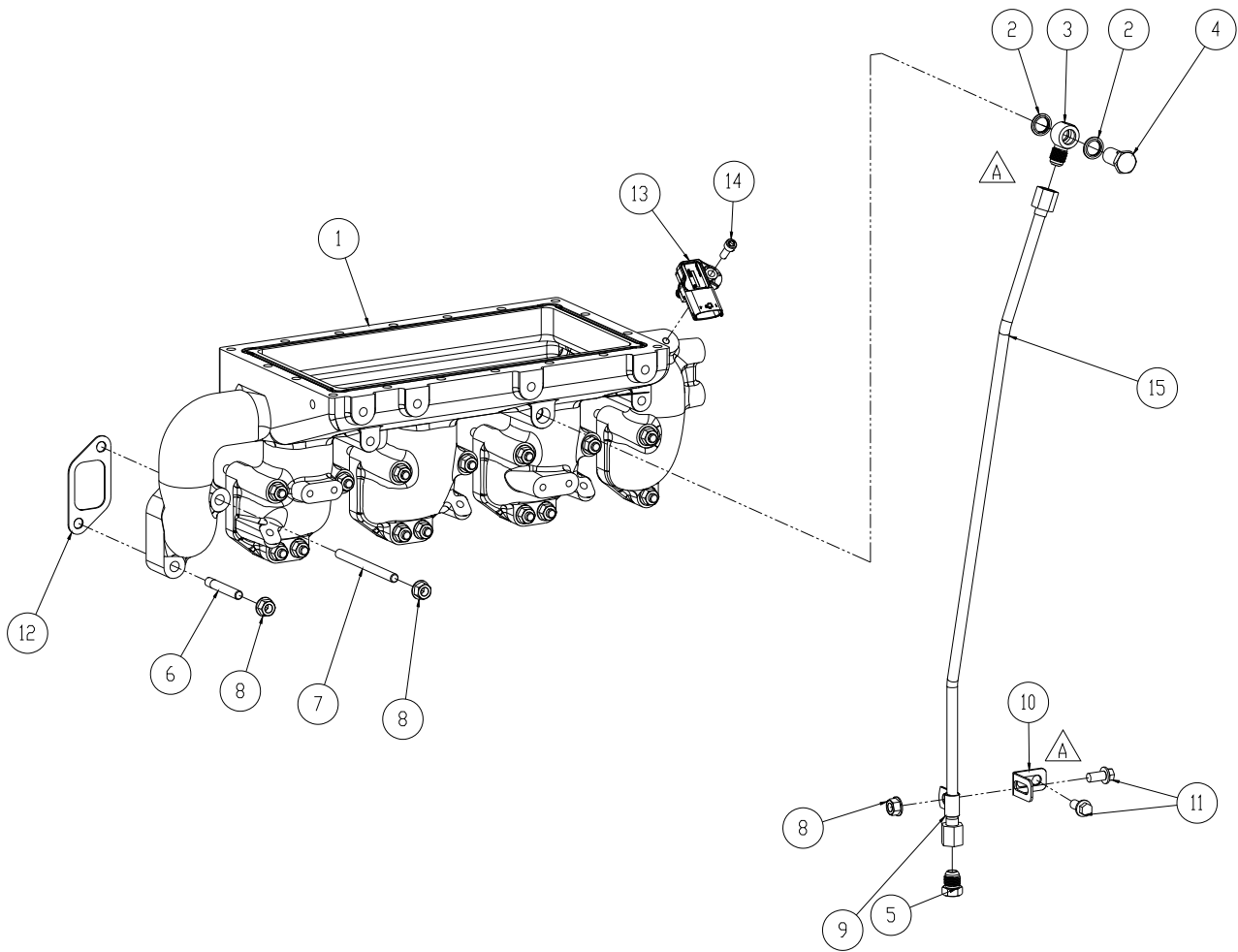
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	7002676C1E	8	Nut M8 special	
2	7001817C3E	8	Bolt - valve clearance adjustment	
3	7001820C91E	4	Rocker arm assembly - intermediate	
4	7001818C1E	4	Rocker arm - intake	
5	7005217C1E	4	Shaft rocker arm	
6	904931370121E	8	O-ring	
7	7005214C1E	8	Lock plate, shaft	
8	7005219C1E	16	Bolt, cylindrical hexagonal socket	
11	961206450034E	4	Rocker arm - exhaust	

Exhaust and Intake Valve



KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	7006680C1	8	Valve - intake	
2	7005589C1E	8	Valve seal - intake	
3	961203450043E	8	Valve seal - exhaust	
4	7006681C1E	8	Valve - exhaust	
5	7006205C1E	16	Seal, valve steam	
6	7001904C1E	16	Spring	
7	940704620024E	32	Valve keepers	
8	940703420044E	16	Valve spring retainer	
9	7005076C1E	16	Stem valve cap - 1.6 mm	
9	7005075C1E	16	Stem valve cap - 1.4 mm	
9	7001941C1E	16	Stem valve cap - 1.5 mm	
10	961203320023E	16	Valve guide (semi-finished)	

Intake Manifold

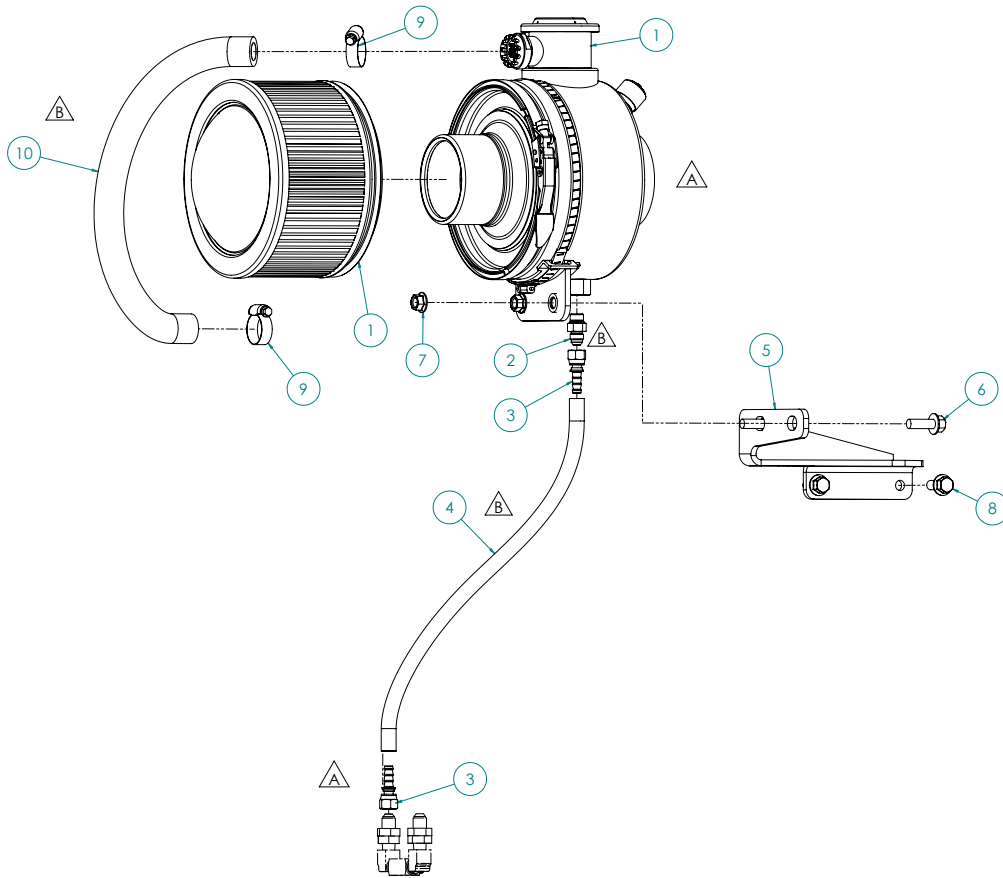


Intake Manifold

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	10-06005	1	Intake manifold	
2	07005-01412	2	Sealer washer, bonded M14	
3	21-06105	1	Banjo fitting M14	
4	07206-11014	1	Banjo bolt M14 x 1.5 x 25 mm	
5	21-29504	1	Drain, aftercooler condensate	
6	13-06102	8	Stud, M8 x 1.25 x 45 mm	
7	13-06103	8	Stud, all threaded M8 x 1.25 x 100	
8	14M7298	17	Hex nut, flanged M8 x 1.25	
9	19-72252	1	Adelle clamp	
10	23-06208	1	Bracket, condensation tube	
11	12-80709	2	Capscrew, HX HD flanged, M8 x 1.25 x 12mm	
12	961208530134E	8	Intake manifold gasket	
13	7007005C1E	1	Sensor, pressure and temperature	
14	7001998C1E	1	Bolt M6 x 12mm	
15	27-06113	1	Aftercooler condensation drain tube	

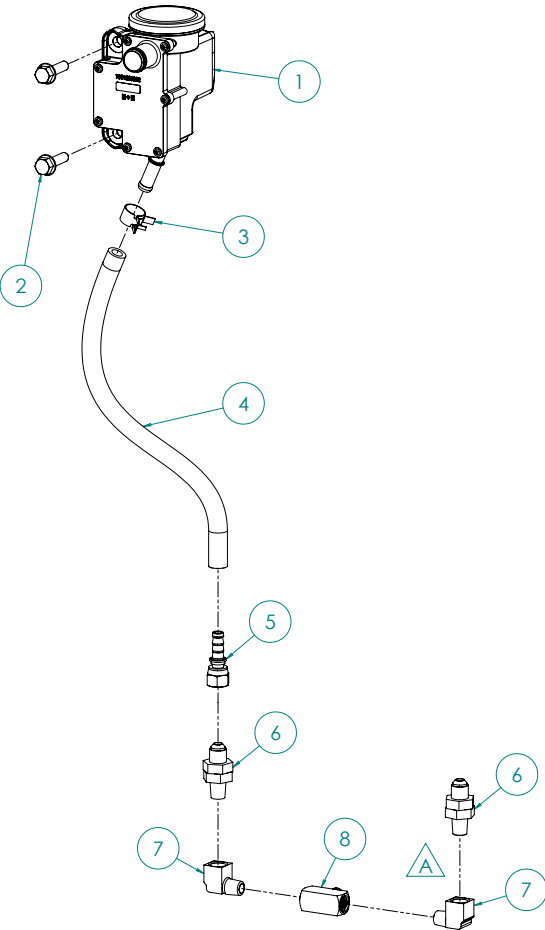
GROUP 2 - INTAKE AND EXHAUST SYSTEMS

Air Filter and Mounting



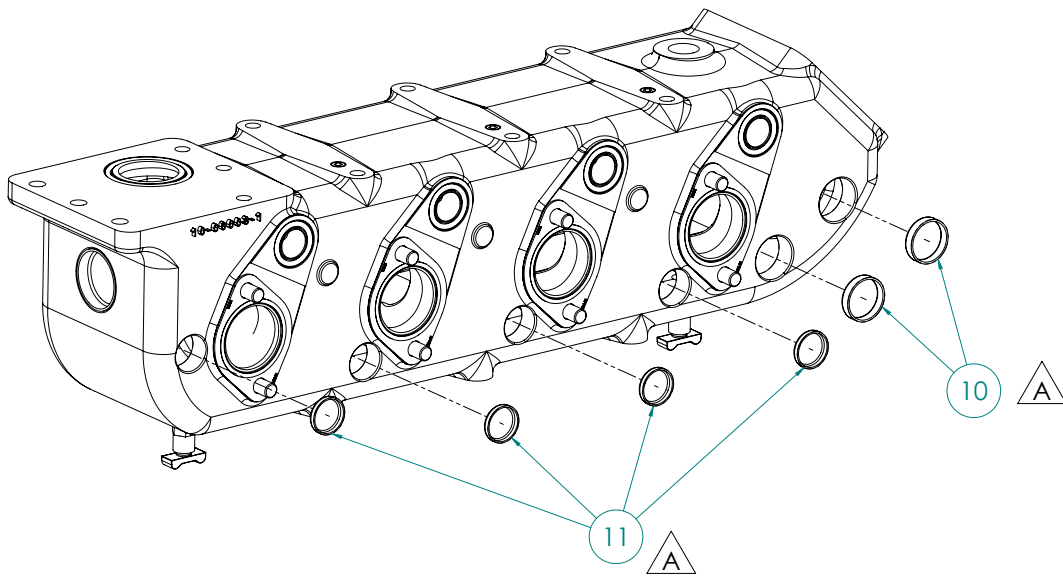
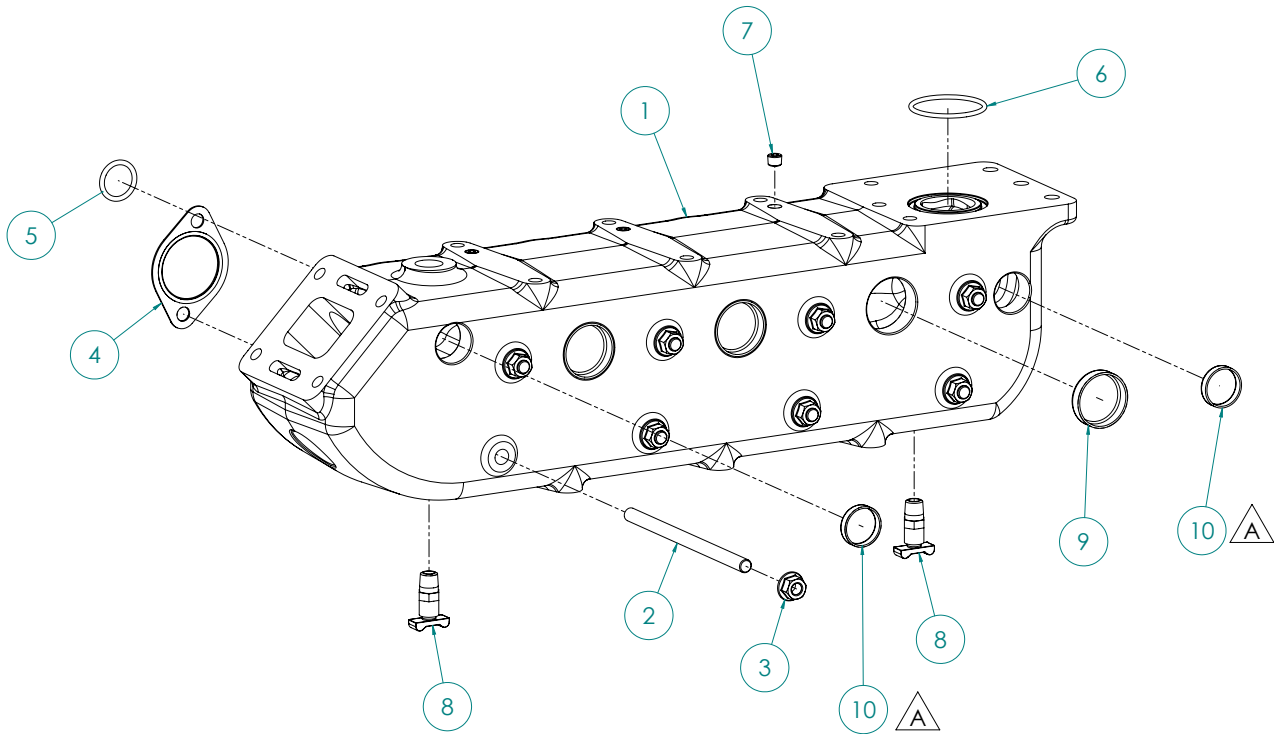
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	24-06202	1	Air Filter Assembly - 8" QT Series AIRSEP	
2	23-06109	1	Male Connector, steel 3/8 - 37T x 3/8 O-ring port	
3	21-71034	2	Female swivel, brass 3/8 HB x 3/8 - 37T push-on	
4	41-01020	22	Hose 3/8" ID	
5	23-06209	1	Bracket, air intake filter	
6	12-80832	2	Capscrew HX HD flanged M10 x 1.5 x 30 mm	
7	14-80811	2	Hex nut, flanged M10 x 1.5	
8	19M7785	2	Capscrew, HX HD flanged M10 x 1.5 x 25 mm	
9	19-00012	2	Hose clamp #12 S/S	
10	41-01050	18	Hose 3/4" ID	

