



Replacement Engine Kit

Diesel-Powered

Workman® 3000/4000 Series Utility Vehicle

Model No. 117-4986

Parts Catalog

Ordering Replacement Parts

To order replacement parts, please supply the part number, the quantity, and the description of each part desired.

Understanding Reference Numbers

Each identified part in an illustration has a reference number. The reference number for a part also appears in the parts list, along with other information about the part.

This catalog uses two special reference number formats, one to indicate parts in a service assembly and another to indicate the quantity of a given part in an illustration.

Service Assembly Reference Numbers

Parts in service assemblies have reference numbers in the form a:b. The a represents the reference number of the entire service assembly and the b represents a sequential number unique to each part within the service assembly.

For example, a wheel assembly might be identified by reference number 6, the tire by 6:1, the valve by 6:2, and the wheel by 6:3. When you order the assembly identified by reference number 6, you receive all parts identified by reference numbers 6:1, 6:2, and 6:3. However, you may also order any part individually. Reference numbers of this type appear in illustrations and in part lists.

Reference Numbers Indicating Quantity

In an illustration, if a reference number indicates more than one part, the reference number has the form nX y. The n represents the quantity of the part, the X is the multiplication symbol, and the y represents the reference number.

For example, in an illustration, the reference number 2X 37 means that two of the parts identified by reference number 37 are indicated.

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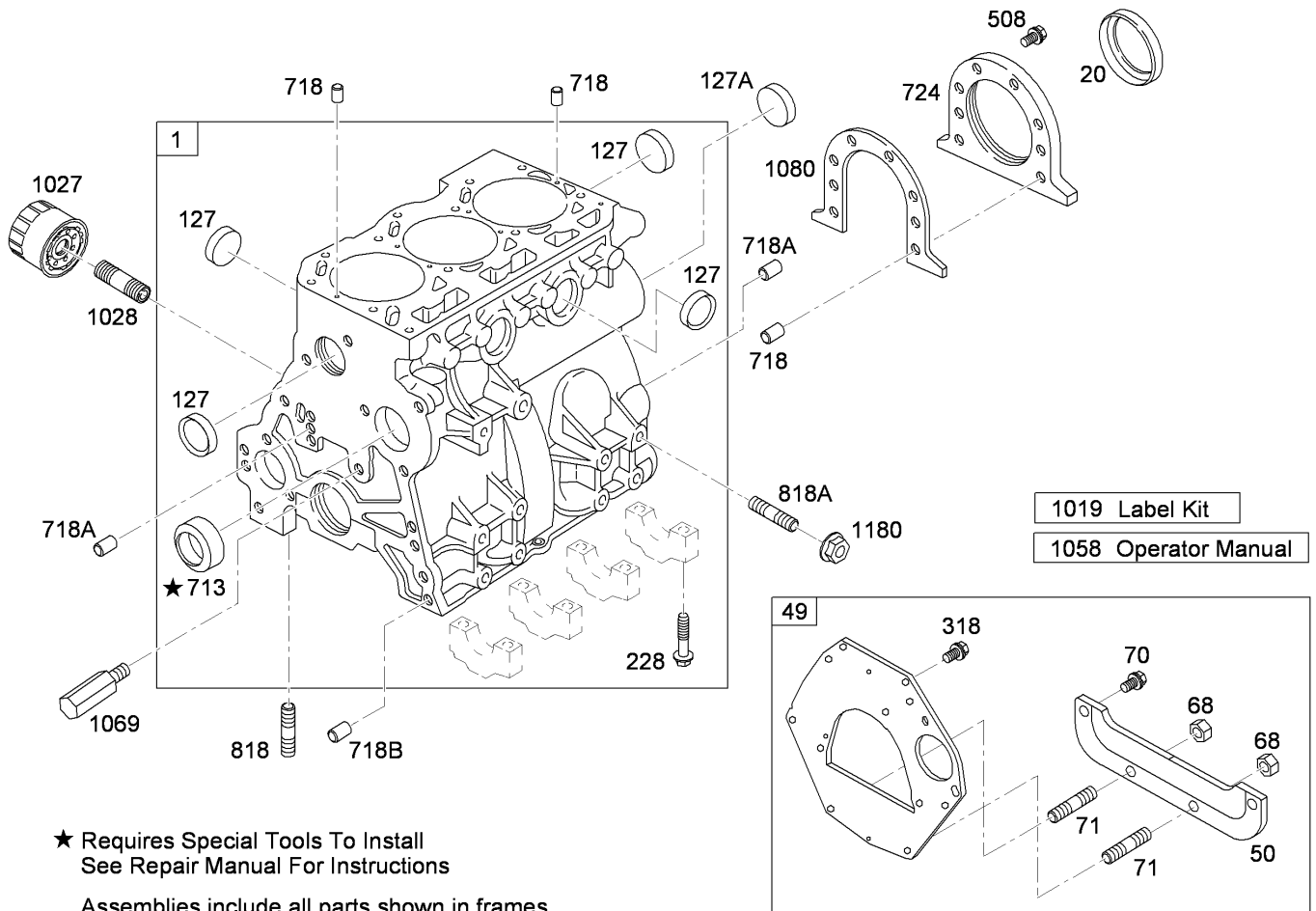
Part Description Abbreviations

Part descriptions in this catalog may include the following abbreviations.

AR. as required	HWHTF. hex washer head thread forming
ASM. assembly	HYD. hydraulic
BBC. blade brake clutch	LH. left hand
CARR. carriage	NI. nylon insert
CCW. counter clock wise	NPTF. national pipe thread fine
CW. clockwise	PFH. phillips flat head
DEG. degrees	PPH. phillips pan head
ECM. electronic control module	PPHTF. phillips pan head thread forming
EXT. external	PRH. phillips round head
FH. flat head	PTH. phillips truss head
GA. gauge	PTO. power-take-off
HD. heavy-duty	RH. right hand
HF. hex flange	ROPS. roll-over protection system
HH. hex head	SFH. slotted fillister head
HHF. hex head flange	SHH. slotted hex head
HHFTF. hex head flange thread forming	SHWH. slotted hex washer head
HJ. hex jam	SPH. slotted pan head
HLH. hex lag head	SQH. square head
HOC. height-of-cut	SRH. slotted round head
HSBH. hex socket button head	STD. standard
HSFH. hex socket flat head	TAP. self tapping
HSH. hex socket head	TTH. torx truss head
HWH. hex washer head	

