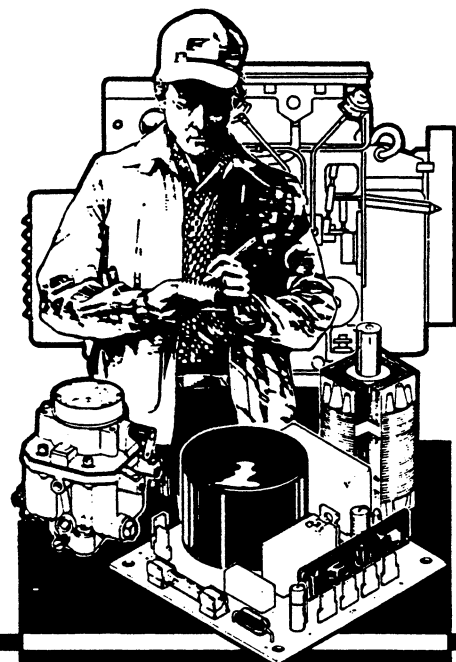

Onan

Parts Manual

DN2M Engine



Onan Service Parts

Important Safety Precautions

Read and observe these safety precautions when using or working on electric generators, engines and related equipment. Also read and follow the literature provided with the equipment.

Proper operation and maintenance are critical to performance and safety. Electricity, fuel, exhaust, moving parts and batteries present hazards that can cause severe personal injury or death.

FUEL, ENGINE OIL, AND FUMES ARE FLAMMABLE AND TOXIC

Fire, explosion, and personal injury can result from improper practices.

- Used engine oil, and benzene and lead, found in some gasoline, have been identified by government agencies as causing cancer or reproductive toxicity. When checking, draining or adding fuel or oil, do not ingest, breathe the fumes, or contact gasoline or used oil.
- Do not fill tanks with engine running. Do not smoke around the area. Wipe up oil or fuel spills. Do not leave rags in engine compartment or on equipment. Keep this and surrounding area clean.
- Inspect fuel system before each operation and periodically while running.
- Equip fuel supply with a positive fuel shutoff.
- Do not store or transport equipment with fuel in tank.
- Keep an ABC-rated fire extinguisher available near equipment and adjacent areas for use on all types of fires except alcohol.
- Unless provided with equipment or noted otherwise in installation manual, fuel lines must be copper or steel, secured, free of leaks and separated or shielded from electrical wiring.
- Use approved, non-conductive flexible fuel hose for fuel connections. Do not use copper tubing as a flexible connection. It will work-harden and break.

EXHAUST GAS IS DEADLY

- Engine exhaust contains carbon monoxide (CO), an odorless, invisible, poisonous gas. Learn the symptoms of CO poisoning.
- Never sleep in a vessel, vehicle, or room with a genset or engine running unless the area is equipped with an operating CO detector with an audible alarm.
- Each time the engine or genset is started, or at least every day, thoroughly inspect the exhaust system. Shut down the unit and repair leaks immediately.

- Warning: Engine exhaust is known to the State of California to cause cancer, birth defects and other reproductive harm.

Make sure exhaust is properly ventilated.

- Vessel bilge must have an operating power exhaust.
- Vehicle exhaust system must extend beyond vehicle perimeter and not near windows, doors or vents.
- Do not use engine or genset cooling air to heat an area.
- Do not operate engine/genset in enclosed area without ample fresh air ventilation.
- Expel exhaust away from enclosed, sheltered, or occupied areas.
- Make sure exhaust system components are securely fastened and not warped.

MOVING PARTS CAN CAUSE SEVERE PERSONAL INJURY OR DEATH

- Do not remove any guards or covers with the equipment running.
- Keep hands, clothing, hair, and jewelry away from moving parts.
- Before performing any maintenance, disconnect battery (negative [-] cable first) to prevent accidental starting.
- Make sure fasteners and joints are secure. Tighten supports and clamps, keep guards in position over fans, drive belts, etc.
- If adjustments must be made while equipment is running, use extreme caution around hot manifolds and moving parts, etc. Wear safety glasses and protective clothing.

BATTERY GAS IS EXPLOSIVE

- Wear safety glasses and do not smoke while servicing batteries.
- Always disconnect battery negative (-) lead first and reconnect it last. Make sure you connect battery correctly. A direct short across battery terminals can cause an explosion. Do not smoke while servicing batteries. Hydrogen gas given off during charging is explosive.
- Do not disconnect or connect battery cables if fuel vapors are present. Ventilate the area thoroughly.