Crankcase Breather



KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	7001385C92E	1	Lube oil separator	
2	7001328C1E	2	Bolt M8 x 30 mm	
3	904015500017E	1	Hose clamp 5/8" ID	
4	41-01020	13	Hose 3/8" ID 1-ply fibre	
5	21-71034	1	Female swivel, brass 3/8 HB x 3/8 - 37T push-on	
6	21-20002	2	One way valve, brass 1/4 NPT x 3/8 - 37T	
7	21-51098	2	Street Elbow 90° brass 1/4 NPT	
8	21-21006	1	Male branch tee, brass 1/4 NPT	

Exhaust Manifold

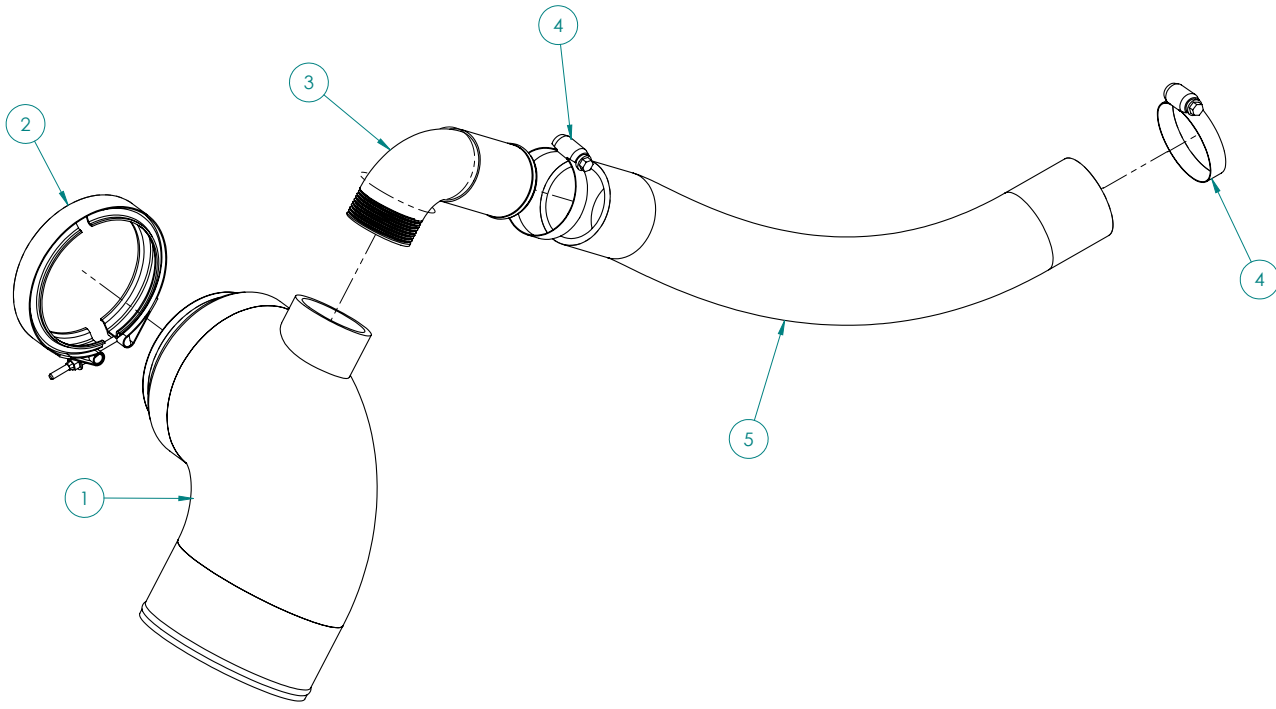


Exhaust Manifold

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	10-06003	1	Exhaust manifold	
2	13-00611	8	Stud M10 x 1.5 x 170 mm	
3	14-80811	8	Hex nut, flanged M10 x 1.5	
4	961208530144E	4	Exhaust manifold gasket	
5	904931060241E	4	O-ring, 24 mm ID x 3.5 mm	
6	16-14804	1	O-ring, 2" ID x 1/8"	
7	21-00027	3	Plug, brass 1/8 NPT	
8	21-10002	2	Drain cock, brass 1/4 NPT	
9	17-10001	8	Expansion plug, brass 1-5/8"	
10	17-10009	4	Expansion plug, brass 30mm	
11	17-10002	4	Expansion plug, brass 1"	

Exhaust Elbow

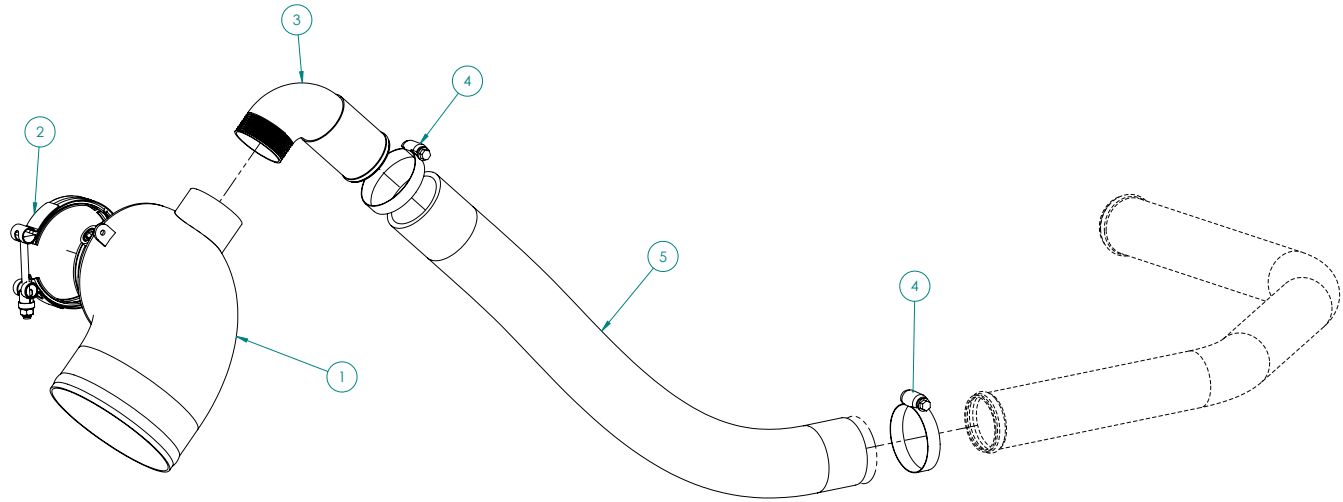
Wet Exhaust Elbow, 60 Hz



KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	27-36108	1	Elbow, wet exhaust 5" S/S	
2	RE47537	1	V-clamp	
3	21-10074	1	Male elbow, 90°, copper	
4	19-04032	2	Hose clamp	
5	41-31005	20	Hose, 2"ID wire reinforced, 3" bend radius, Lloyds Approved	

Exhaust Elbow

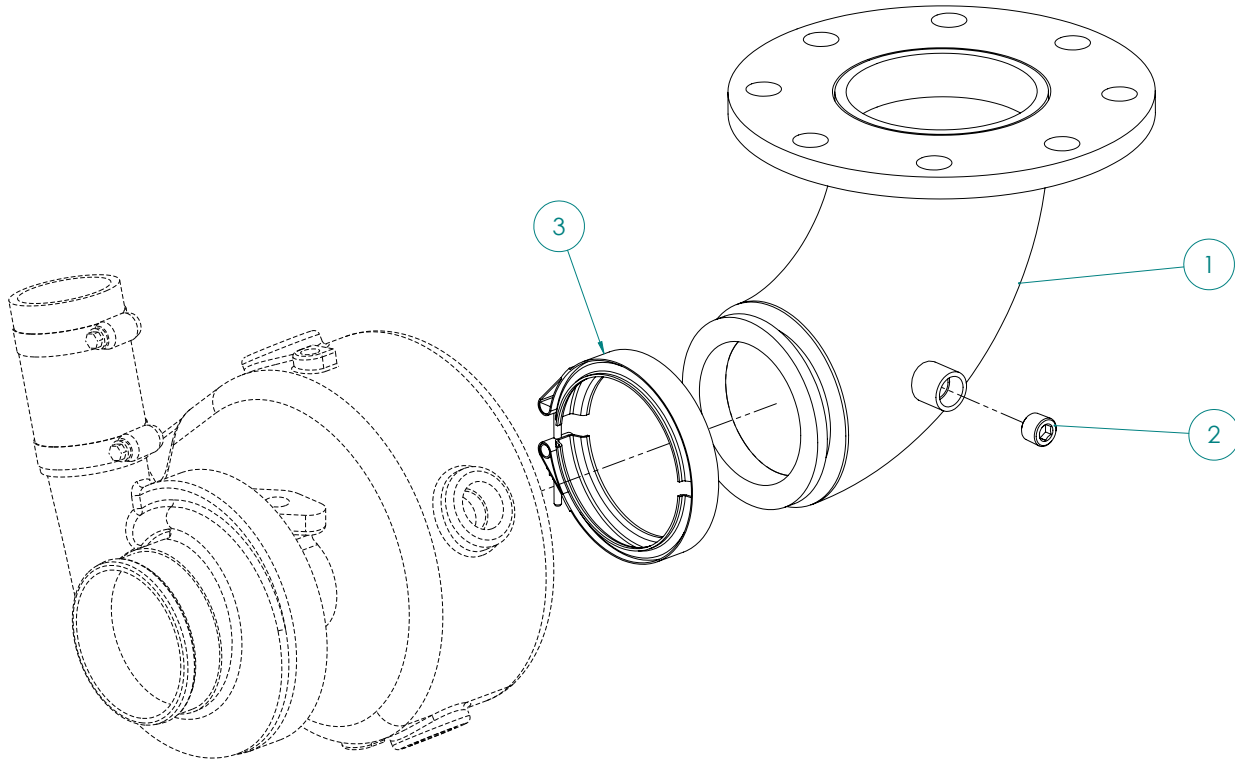
Wet Exhaust Elbow, 50 Hz



KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	27-36104	1	Elbow, wet exhaust 5" S/S	
2	19-31401	1	V-clamp	
3	21-10074	1	Male elbow, 90°, copper	
4	19-04032	2	Hose clamp	
5	41-31005	20	Hose, 2"ID wire reinforced, 3" bend radius, Lloyds Approved	