Footnotes

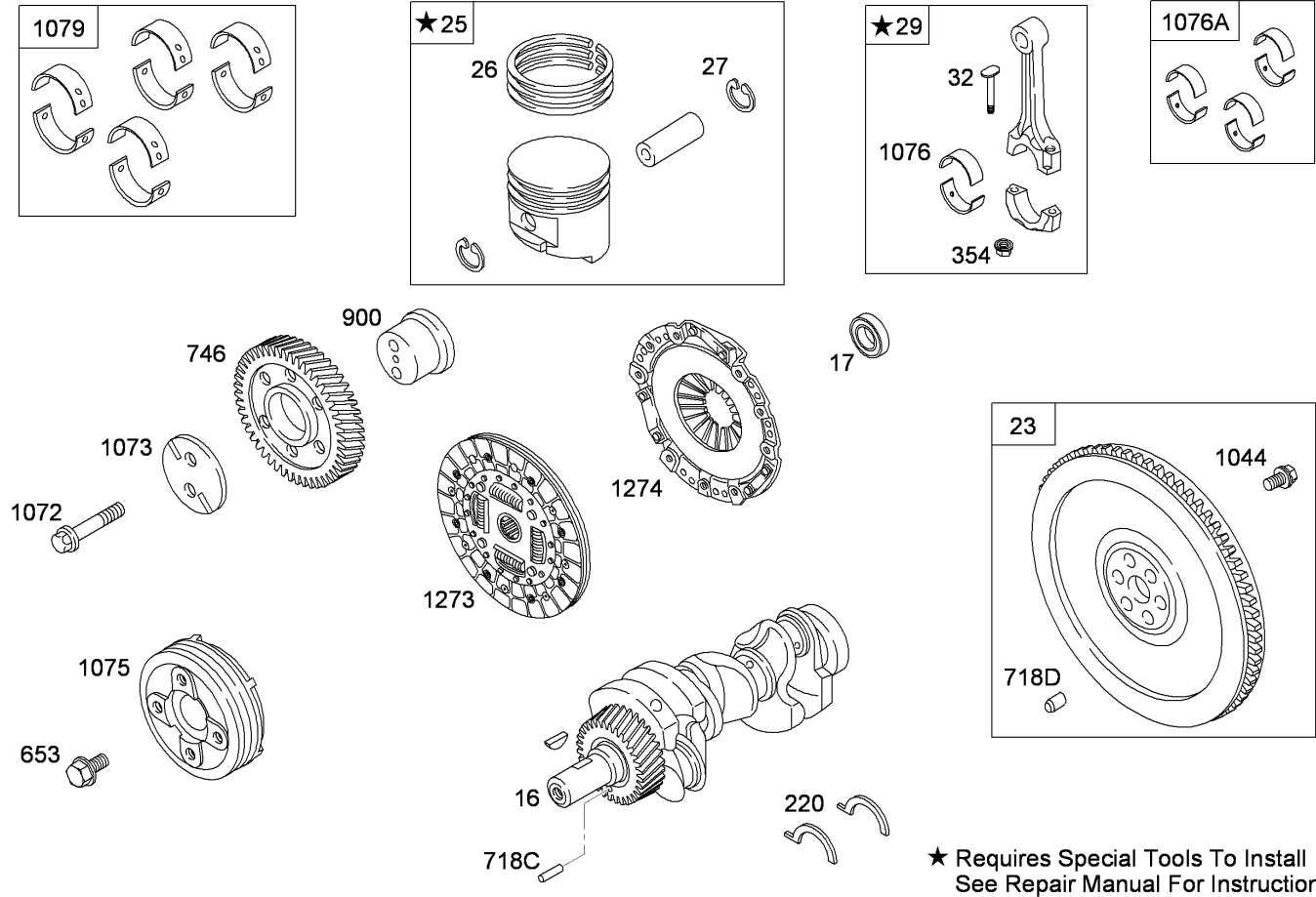
- ❶ Not serviced separately



Cylinder Assembly

Ref	Part No.	Qty.	Description
1	107-9891	1	Cylinder ASM (9Mm Head Bolts)
20	99-9003	1	Seal-Oil (PTO Side)
49	115-2310	1	Backing Plate ASM
50	115-2309	1	Plate-Shield, End
68	99-9114	1	Nut-Hex, Metric (Water Plate Seal)
70	115-2307	1	Screw (Water Plate Seal)
71	115-2306	1	Stud (Water Plate Seal)
127	99-9008	1	Plug-Welch
127A	107-9892	1	Plug-Welch (Cam)
228	99-9006	1	Screw-Hex (Crankshaft Bearing Cap)
318	99-9005	1	Screw-Hex (Back Plate)
508	99-9004	1	Screw-Hex (Seal Retainer)
713	99-9002	1	Bushing
718	99-9012	1	Pin-Locating
718A	99-9013	1	Pin-Locating
718B	99-9014	1	Pin-Locating
724	99-9022	1	Retainer-Seal
818	99-9007	1	Stud-Metric
818A	99-9221	1	Stud-Standard
1019	110-2595	1	Label Kit
1027	108-3842	1	Filter-Oil
1028	105-9337	1	Adapter-Filter, Oil

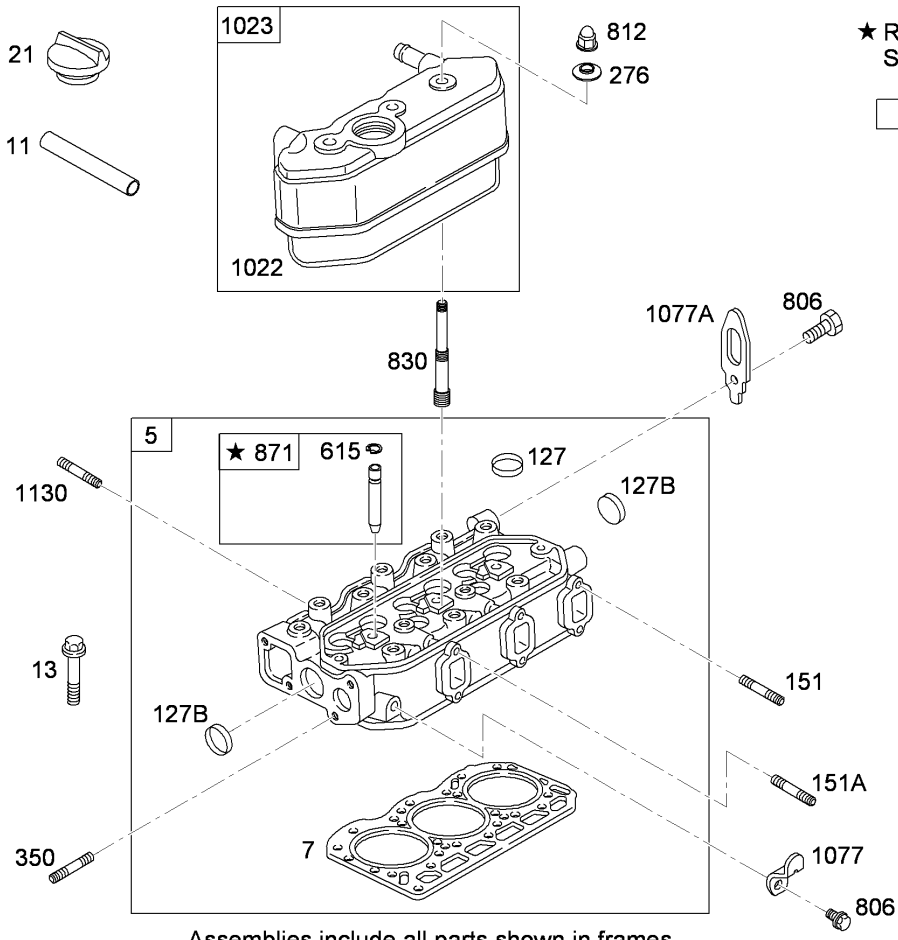
Ref	Part No.	Qty.	Description
1058	99-9602	1	Manual-Owners
1069	99-9020	1	Nozzle-Oil
1080	99-9021	1	Gasket-Retainer
1180	99-9176	1	Nut-Hex