Exhaust Elbow

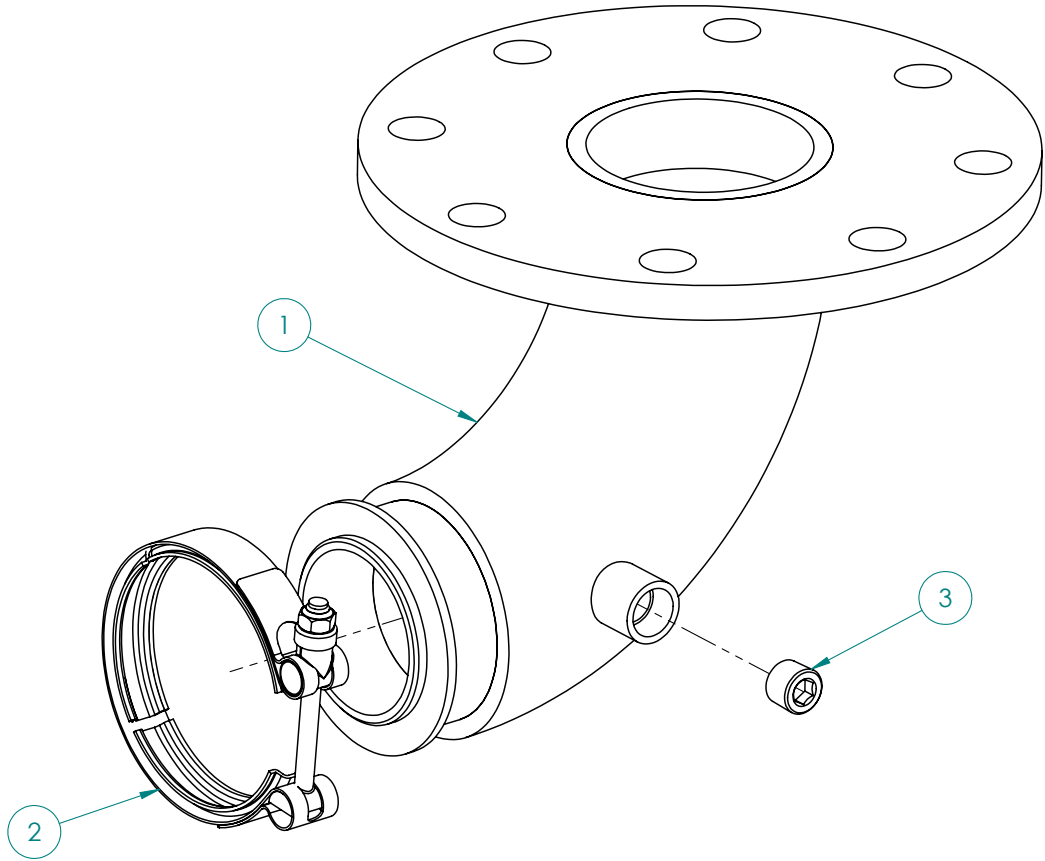
Dry Exhaust Elbow, 60 Hz



KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	27-36105	1	Elbow, dry exhaust 4"	
2	RE47537	1	V-clamp	
3	21-10055	1	Plug, brass 3/8 NPT	
	00-36104	1	Exhaust lagging (not shown)	

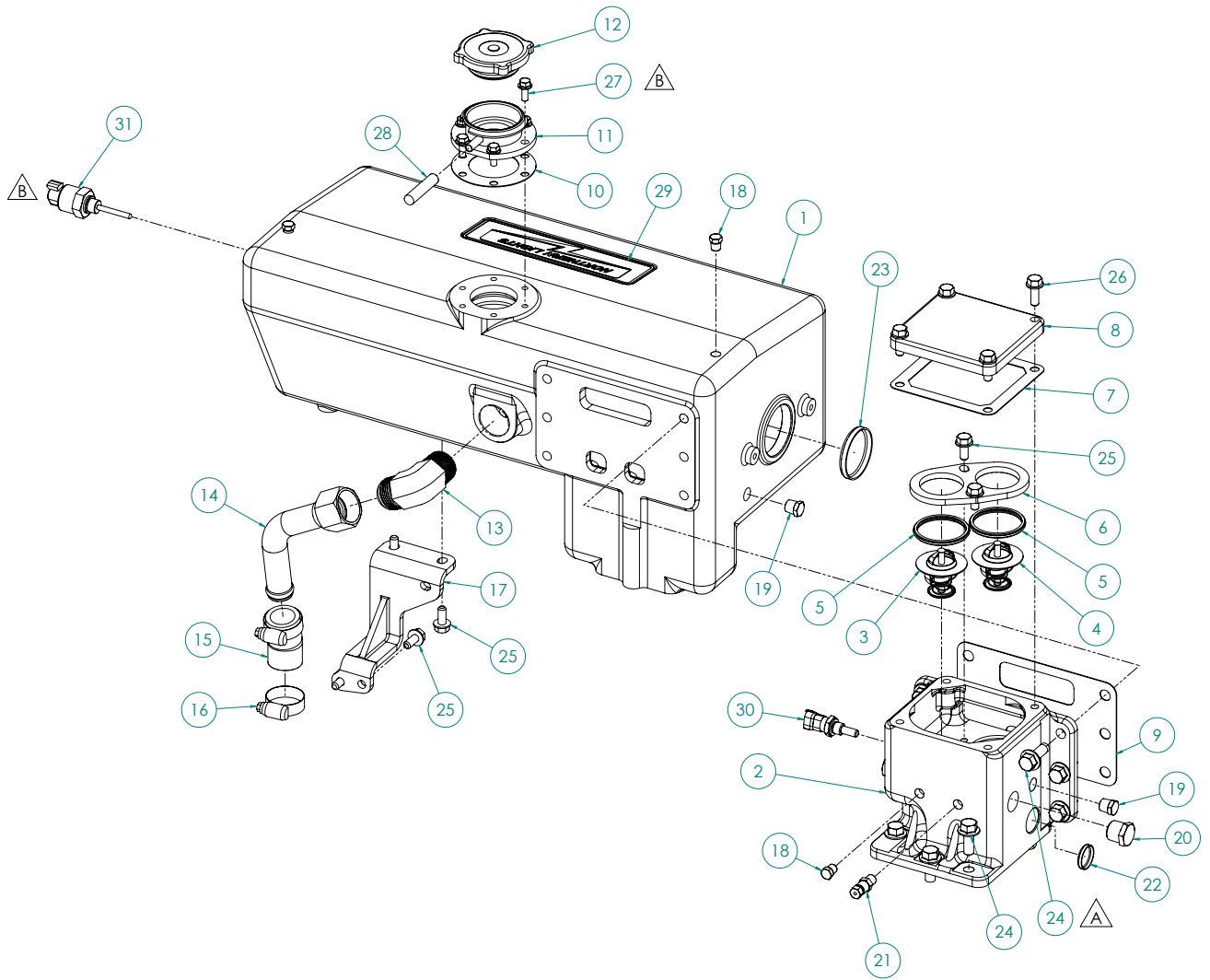
Exhaust Elbow

Dry Exhaust Elbow, 50 Hz



KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	27-36106	1	Elbow, dry exhaust 3"	
2	19-31401	1	V-clamp	
3	21-10055	1	Plug, brass 3/8 NPT	
	00-36104	1	Exhaust lagging (not shown)	

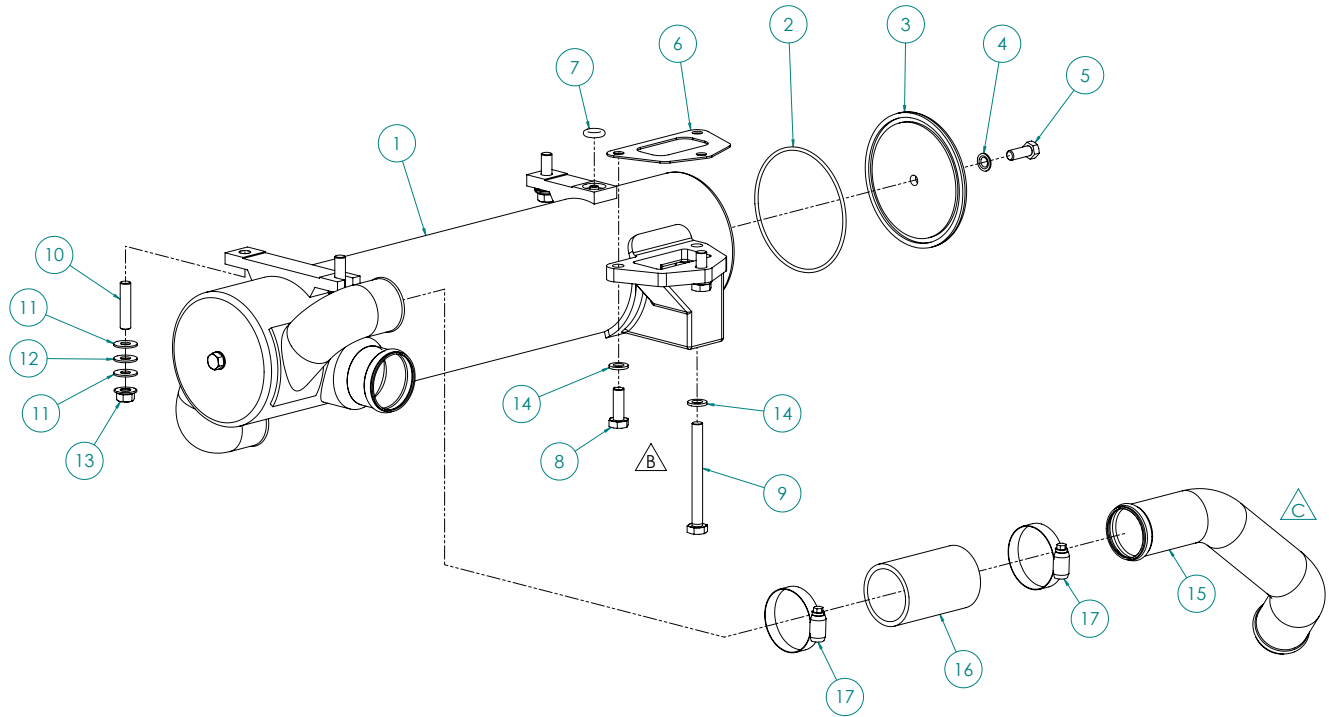
Expansion Tank and Thermostat



Expansion Tank and Thermostat

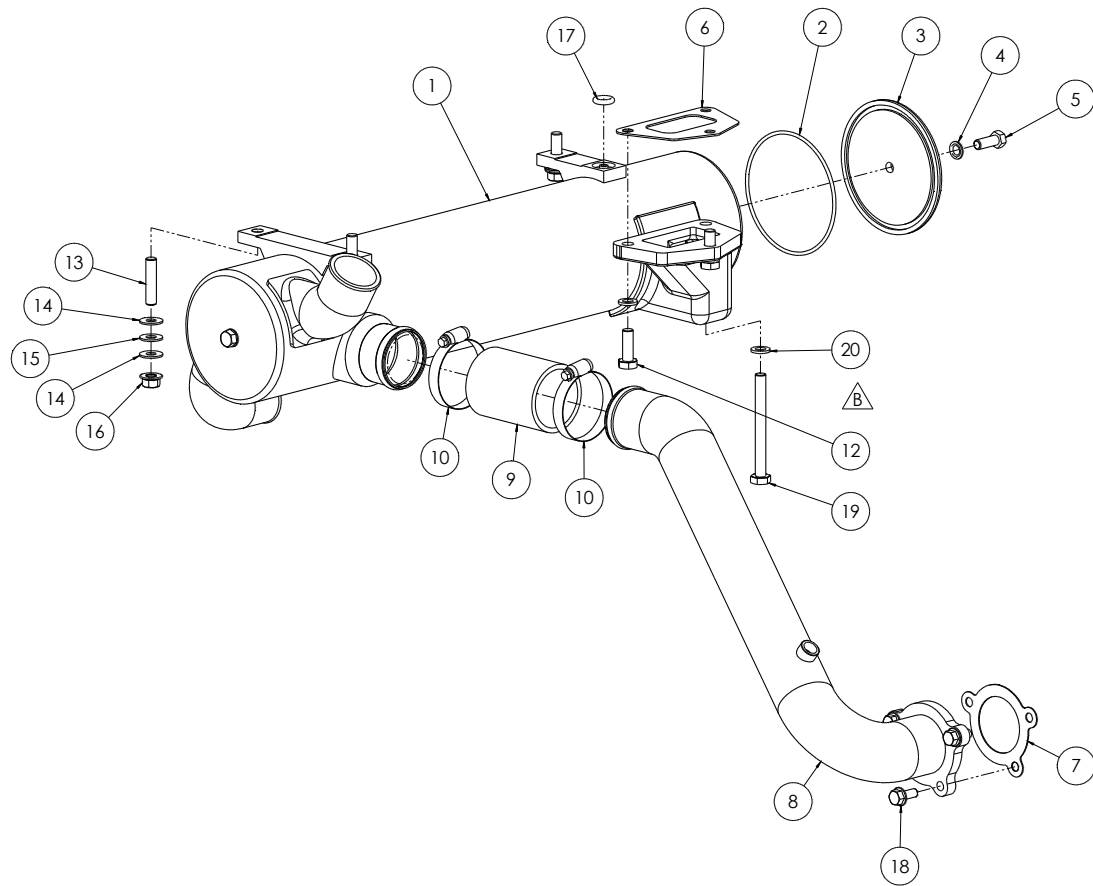
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	10-06104	1	Expansion tank	
2	10-06109	1	Housing, thermostat	
3	35-11000	1	Thermostat 180°F / 82°C 52mm OD S/S	
4	35-12500	1	Thermostat 169°F / 76°C 52mm OD S/S	
5	11-10015	2	Sealing ring, thermostat	
6	35-11004	1	Clamp, dual thermostat retainer	
7	11-11013	1	Cover, thermostat cover mounting	
8	10-11024	1	Cover, thermostat housing	
9	11-06101	1	Gasket, thermostat housing	
10	11-11022	1	Gasket, filler neck mounting	
11	10-11203	1	Filler neck assembly	
12	21-19510	1	Filler cap - 10 PSI single seal	
13	21-64901	1	Male elbow 90° steel	
14	27-06100	1	Tube, coolant bypass	
15	18-12801	1	Hose 1" ID x 2-1/4"	
16	19-04016	2	Hose clamp #16 embossed band 316 SS	
17	23-06104	1	Bracket, expansion tank support	
18	21-00012	3	Plug, HX HD brass, 1/8 NPT	
19	21-31624	6	Plug, HX HD brass, 1/4 NPT	
20	21-00530	2	Plug, HX HD, brass 1/2 NPT	
21	21-10001	1	Drain cock, brass 1/8 NPT	
22	17-10002	2	Expansion plug, brass 1" shallow cup	
23	17-14901	4	Expansion plug, steel 2-9/64"	
24	19M7785	12	Capscrew, HX HD, flanged M10 x 1.5 x 25 mm	
25	19M7866	6	Capscrew, HX HD, flanged M8 x 1.25 x 20 mm	
26	19M7867	4	Capscrew, HX HD, flanged M8 x 1.25 x 25 mm	
27	19M7775	6	Capscrew, HX HD flanged M6 x 1.0 x 16 mm	
28	41-01013	30	Hose	
29	00-00006	1	Nameplate "Northern Lights" 196 mm x 55 mm	
30	961200690034E	1	Temperature sensor	

Heat Exchanger - M4105A



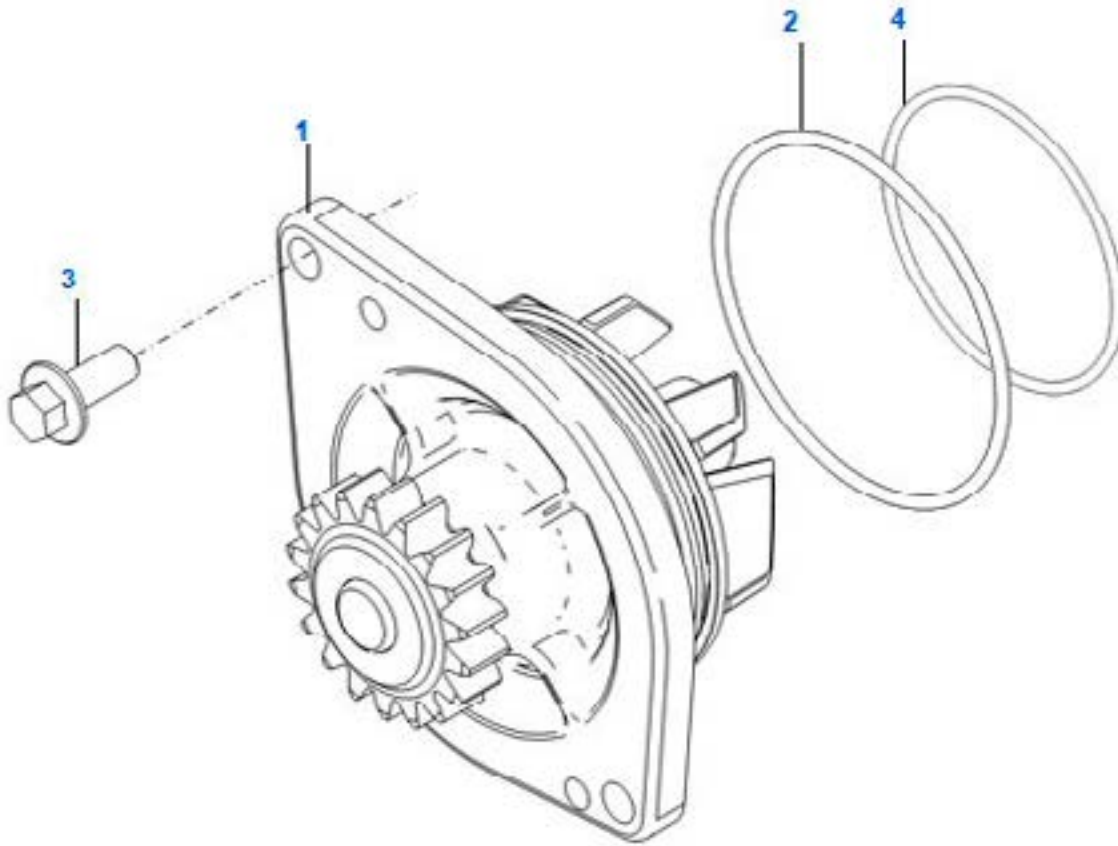
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	20-06104	1	Heat Exchanger	
2	16-19501	2	O-ring	
3	20-19502	2	End cover, heat exchanger	
4	15-19501	2	Sealing washer	
5	12-09312	2	Capscrew, HX HD 3/8-16 x 1"	
6	11-11043	1	Gasket, Heat exchanger / keel cooler outlet connection	
7	16-19502	1	O-ring 7/16" ID	
8	12-00832	2	Capscrew, HX HD M10 x 1.5 x 30 mm	
9	12-00070	1	Capscrew, HX HD M10 x 1.5 x 100 mm	
10	13-06104	3	Stud, all threaded M10 x 1.5 x 45	
11	15-00301	6	Flat washer 3/8"	
12	15-19504	3	Washer, Neoprene 0.390" ID x 0.865" OD x 0.062"	
13	14-80811	3	Hex nut, flanged M10 x 1.5	
14	15-00802	3	Lock washer, helical M10	
15	27-06109	1	Tube, raw water pump outlet	
16	18-26002	1	Hose 2" ID x 3-3/4"	
17	19-04032	2	Hose clamp #32 embossed band S/S	

Heat Exchanger - M4105H



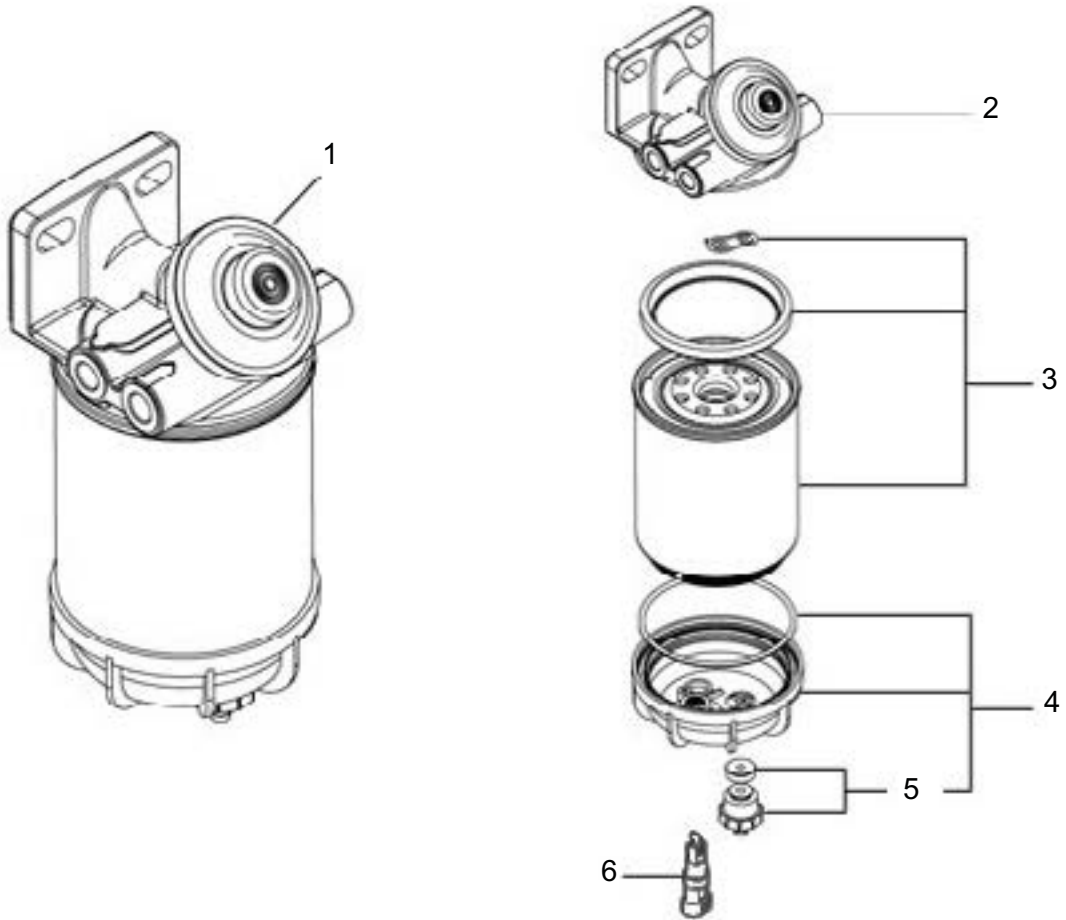
1	20-06101	1	Heat exchanger
2	16-19501	2	O-ring
3	20-19502	2	End cover, heat exchanger
4	15-19501	2	Sealing washer
5	12-09312	2	Capscrew, HX HD 3/8-16 x 1"
6	11-11043	1	Gasket, Heat exchanger / keel cooler outlet connection
7	941008530134E	1	Gasket, coolant inlet
8	27-06103	1	Tube, engine coolant inlet
9	18-19409	1	Hose, 2-14" ID x 3-1/2"
10	19-01036	2	Hose clamp
12	12-00832	2	Capscrew, HX HD flanged, M10 x 1.5 x 30 mm
13	13-06104	3	Stud, all threaded M10 x 1.5 x 45
14	15-00301	6	Flat washer
15	15-19504	3	Washer, Neoprene 0.390" ID x 0.865" OD x 0.062"
16	14-80811	3	Hex nut, flanged M10 x 1.5
17	16-19502	1	O-ring
18	7001324C1E	3	Capscrew, HX HD flanged, M8 x 20 mm
19	12-00070	1	Capscrew, HX HD M10 x 1.5 x 100 mm
20	15-00802	3	Lock washer

Water Pump



1	961207310116	1	Water pump assembly
2	7004117C1E	1	O-ring
3	602002720820E	2	Bolt M8 x 20
4	7004118C1E	1	O-ring

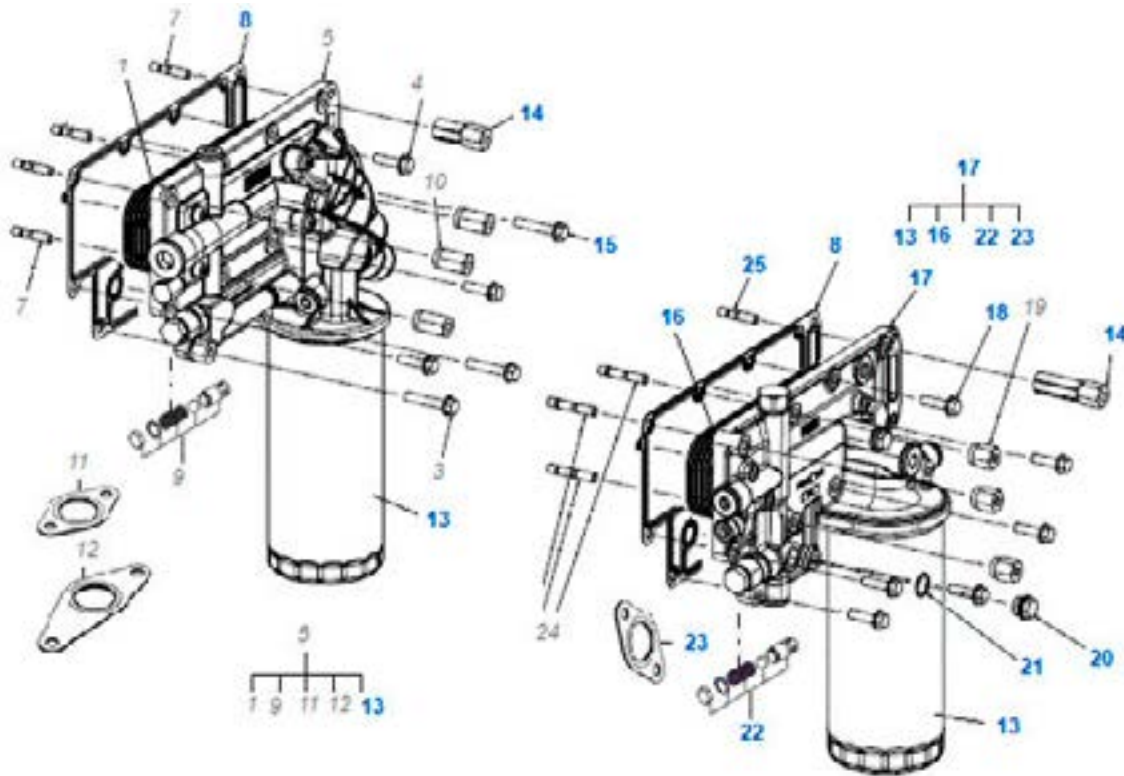
Water Separator Assembly



KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	7006650C3E	1	Fuel filter	
2	961080190074E	1	Head filter kit	
3	905411510043	1	Fuel filter, element	
4	961080190084E	1	Cup kit	
5	961080190126E	1	Drain, kit	
6	7006667R1	1	Water in fuel sensor	