Assemblies include all parts shown in frames

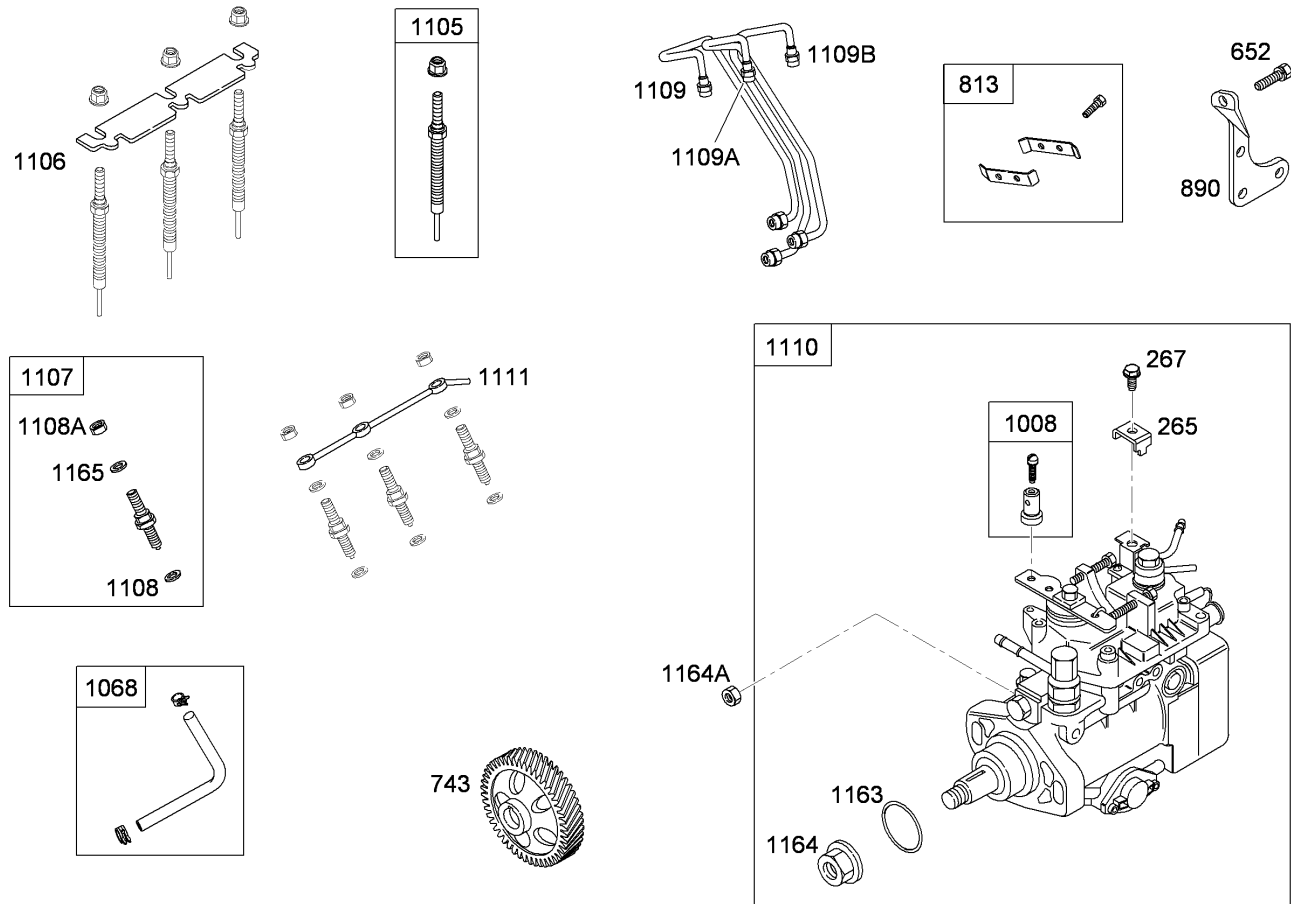
Crankshaft Assembly

Ref	Part No.	Qty.	Description	Ref	Part No.	Qty.	Description
16	105-9339	1	Crankshaft	1076A	99-9044	1	Rod Bearing Set (.010 Undersized)
17	105-9324	1	Bearing-Ball, Radial	1079	99-9045	1	Main Bearing Set (Set Of 8)
23	105-9323	1	Flywheel ASM	1079	99-9046	1	Main Bearing Set (.010 Undersized)
25	107-9895	1	Piston ASM	1273	104-9219	1	Disc-Clutch
25	107-9896	1	Piston ASM (Oversize)	1274	104-9231	1	Plate-Pressure, Clutch
26	105-9340	1	Ring Set				
26	99-9269	1	Ring Set (.010 Oversized)				
27	99-9607	1	Lock-Pin, Piston				
29	117-8838	1	Rod-Connecting				
32	99-9030	1	Screw				
220	99-9035	1	Shim-Endplay				
220	99-9036	1	Shim-Endplay (.005 Oversized)				
354	99-9034	1	Nut-Hex				
653	107-9897	1	Screw-Hex				
718C	99-9037	1	Pin-Locating				
718D	106-1852	1	Pin-Locating				
746	99-9609	1	Gear-Drive				
900	99-9039	1	Shaft-Gear				
1044	99-9031	1	Screw-Hex				
1072	99-9032	1	Screw-Hex				
1073	99-9040	1	Plate-Gear, Idler				
1075	99-9041	1	Pulley-Crankshaft				
1076	99-9043	1	Rod Bearing Set				
1076A	99-9043	1	Rod Bearing Set				