GROUP 3 - COOLING SYSTEM

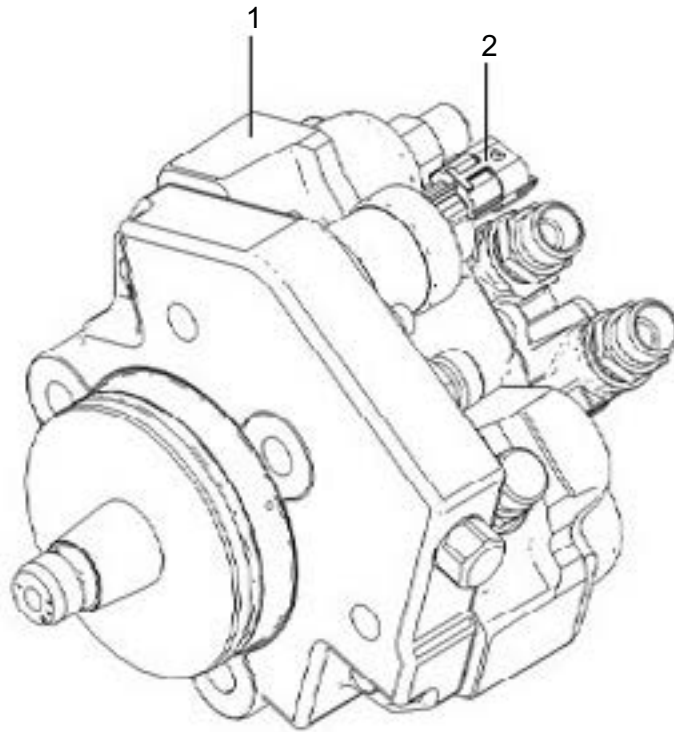
Filter and Oil Cooler



KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
8	7002852C1E	1	Oil cooler gasket	
13	905411880031E	1	Filter element	
14	7007066C1E	14	Spacer	
15	7002027C1E	3	Bolt M8 x 40	
16	7006658C1	1	Oil cooler	
17	7006655C91E	1	Cooler assembly, lubricant oil	
18	7001328C1E	6	Bolt M8 x 30	
20	7002470C1E	1	Plug	
21	904921101822E	1	Sealing washer	
22	7006666C1E	1	Pressure regulating valve	
23	7006661C1E	2	Oil cooler gasket	
25	602011080830E	1	Stud M8	

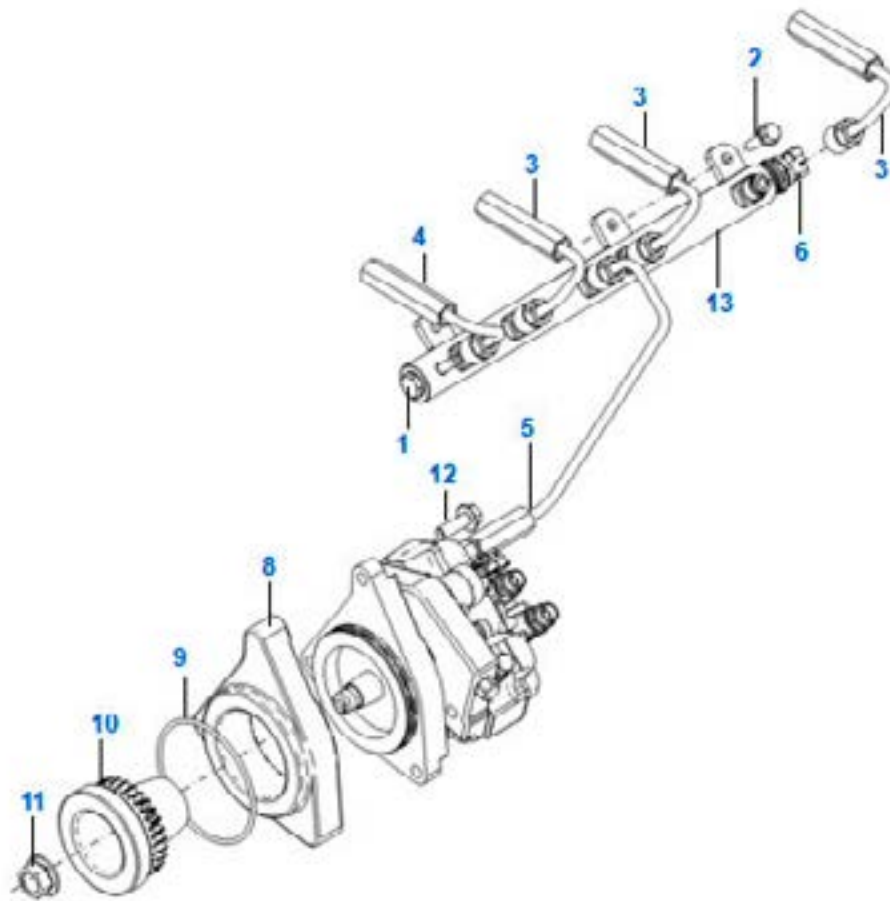


High Pressure Fuel Pump



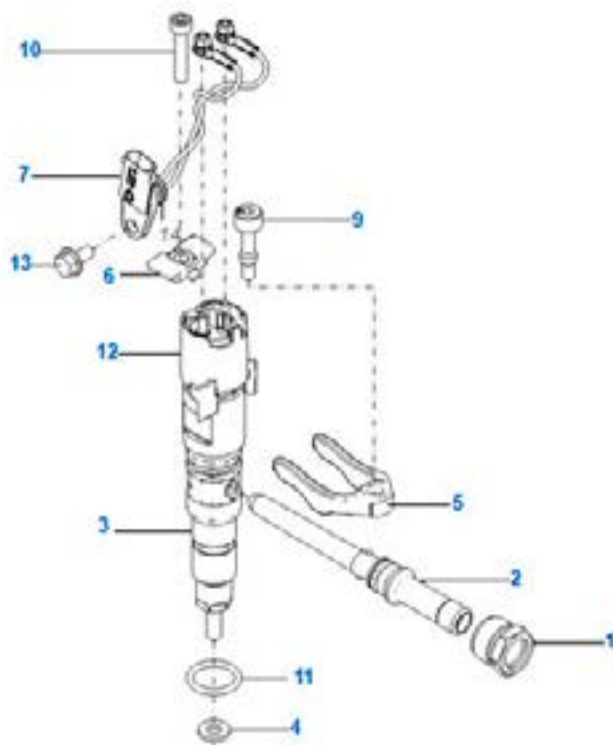
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	961207270034E	1	High pressure fuel pump	
2	961287670054E	1	Valve m-prop	

High Pressure Rail



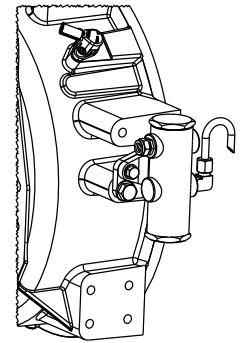
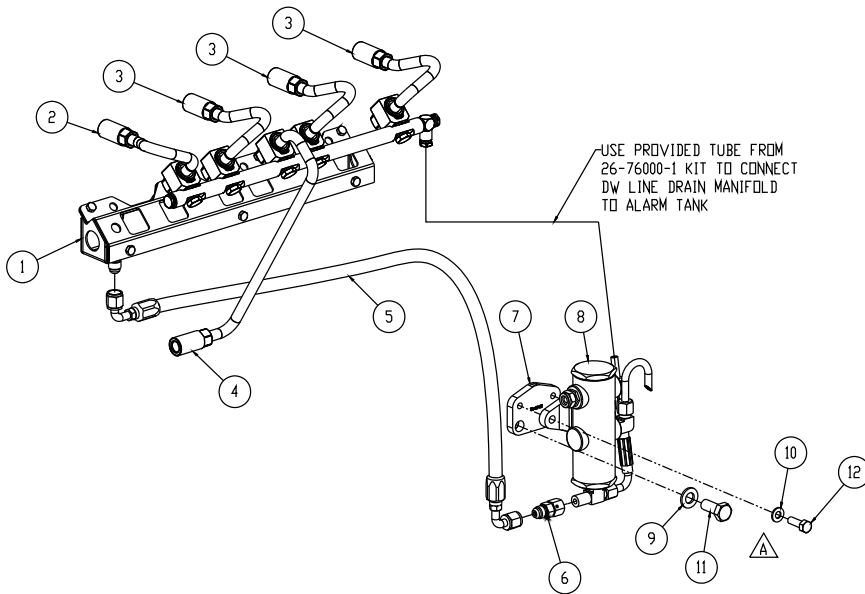
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	961287670044E	1	Pressure relief valve	
2	7001328C1E	3	Bolt M3 x 30	
3	941209060665	3	High pressure fuel pipe (cylinder 1, 2 and 3)	
4	941209060675E	1	High pressure fuel pipe (cylinder 4)	
5	961209060815	1	High pressure fuel pipe	
6	961287970034E	1	RDS sensor	
8	7003093C1E	1	Adapter flange, high pressure pump	
9	961208550014E	1	O-ring	
10	961203710124E	1	High pressure fuel pump gear	
11	940703600054E	1	Special nut M18	
12	7002042C1E	3	Hex flanged bolt M10 x 30	
13	941209070034E	1	Rail	

Fuel Injection System



KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	961203600114E	4	Nut M22	
2	961209060905E	4	High pressure fuel connector	
3	7006188C1E	4	Fuel injector	
4	940703400394E	4	Sealing washer (h = 2mm)	
5	961206530034E	4	Injector holder fixing clamp	
6	961206530044E	4	Fixation bridge	
7	7001957C1E	4	Wiring harness	
9	961203500044E	4	Bolt M6	
10	7002000C1E	4	Cylindrical bolt M6 x 30	
11	7002604C1E	4	O-ring	
12	7000700C1E	4	Cover, injector	
13	7002017C1E	4	Bolt M6 x 12	

Double Wall Fuel Lines

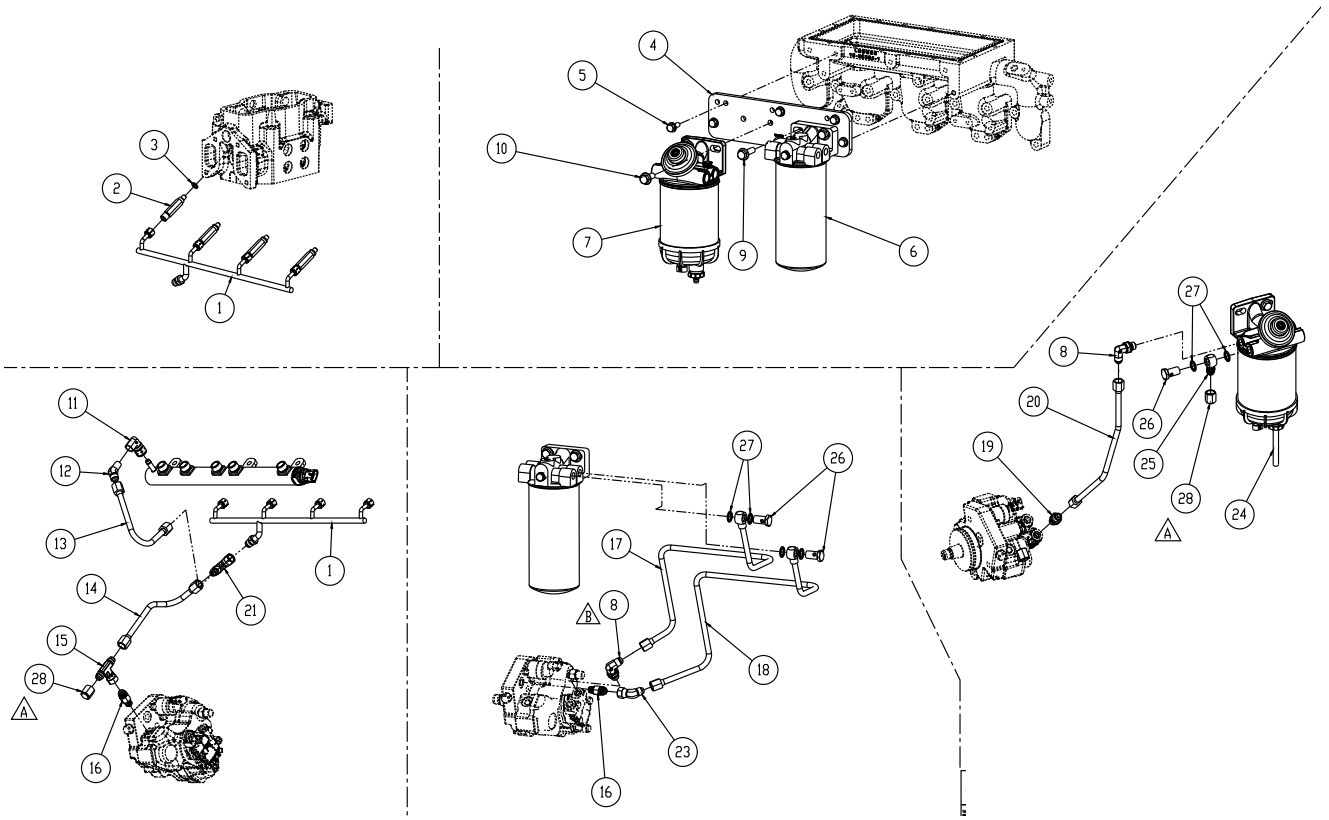


CROP VIEW
ALARM TANK MOUNTING :
SERVICE SIZE FLYWHEEL HOUSING

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	26-76005	1	Kit, spray shield & leak detection (HPCR)	
2	27-56010	1	Injection line #1; double wall	
3	27-56011	3	Injection line #2, 3, 4; double wall	
4	27-56012	1	HPCR supply line, double wall	
5	18-56001	1	Hose assembly 3/8" ID x 32"	
6	21-00160	1	Adapter, 3/8 - 37T (M) x 8mm	
7	23-56102	1	Bracket, alarm tank mounting	
8	10-50002	1	Alarm tank with inlet hose assembly	
9	15-00007	2	Flat washer M12	
10	15-00701	2	Flat washer M8	
11	12-00903	2	Capscrew, hex head M12 x 1.75 x 30mm	
12	12-00712	2	Capscrew, hex head M8 x 1.25 x 25mm	

GROUP 4 - FUEL SYSTEM

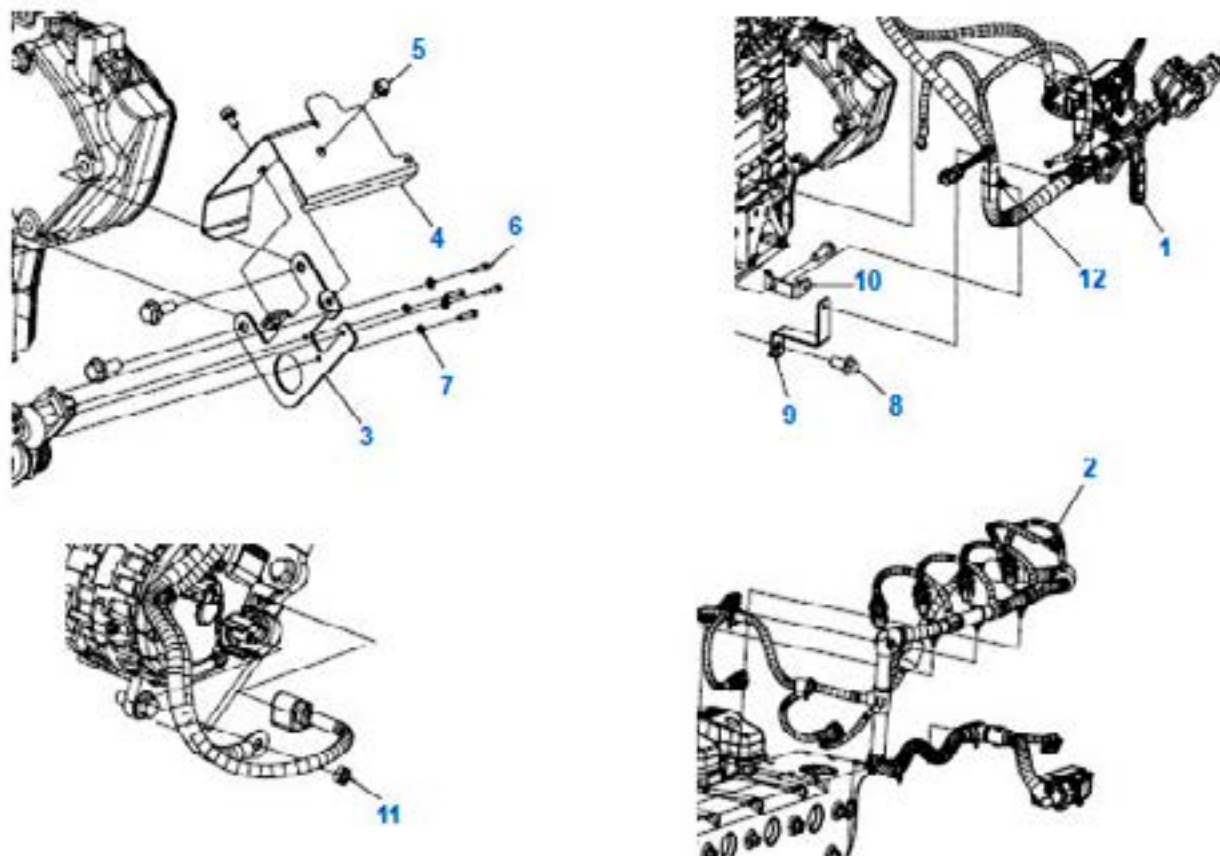
Low Pressure Fuel System



Low Pressure Fuel System

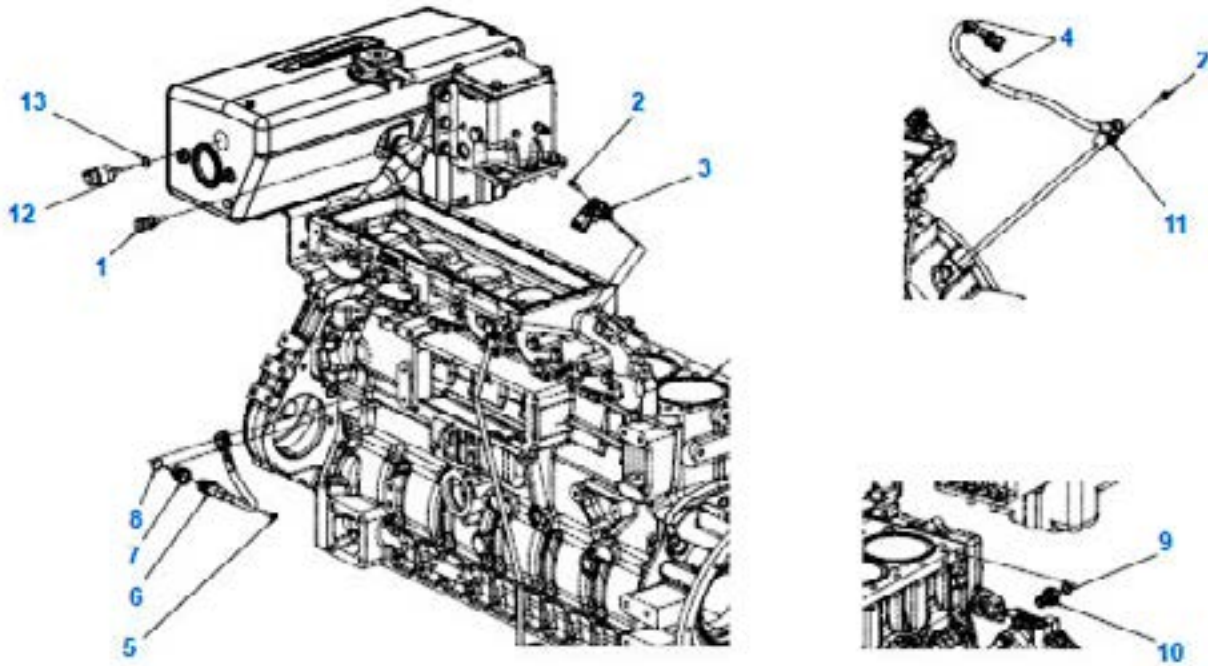
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	27-56001	1	Tube assembly, fuel return	
2	21-56201	4	Fuel return fitting to cylinder head	
3	904921100814E	4	Sealing washer, M8 x 2mm	
4	23-06100	1	Bracket, fuel filter mounting	
5	19M7867	5	Capscrew, HX HD flanged M8 x 1.25 x 25 mm	
6	7003994C1E	1	Fuel filter	
	905411510042	1	Filtering element	
7	7006650C2E	1	Fuel/water separator assembly	
8	21-54901	2	Male elbow, 90°, steel, M14 x 1.5 x 3/8 - 37T	
9	7002043C1E	2	Hexagonal flanged bolt M10 x 35 mm	
10	7001320C1E	2	Hexagonal flanged bolt M10 x 25 mm	
11	21-06106	1	Male elbow, 90°, brass, 1/4 FNPT x 5/16	
12	21-00035	1	Male elbow, 45° steel, 1/4NPT x 3/8 - 37T	
13	27-56007	1	Tube, common rail bypass (low pressure)	
14	27-56004	1	Tube, fuel pump overflow	
15	21-09506	1	Female swivel branch tee, steel 3/8 - 37T x 3/8 - 37T	
16	21-06102	2	Male connector, steel 3/8 -37T x M12 x 1.5	
17	27-56102	1	Tube, fuel pump to fuel filter	
18	27-56103	1	Tube, fuel filter to fuel pump	
19	21-56802	1	Male connector, steel 3/8-37T x M12 x 1.5	
20	27-56101	1	Tube, fuel/water separator to fuel pump	
21	21-00094	1	Swivel run tee, steel 3/8 - 37T	
22	21-71212	1	Male elbow, 90° steel M14 x 1.5 x 3/8 - 37T	
23	21-59519	1	Elbow 45o, swivel, steel 3/8 - 37T	
24	961008610254E	1	Drain hose	
25	21-06105	1	Banjo fitting M14 x 3/8 - 37T	
26	07206-11014	3	Banjo bolt M14 x 1.5 x 25mm	
27	07005-01412	6	Sealing washer, bonded M14	
28	21-50074	2	Cap, hex steel 3/8 - 37T	

Electrical Harness



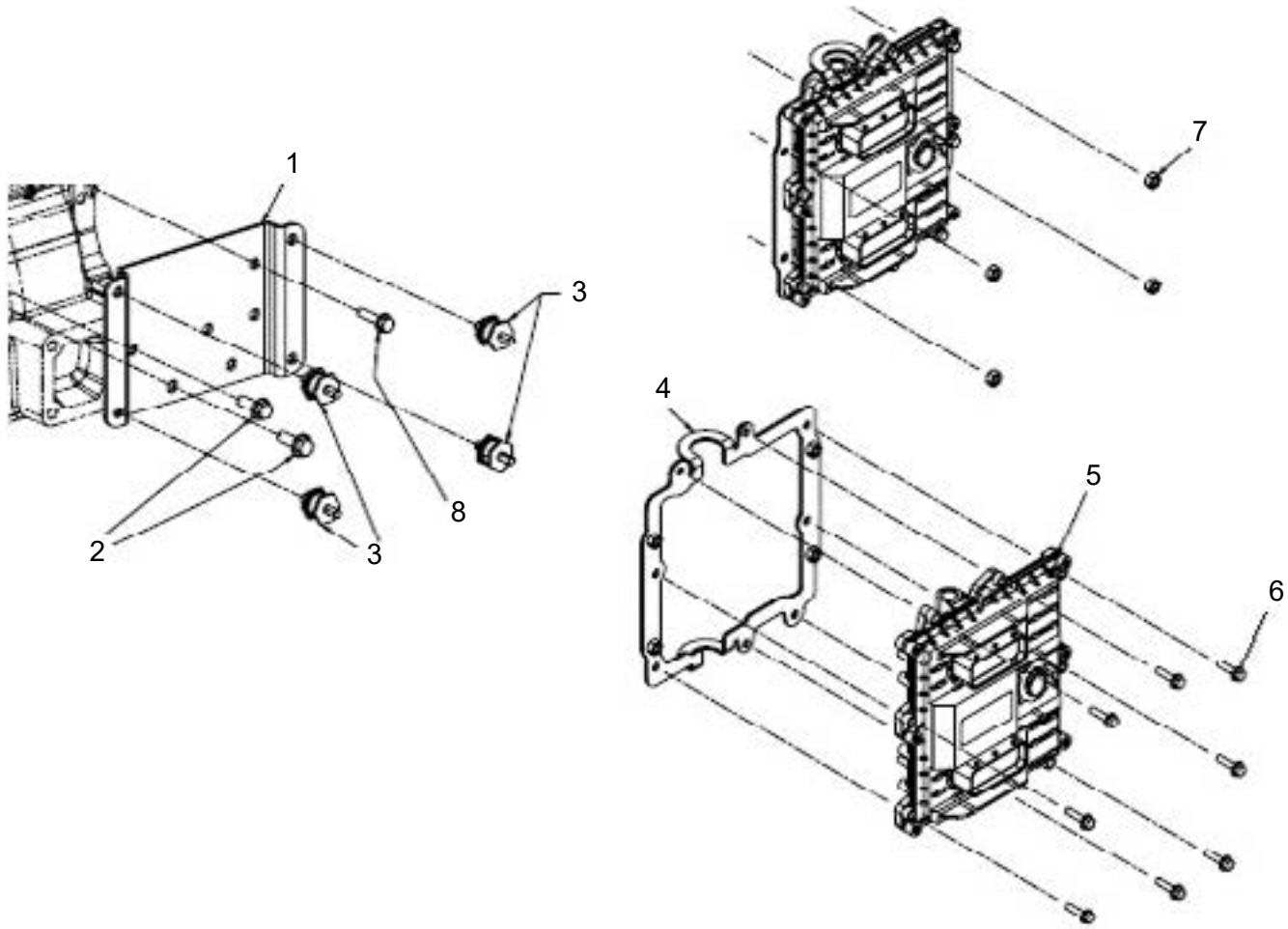
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	941200770194	1	Wiring harness engine to boat	
2	941200770174	1	Engine electrical harness	
3	961206370924	1	Electrical harness support	
4	961206370914	1	Electrical harness support	
5	602002600612E	2	Bolt M6 x 12mm	
6	902002030416E	4	Hex screw M4 x 16mm	
7	70020100C1E	4	Flat washer	
9	961206370794	1	Electrical harness support	
10	961206370774	1	Electrical harness support	
11	602100480080E	1	Nut M8	
12	904012440049E	1	Clamp	