Cylinder Head Assembly

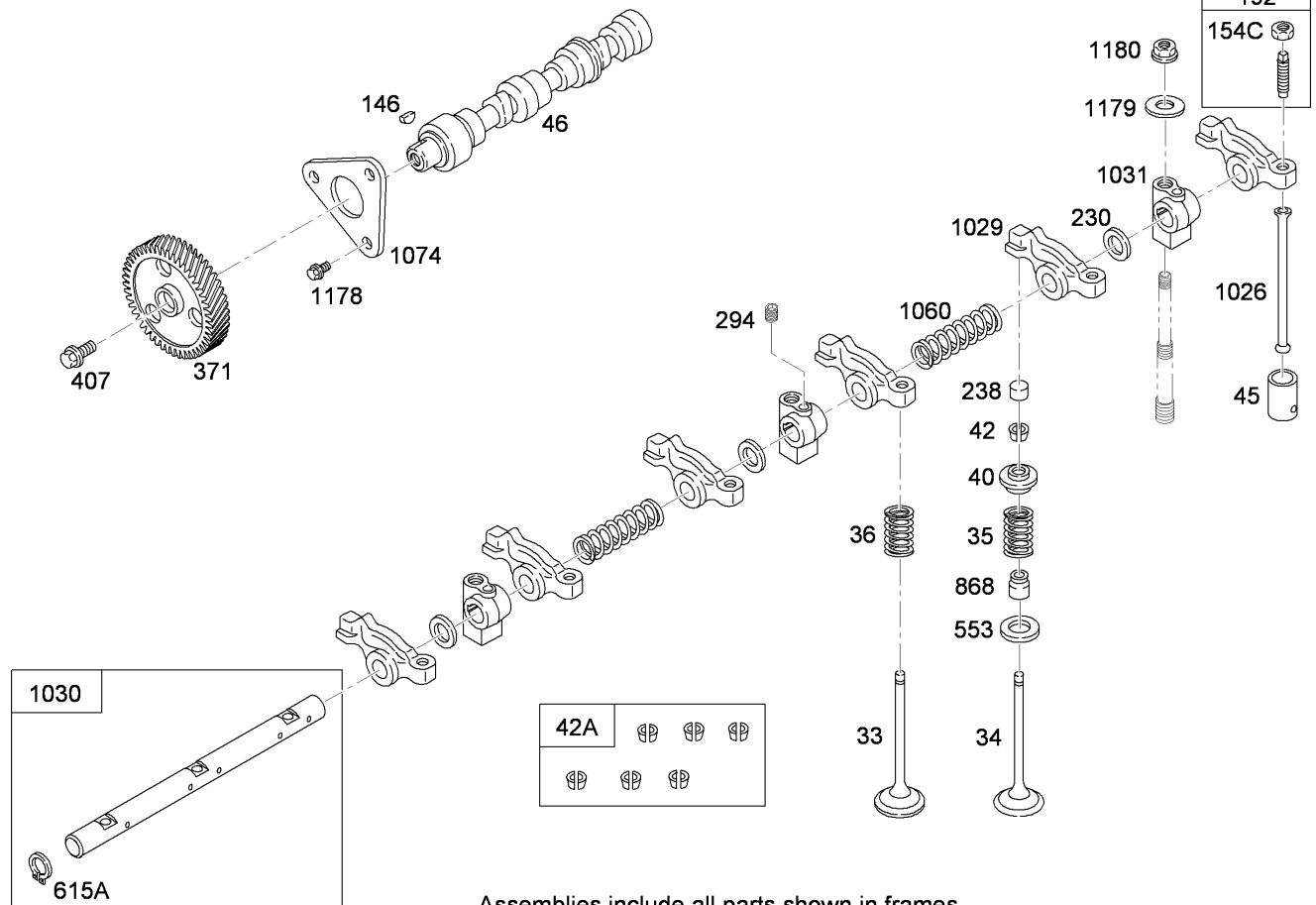
Ref	Part No.	Qty.	Description				
5	110-2596	1	Head-Cylinder				
7	107-9898	1	Gasket-Head, Cylinder				
11	105-9342	1	Tube-Breather				
13	99-9614	1	Screw-Metric (Cylinder Head)				
21	99-9052	1	Cap-Fill, Oil				
127	99-9060	1	Plug-Welch				
127B	99-9008	1	Plug-Welch				
151	99-9058	1	Stud-Metric (Exhaust Manifold)				
151A	99-9059	1	Stud-Metric (Exhaust Manifold)				
276	99-9063	1	Washer-Seal (Rocker Cover)				
350	99-9057	1	Stud-Metric (Water Pump)				
615	99-9067	1	Retainer (Valve Guide Bushing)				
806	99-9054	1	Screw-Hex (Lifting Bracket)				
812	99-9061	1	Nut-Hex, Metric (Rocker Cover)				
830	99-9101	1	Stud (Rocker Cover)				
871	99-9070	1	Bushing-Guide				
1022	99-9073	1	Gasket-Cover, Rocker				
1023	100-6402	1	Cover-Rocker				
1036	99-9615	1	Emission Label Kit				
1077	99-9076	1	Bracket-Lifting				
1077A	99-9077	1	Bracket-Lifting				
1130	99-9055	1	Stud-Metric (Intake Manifold)				