Sensors



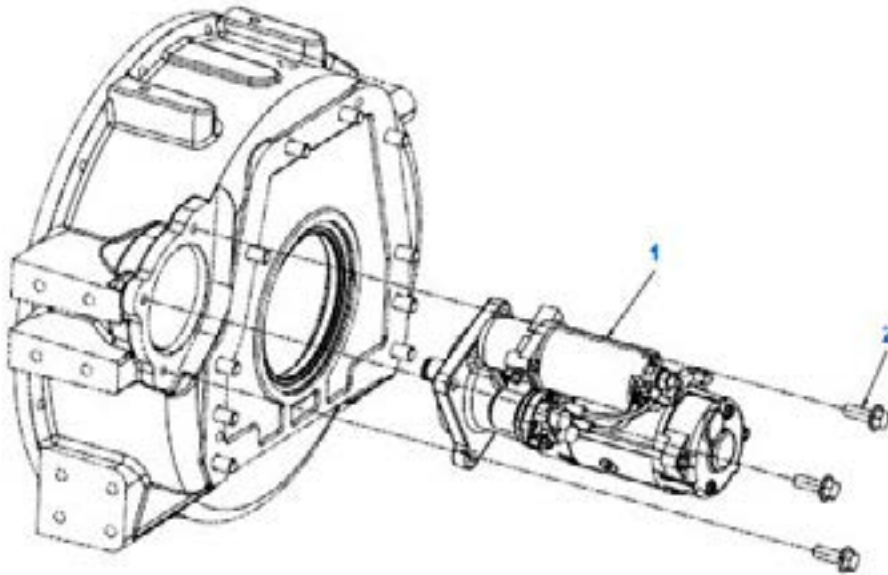
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	961200690034E	1	Temperature sensor	
2	7001998C1E	2	Bolt M6 x 12	
3	7007005C1E	1	Sensor, pressure and temperature	
4	904012440037E	1	Insulok clamp	
5	7001319C1E	1	Bolt M6 x 20	
6	7004041C1E	1	Camshaft position sensor - cmp	
7	7003092C1E	1	Spacer	
8	604931070172E	1	O-ring	
9	904921101218E	1	Sealing washer	
10	7001482C1E	1	Pressure oil sensor	
11	7004042C1E	1	Crankshaft position sensor - ckp	
12	970000680284E	1	Sensor, water level	
13	904921101418E	1	Sealing washer	

Electrical Control Unit (ECU) and Mounting



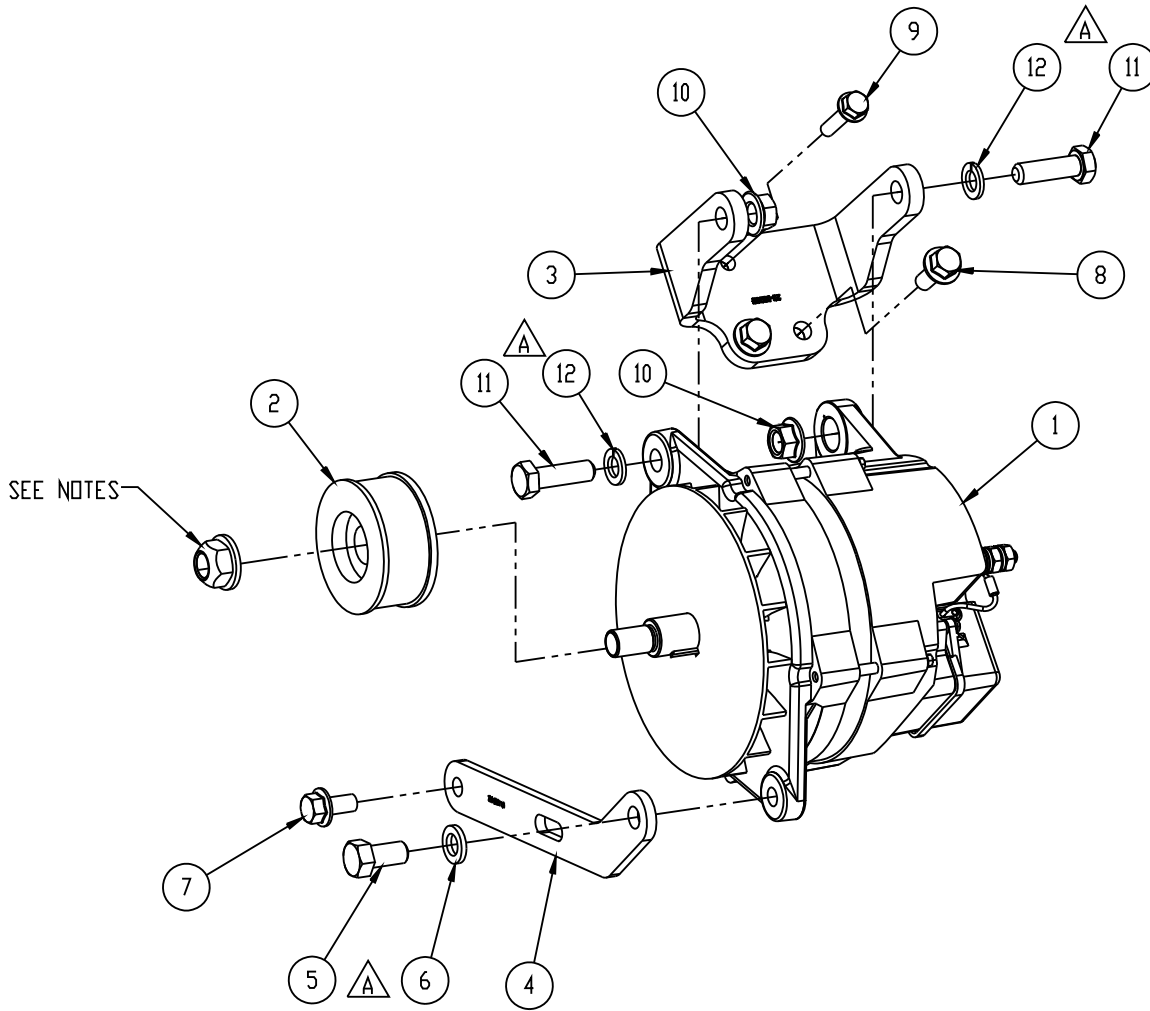
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	941206370175E	1	Electronic control module support	
2	7002042C1E	2	Hexagonal flanged bolt M10 x 30	
3	961200850014	4	Rubber mount 50 shore	
4	941206370185E	1	Electronic control module support	
5	922900760014	1	Electronic control unit (must be factory programmed before shipping)	
6	7001383C1E	8	Bolt M6 x 24 mm	
7	7002139C1E	4	Hexagonal nut M8	
8	7001325C1E	1	Bolt M8 x 35 mm	

Starter



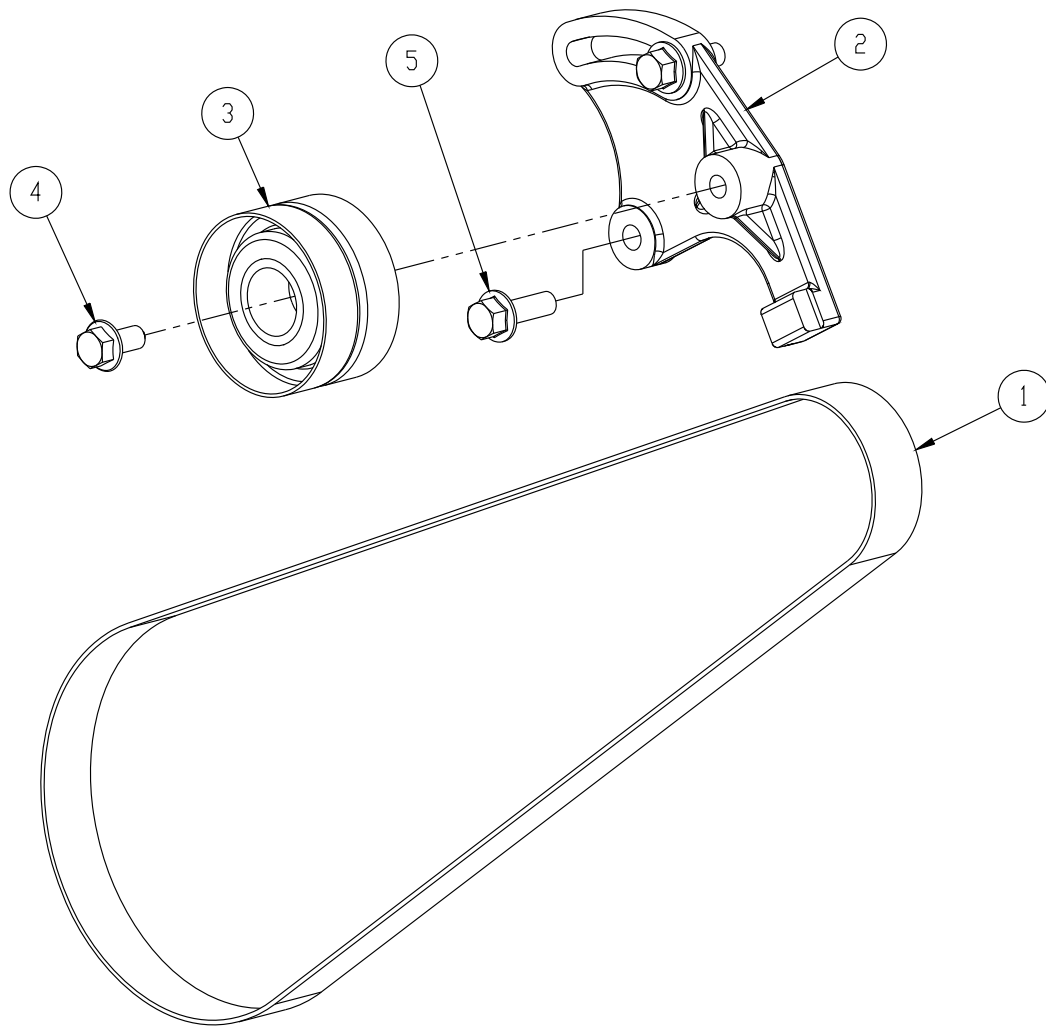
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	22-46201	1	Starter motor, 12v	
1	22-46203	1	Starter motor, 24v	
2	7002042C1E	3	Hex flanged bolt 10M x 30mm	

Alternator



KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	22-40277	1	Alternator 24V/75A isolated ground	
	22-06207	1	Alternator 12V/160A isolated ground	
2	34-49503	1	Pulley 8-groove poly-V	
3	23-06206	1	Main bracket, large frame alternator	
4	23-06115	1	Bracket, large frame alternator	
5	12-00512	1	Capscrew, HX HD 1/2-13 x 1"	
6	15-00502	1	Lock washer, helical 1/2"	
7	19M7784	1	Capscrew, HX HD M10 x 1.5 x 20mm	
8	19M7785	2	Capscrew, HX HD flanged M10 x 1.5 x 25mm	
9	19M8291	1	Capscrew, HX HD flanged M8 x 1.25 x 35mm	
10	14M7299	2	Hex nut, flanged M12 x 1.75	
11	12-00905	2	Capscrew, HX HD M12 x 1.75 x 40mm	
12	15-00912	2	Lock washer, helical M12	

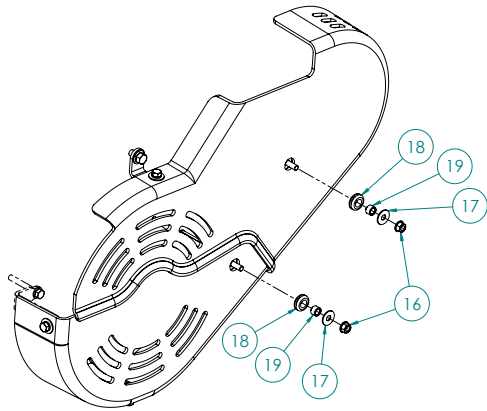
Manual Belt Tensioner, Large Frame



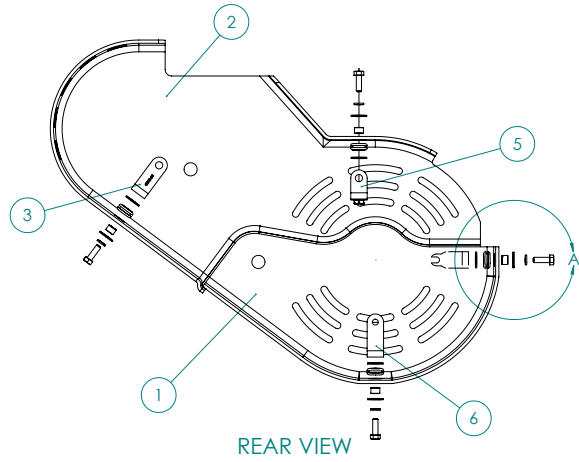
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	40-06102	1	Drive belt, micro-V, Large Frame	
2	041206400014E	1	Tensioner lever	
3	961003800014E	1	Flat pulley	
4	602002601020E	1	Bolt M10 x 20mm	
5	19M7786	2	Capscrew, hex head, flanged, M10 x 1.5 x 30 mm	

Belt Guard

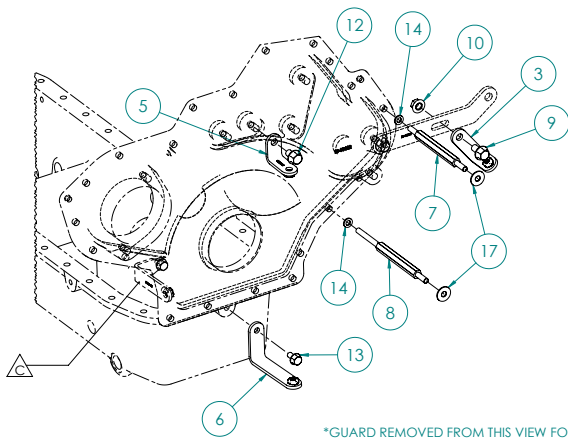
Large Frame Alternator



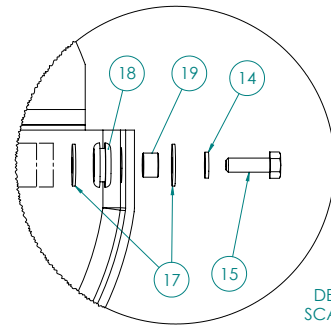
GROMMET (ITEM #18) INSTALLED INTO GUARD,
THEN SPACER (ITEM #19) INSTALLED INTO GROMMET.



REAR VIEW



*GUARD REMOVED FROM THIS VIEW FOR
CLARITY*



DETAIL A
SCALE 2 : 3

Belt Guard

Large Frame Alternator

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	00-06101	1	Belt Guard, lower 1/2	
2	00-06102	1	Belt Guard, upper 1/2	
3	23-06106	1	Bracket, belt guard, R.H. upper 1/2 mounting	
5	23-06108	1	Bracket, belt guard, top, upper 1/2 mounting	
6	23-06109	1	Bracket, belt guard, bottom, lower 1/2 mounting	
7	13-06106	1	Stud, belt guard mounting, upper, M8 x 1.25 x 158 mm	
8	13-06107	1	Stud, belt guard mounting, lower, M8 x 1.25 x 195 mm	
9	19M7784	1	Capscrew, HX HD flanged M10 x 1.5 x 22 mm	
10	14-80811	1	Hex nut, flanged M10 x 1.5	
12	19M7783	1	Capscrew, HX HD flanged M10 x 1.5 x 16 mm	
13	19M7865	1	Capscrew, HX HD flanged M8 x 1.25 x 16 mm	
14	15-00705	6	Lock washer, helical M8 S/S	
15	12-09712	4	Capscrew, HX HD M8 x 1.25 x 22 mm	
16	14M7298	2	Hex nut, flanged M8 x 1.25	
17	15-70004	12	Snubbing washer S/S	
18	00-00017	6	Grommet 1/2"ID x 1" OD	
19	21-05002	6	Spacer	

GROUP 6 - GASKET SETS**Gasket Sets**

Kit, Cooling System Gaskets (P/N: 29-16100)

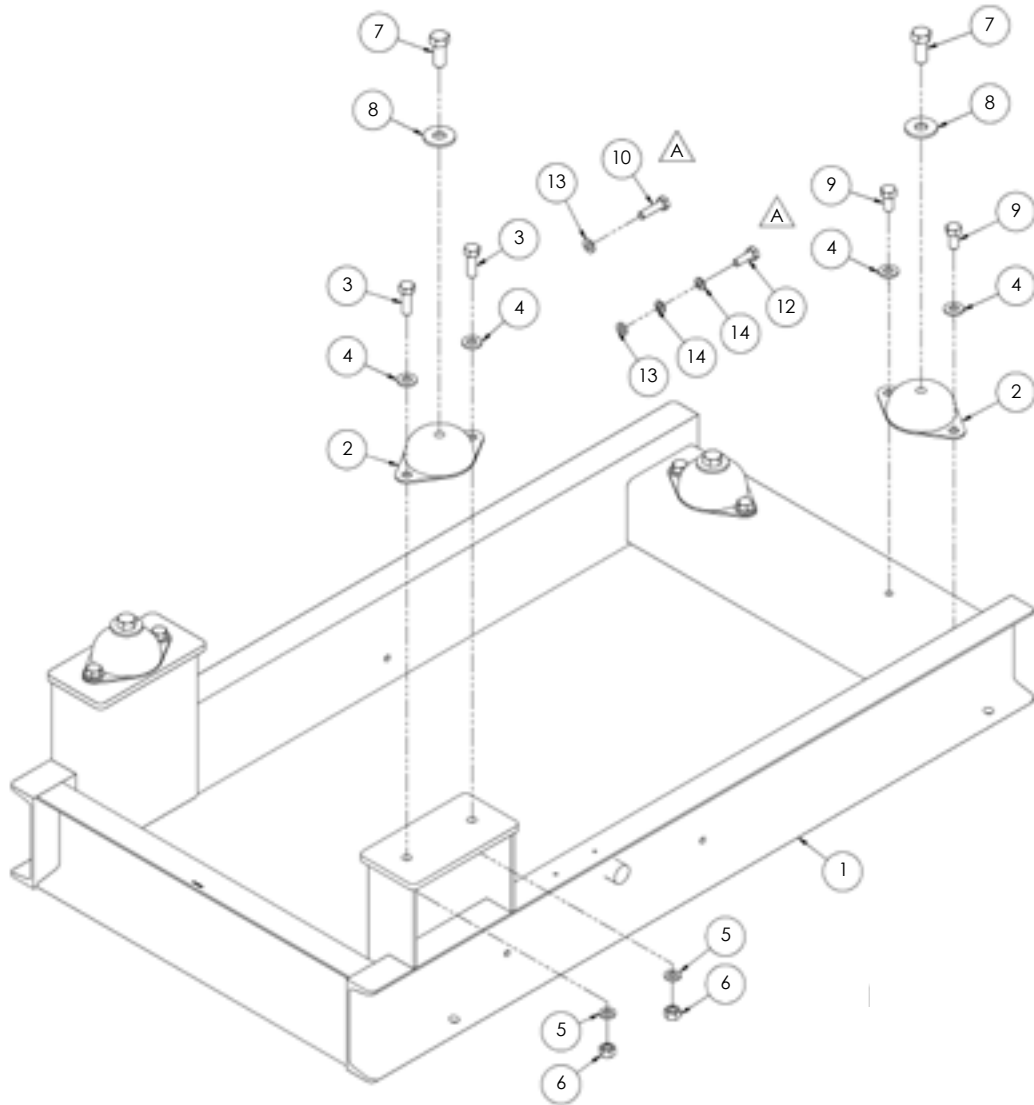
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	11-16100	1	Gasket, Engine coolant inlet	
2	11-06101	1	Gasket, Thermostat housing	
3	11-11013	1	Gasket, Thermostat cover mtg	
4	11-11043	1	Gasket, Heat exchanger / keel cooler outlet connection	
5	11-11022	1	Gasket, Filler neck mtg	
6	16-14804	1	O-ring 2" ID x 1/8" Nitrile	
7	16-19502	1	O-ring 7/16" ID x 3/16" Nitrile	

Base Frame - M Series

Consult Factory (image not available at time of publication)

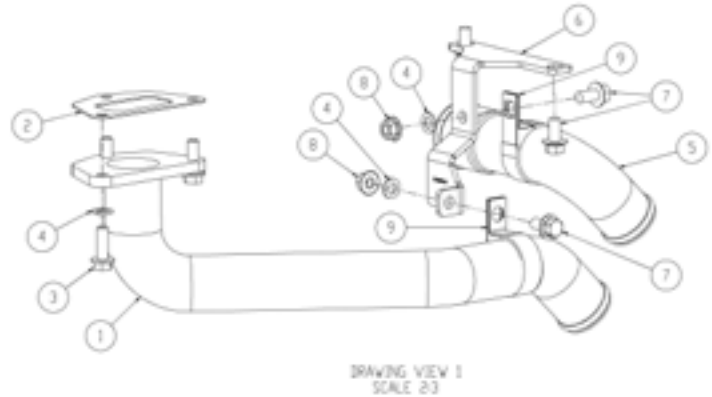
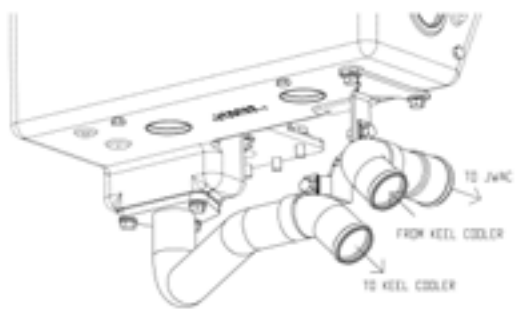
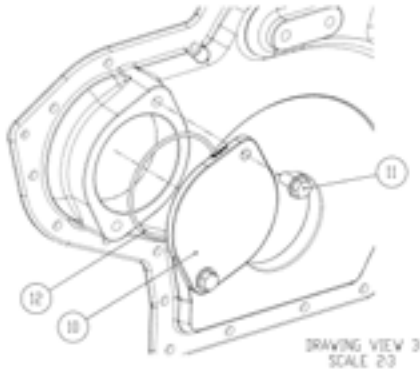
GROUP 8 - BASE FRAME AND MOUNTING

Base Frame - C Series

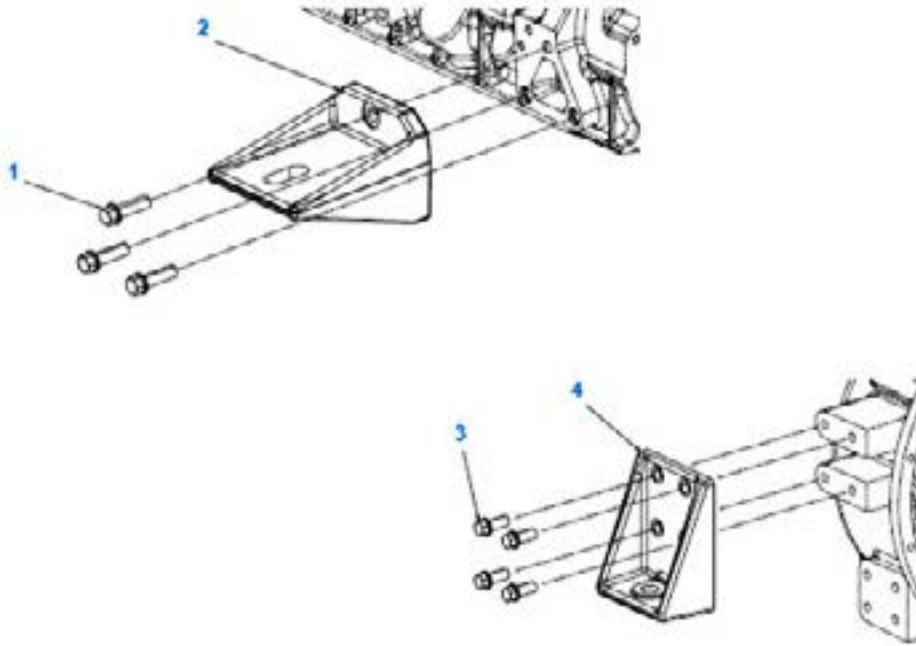


KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	36-86209	1	Steel base frame	
2	33-81021	4	Flex, mount, captive (Neoprene) 500-750 lbs.	
3	12-00514	4	Cap screw, hex head 1/2-13 x 1-1/2"	
4	15-00504	8	Flat washer 1/2" SAE	
5	15-00502	4	Lock washer, helical 1/2"	
6	14-00511	4	Hex nut 1-2-13	
7	12-00913	4	Cap screw, hex head 5/8-11 x 1-1/2"	
8	15-00901	4	Flat washer 5/8"	
9	12-00512	4	Cap screw, hex head M10 x 1.5 x 40 mm	
10	12-00812	12	Cap screw, hex head M10 x 1.5 x 40 mm	
11	15-00802	12	Lock washer, helical M10	
12	12-70808	8	Cap screw, 12 PT M10 x 1.5 x 20 mm	
13	15-00307	8	Flat washer (10.4 mm ID x 17.5 mm OD x 3.2 mm)	
14	15-00300	16	Flat washer M 10 (10.5 mm ID x 18 mm OD x 3.2 mm)	

Keel Cooling Mounting Kit



KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	27-16103	1	Tube, Keel Cooler Supply	
2	11-11043	1	Gasket	
3	12-80832	3	Capscrew, hex head flanged M10 x 1.5 x 30 mm	
4	15-00808	5	Lock washer, helical M10	
5	27-16104	1	Tube, keel cooler return	
6	23-06116	1	Bracket, keel cooling tube support	
7	19M7784	4	Capscrew, hex head flanged M10 x 1.5 x 20 mm	
8	14-80811	2	Hex nut, flanged M10 x 1.5	
9	19-71001	2	Adelle clamp 2" ID x 1/2" stud	
10	28-06101	1	Plate, raw water pump block off	
11	19M7785	2	Capscrew, hex head flanged M10 x 1.5 x 25 mm	
12	25-19714	1	O-ring	
13	00-06109	1	Belt guard	



KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	941203500144	6	Hex screw M12	
2	23-86210	2	Front engine mount	
3	902002421230E	8	Bolt M12 x 30mm	
4	23-86211	2	Rear engine bracket	

Engine Lifting Eyes

Consult Factory (image not available at time of publication)



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