Assemblies include all parts shown in frames

Injection Pump Assembly

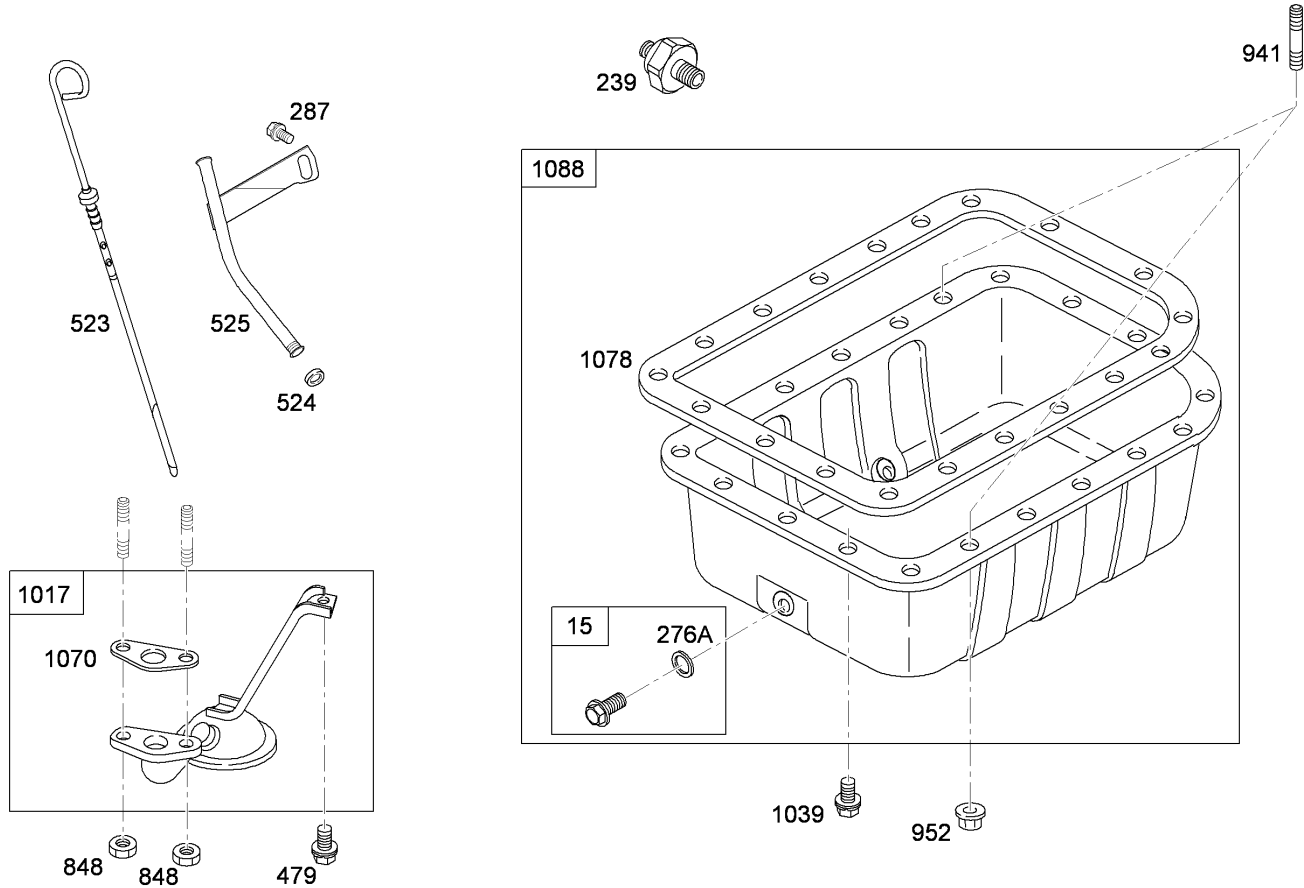
Ref	Part No.	Qty.	Description				
265	99-9688	1	Clamp-Casing				
267	100-6403	1	Screw-Metric (Casing Clamp)				
652	99-9616	1	Screw-Hex (Support Bracket)				
743	99-9624	1	Gear-Drive				
813	99-9625	1	Clamp				
890	99-9626	1	Bracket-Support				
1008	99-9628	1	Clamp-Swivel				
1068	99-9629	1	Hose / Clamp ASM				
1105	114-4695	1	Plug-Glow				
1106	99-9631	1	Strap-Plug, Glow				
1107	114-4696	1	Injection Nozzle				
1108	99-9633	1	Seat-Injector				
1108A	105-9343	1	Seat-Injector				
1109	99-9690	1	Pipe-Injector, No. 1				
1109A	99-9634	1	Pipe-Injector, No. 2				
1109B	99-9635	1	Pipe-Injector, No. 3				
1110	115-2294	1	Pump-Injection				
1111	99-9637	1	Pipe-Return, Fuel				
1163	99-9618	1	O-Ring (Injection Pump Shaft)				
1164	99-9619	1	Nut-Hex, Metric (Injection Pump Shaft)				
1164A	99-9620	1	Nut-Hex, Metric (Injection Pump)				
1165	105-9345	1	Nut (Injector Nozzle)				



Camshaft Assembly

Ref	Part No.	Qty.	Description
33	99-9638	1	Valve-Exhaust
34	99-9639	1	Valve-Intake
35	99-9640	1	Spring-Valve (Intake)
36	99-9640	1	Spring-Valve (Exhaust)
40	99-9084	1	Retainer-Valve
42	99-9086	1	Keeper-Valve (Set)
42A	99-9087	1	*obs* Keeper-Valve (Set Of 6)
45	99-9088	1	Tappet-Valve
46	99-9097	1	Shaft-Cam
146	99-9675	1	Key-Timing
154C	99-9091	1	Nut-Hex, Metric
192	112-2978	1	Adjuster-Arm, Rocker
230	99-9093	1	Washer-Spacer (Rocker Arm Shaft)
238	112-2979	1	Cap-Valve
294	99-9090	1	Screw-Metric (Rocker Arm Support)
371	99-9641	1	Gear-Cam
407	99-9085	1	Screw-Metric
553	99-9096	1	Seat-Spring, Valve
615A	99-9099	1	Retainer (Rocker Arm Shaft)
868	99-9643	1	Seal-Valve
1026	112-2980	1	Rod-Push
1029	99-9104	1	Arm-Rocker

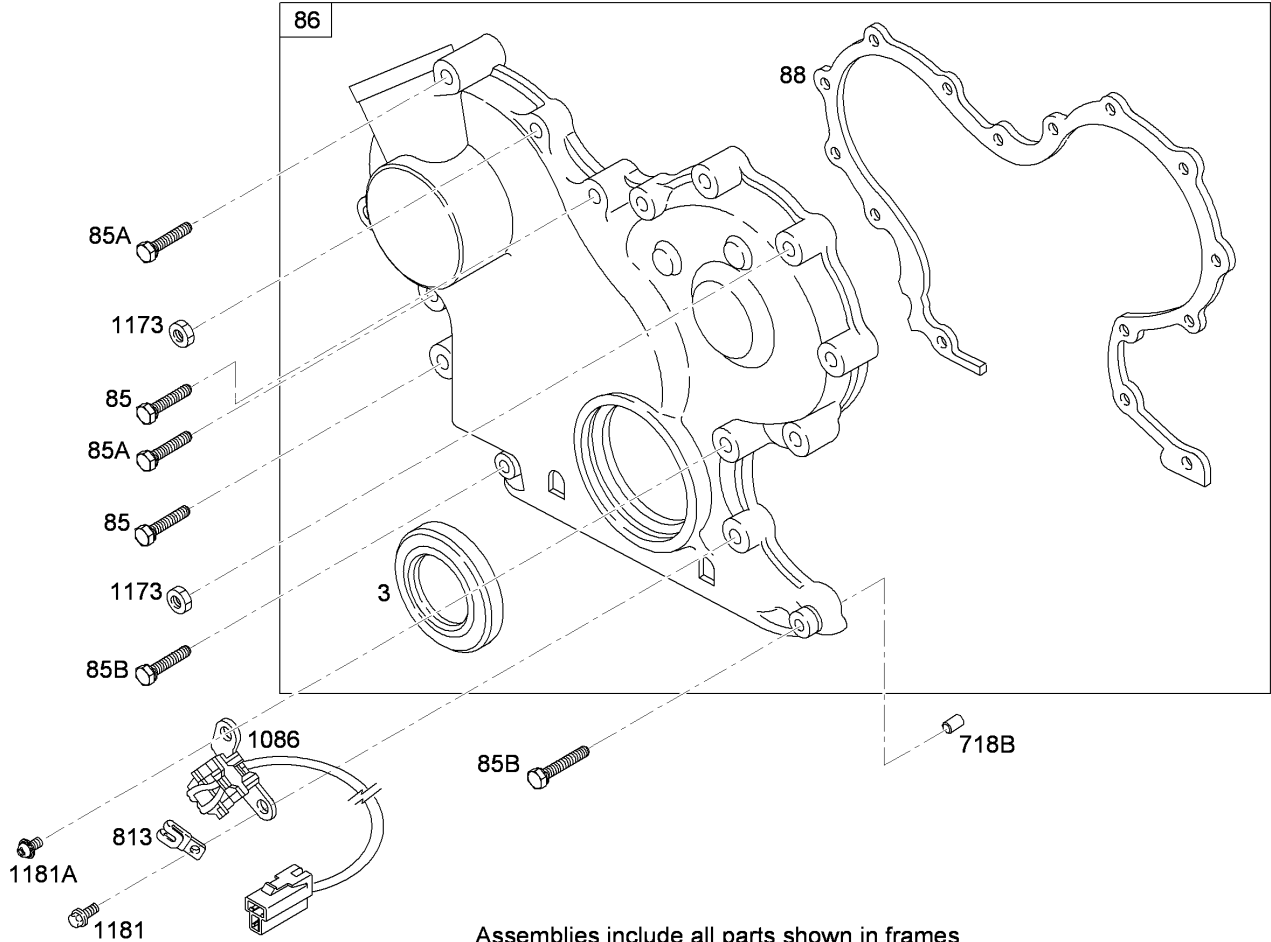
Ref	Part No.	Qty.	Description
1030	99-9106	1	Shaft-Arm, Rocker
1031	99-9107	1	Support-Arm, Rocker
1060	99-9108	1	Spring-Shaft, Rocker
1074	99-9109	1	Retainer-Camshaft
1178	99-9083	1	Screw-Hex (Camshaft Retainer)
1179	99-9079	1	Washer-Flat (Rocker Arm Support)
1180	99-9091	1	Nut-Hex, Metric (Rocker Arm Support)



Assemblies include all parts shown in frames

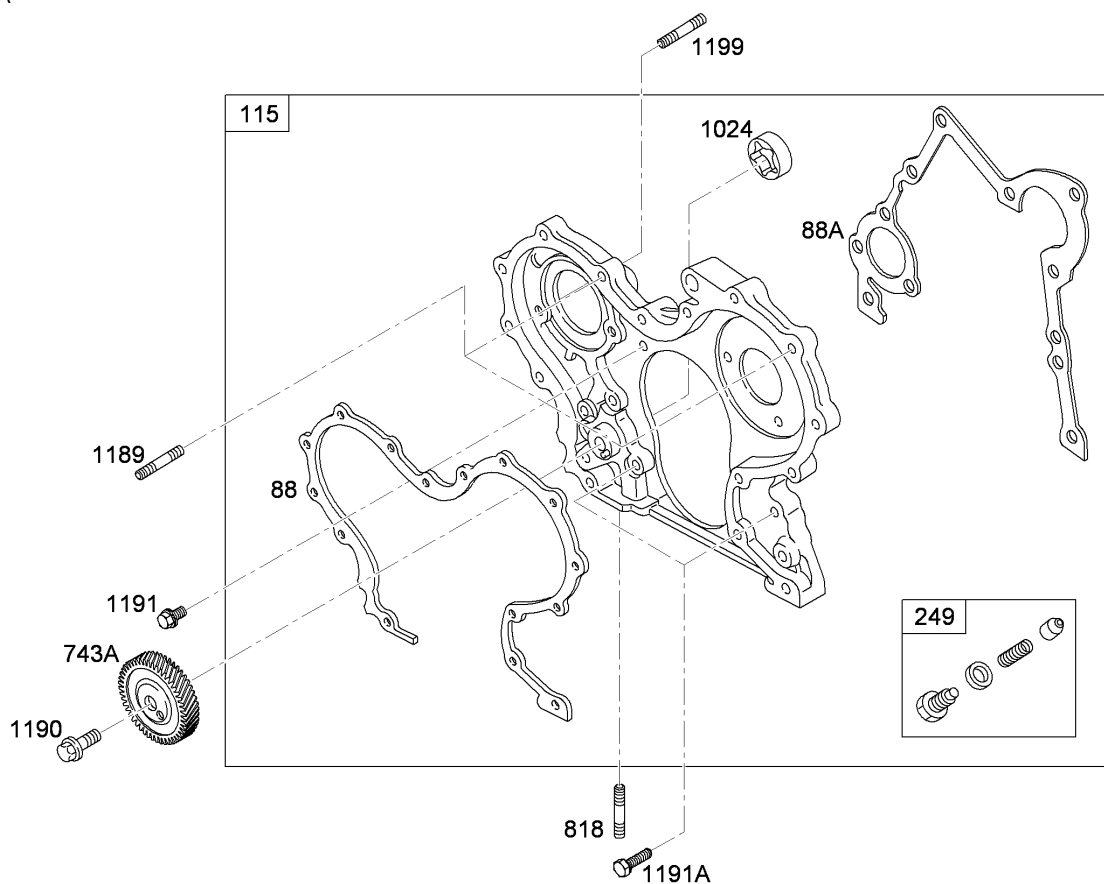
Oil Pan Assembly

Ref	Part No.	Qty.	Description				
15	99-9247	1	Plug-Drain, Oil				
239	107-9908	1	Switch-Pressure, Oil				
276A	99-9249	1	Washer-Seal (Oil Drain Plug)				
287	99-9256	1	Screw-Hex (Dipstick Tube)				
479	99-9111	1	Screw-Hex (Oil Pump Screen)				
523	100-6405	1	Dipstick				
524	99-9265	1	O-Ring (Dipstick)				
525	100-6406	1	Tube-Dipstick				
848	99-9114	1	Nut-Hex, Metric (Oil Pump Screen)				
941	99-9112	1	Stud-Metric (Oil Pan)				
952	99-9113	1	Nut-Hex, Metric (Oil Pan)				
1017	99-9116	1	Screen-Pump, Oil				
1039	99-9623	1	Screw-Hex (Oil Pan)				
1070	99-9120	1	Gasket-Strainer, Oil				
1078	99-9121	1	Gasket-Pan, Oil				
1088	99-9241	1	Pan-Oil (Dual Drain)				



Gear Cover Assembly

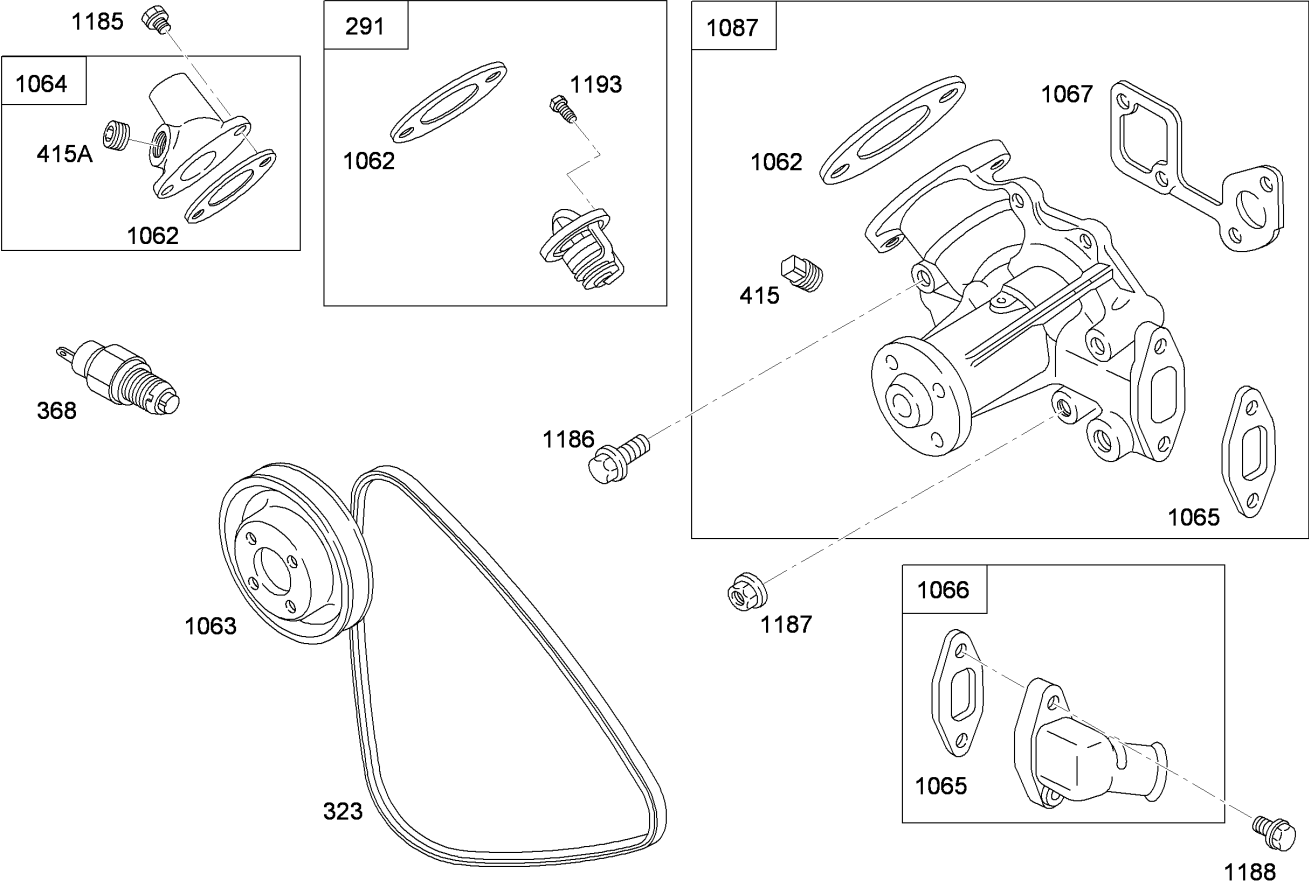
Ref	Part No.	Qty.	Description				
3	115-2291	1	Seal-Oil (Magneto Side)				
85	99-9651	1	Screw-Hex (Gear Cover To Gear Reduction Case)				
85A	99-9128	1	Screw-Hex (Gear Cover To Gear Reduction Case)				
85B	99-9129	1	Screw-Hex (Gear Cover To Gear Reduction Case)				
86	115-2338	1	Gear Cover ASM				
88	99-9653	1	Gasket-Cover, Gear				
718B	99-9014	1	Pin-Locating				
813	99-9208	1	Clamp				
1086	117-4920	1	Trigger-Ignition				
1173	99-9114	1	Nut-Hex, Metric (Gear Cover)				
1181	99-9128	1	Screw-Hex (Gear Cover To Gear Reduction Case)				
1181A	99-9210	1	Screw-Phillips (Ignition Trigger)				



Assemblies include all parts shown in frames

Gear Housing Assembly

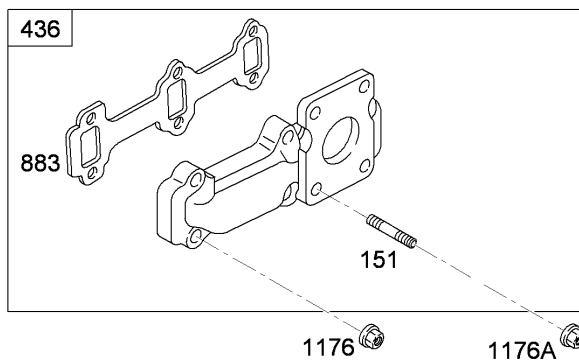
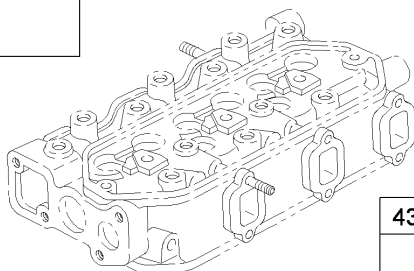
Ref	Part No.	Qty.	Description				
88	99-9653	1	Gasket-Cover, Gear				
88A	99-9136	1	Gasket-Cover, Gear Reduction				
115	99-9655	1	Housing-Gear				
249	99-9142	1	Valve-Relief, Oil				
743A	99-9656	1	Gear-Drive (Gear Housing)				
818	99-9007	1	Stud-Metric (Gear Housing)				
① 1024		1	Pump-Oil				
1189	99-9137	1	Stud-Metric (Gear Housing)				
1190	99-9616	1	Screw-Hex (Drive Gear)				
1191	99-9134	1	Screw-Hex (Gear Housing)				
1191A	99-9133	1	Screw-Hex (Gear Housing)				
1199	99-9654	1	Stud-Metric (Injection Pump)				



Assemblies include all parts shown in frames

Water Pump Assembly

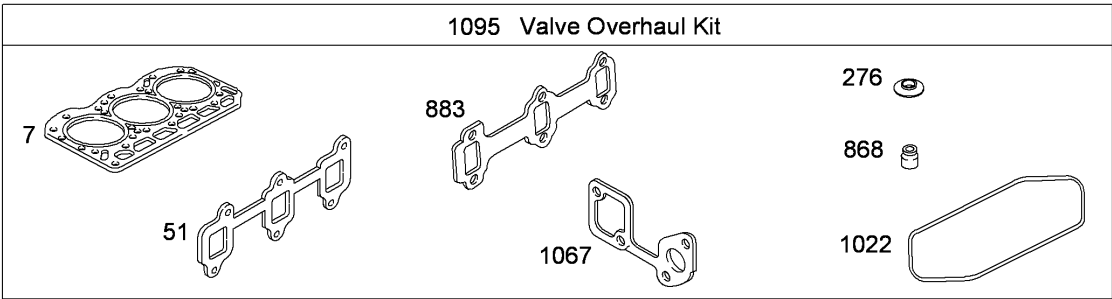
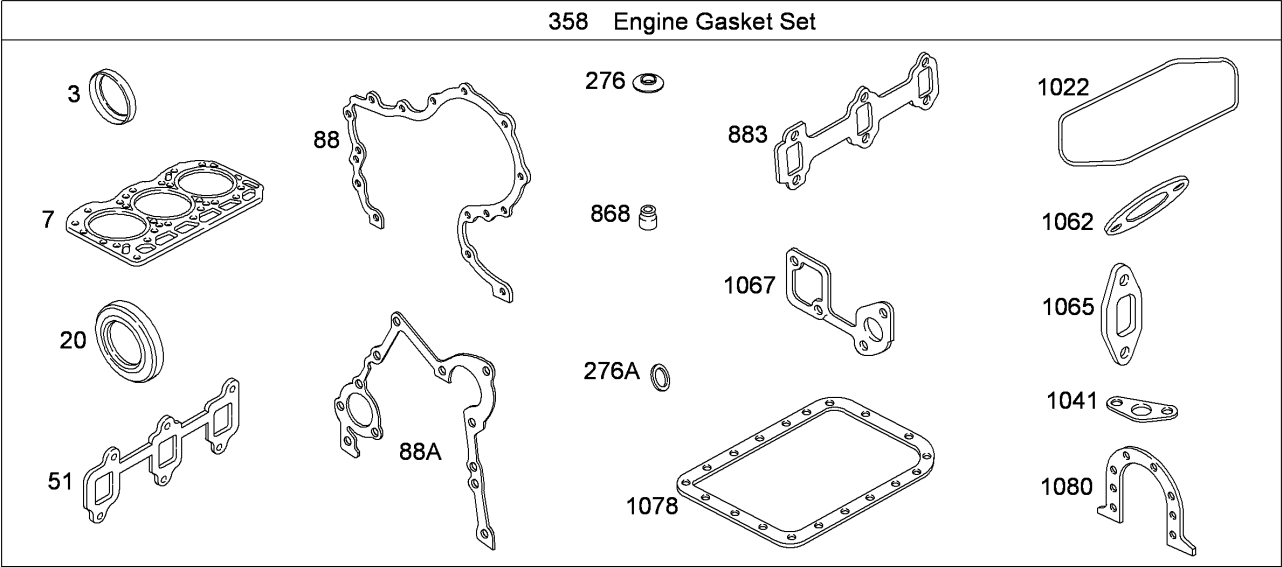
Ref	Part No.	Qty.	Description				
291	99-9155	1	Thermostat				
323	117-4922	1	Belt-Vee				
368	99-9157	1	Switch-Temperature, Water				
415	99-9159	1	Plug (Water Pump)				
415A	99-9158	1	Plug (Outlet Housing)				
1062	99-9163	1	Gasket-Housing, Outlet				
1063	99-9164	1	Pulley-Pump				
1064	99-9165	1	Housing-Outlet				
1065	99-9166	1	Gasket-Housing, Inlet				
1066	99-9167	1	Housing-Inlet				
1067	99-9168	1	Gasket-Pump, Water				
1087	105-9348	1	Pump-Water				
1185	99-9004	1	Screw-Hex (Outlet Housing)				
1186	99-9151	1	Screw-Hex (Water Pump)				
1187	99-9153	1	Nut-Hex, Metric (Water Pump)				
1188	99-9004	1	Screw-Hex (Inlet Housing)				
1193	99-9152	1	Screw-Metric (Thermostat)				



Assemblies include all parts shown in frames

Manifold Assembly

Ref	Part No.	Qty.	Description
50	99-9661	1	Manifold-Intake
51	99-9662	1	Gasket-Intake
54	99-9083	1	Screw-Hex (Intake Manifold)
54A	99-9660	1	Screw-Hex (Intake Manifold)
151	99-9174	1	Stud-Manifold, Exhaust
436	99-9177	1	Manifold-Exhaust
883	106-1855	1	Gasket-Exhaust
1174	99-9114	1	Nut-Hex, Metric (Intake Manifold)
1176	99-9175	1	Nut-Hex, Metric (Exhaust Manifold)
1176A	99-9176	1	Nut-Hex (Muffler)



Assemblies include all parts shown in frames

Engine Gasket Set

Ref	Part No.	Qty.	Description				
3	99-9003	1	Seal-Oil (Magneto Side)				
7	107-9898	1	Gasket-Head, Cylinder				
20	115-2291	1	Seal-Oil (PTO Side)				
51	99-9662	1	Gasket-Intake				
88	99-9653	1	Gasket-Cover, Gear				
88A	99-9136	1	Gasket-Cover, Gear Reduction				
276	99-9063	1	Washer-Seal (Rocker Cover)				
276A	99-9645	1	Washer-Seal (Oil Drain Plug)				
358	115-2339	1	Gasket Kit				
868	99-9643	1	Seal-Valve				
883	106-1855	1	Gasket-Exhaust (Exhaust Manifold)				
1022	99-9073	1	Gasket-Cover, Rocker				
1041	99-9120	1	Gasket-Strainer, Oil				
1062	99-9163	1	Gasket-Housing, Outlet				
1065	99-9166	1	Gasket-Housing, Inlet				
1067	99-9168	1	Gasket-Pump, Water				
1078	99-9121	1	Gasket-Pan, Oil				
1080	99-9021	1	Gasket-Retainer				
1095	107-9907	1	Valve Overhaul Kit				

NOTES