DO NOT OPERATE IN FLAMMABLE AND EXPLOSIVE ENVIRONMENTS

Flammable vapor can be ignited by equipment operation or cause a diesel engine to overspeed and become difficult to stop, resulting in possible fire, explosion, severe personal injury and death. **Do not operate diesel equipment where a flammable vapor environment can be created by fuel spill, leak, etc., unless equipped with an automatic safety device to block the air intake and stop the engine.**

HOT COOLANT CAN CAUSE SEVERE PERSONAL INJURY

- Hot coolant is under pressure. Do not loosen the coolant pressure cap while the engine is hot. Let the engine cool before opening the pressure cap.

ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH

- Do not service control panel or engine with unit running. High voltages are present. Work that must be done while unit is running should be done only by qualified service personnel.
- Do not connect the generator set to the public utility or to any other electrical power system. Electrocutation can occur at a remote site where line or equipment repairs are being made. An approved transfer switch must be used if more than one power source is connected.
- Disconnect starting battery (negative [-] cable first) before removing protective shields or touching electrical equipment. Use insulative mats placed on dry wood platforms. Do not wear jewelry, damp clothing or allow skin surface to be damp when handling electrical equipment.
- Use insulated tools. Do not tamper with interlocks.
- Follow all applicable state and local electrical codes. Have all electrical installations performed by a qualified licensed electrician. Tag open switches to avoid accidental closure.
- With transfer switches, keep cabinet closed and locked. Only authorized personnel should have cabinet or operational keys. Due to serious shock hazard from high voltages within cabinet, all service and adjustments must be performed by an electrician or authorized service representative.

If the cabinet must be opened for any reason:

1. Move genset operation switch or Stop/Auto/Handcrank switch (whichever applies) to Stop.
2. Disconnect genset batteries (negative [-] lead first).
3. Remove AC power to automatic transfer switch. If instructions require otherwise, use extreme caution due to shock hazard.

MEDIUM VOLTAGE GENERATOR SETS (601V TO 15kV)

- Medium voltage acts differently than low voltage. Special equipment and training are required to work on or around medium voltage equipment. Operation and maintenance must be done only by persons trained and qualified to work on such devices. Improper use or procedures will result in severe personal injury or death.
- Do not work on energized equipment. Unauthorized personnel must not be permitted near energized equipment. Induced voltage remains even after equipment is disconnected from the power source. Plan maintenance with authorized personnel so equipment can be de-energized and safely grounded.

GENERAL SAFETY PRECAUTIONS

- Do not work on equipment when mentally or physically fatigued or after consuming alcohol or drugs.
- Carefully follow all applicable local, state and federal codes.
- Never step on equipment (as when entering or leaving the engine compartment). It can stress and break unit components, possibly resulting in dangerous operating conditions from leaking fuel, leaking exhaust fumes, etc.
- Keep equipment and area clean. Oil, grease, dirt, or stowed gear can cause fire or damage equipment by restricting airflow.
- Equipment owners and operators are solely responsible for operating equipment safely. Contact your authorized Onan/Cummins dealer or distributor for more information.

KEEP THIS DOCUMENT NEAR EQUIPMENT FOR EASY REFERENCE.

INTRODUCTION

FORWARD

This Service Parts Catalog provides identification of the Maintenance, Service or Repair parts for the DN2M Industrial Diesel Engine. The Catalog is arranged in Illustrated Groups of related items. Each part illustrated is identified by a Reference Number corresponding to the same Reference Number in the parts list. Items listed without a Part Number are available only in Kit(s) or the Assembly which it is a part of. RIGHT or LEFT side of the engine is determined by FACING the Front (Radiator end) of the Engine. Illustrations are typical and subject to change.

SAFETY PRECAUTIONS

The following symbols are used in Parts Catalogs to alert users to the potentially dangerous conditions relating to maintenance of the equipment and replacement of parts. Please read and observe.



This symbol warns of immediate hazards which will result in severe personal injury or death.



This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.



This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

PRODUCT SAFETY PRECAUTIONS:

WARNING

CONTACT WITH USED ENGINE OILS HAS BEEN IDENTIFIED BY A UNITED STATES FEDERAL AGENCY AND SOME USA STATE AGENCIES AS CAUSING CANCER or REPRODUCTIVE TOXICITY. WHEN CHECKING OR CHANGING ENGINE OILS TAKE ALL NECESSARY PRECAUTIONS NOT TO INGEST, BREATHE THE FUMES OR CONTACT THE USED OIL!

WARNING

CONTACT WITH ASBESTOS HAS BEEN IDENTIFIED BY A UNITED STATES FEDERAL AGENCY AND SOME USA STATE AGENCIES AS CAUSING CANCER or REPRODUCTIVE TOXICITY. WHEN HANDLING ENGINE GASKETS TAKE ALL NECESSARY PRECAUTIONS NOT TO INGEST, BREATHE OR CONTACT THE DUST FROM THE GASKETS! USE ADEQUATE VENTILATION AND WEAR PROTECTIVE GLOVES, MASKS AND CLOTHING!

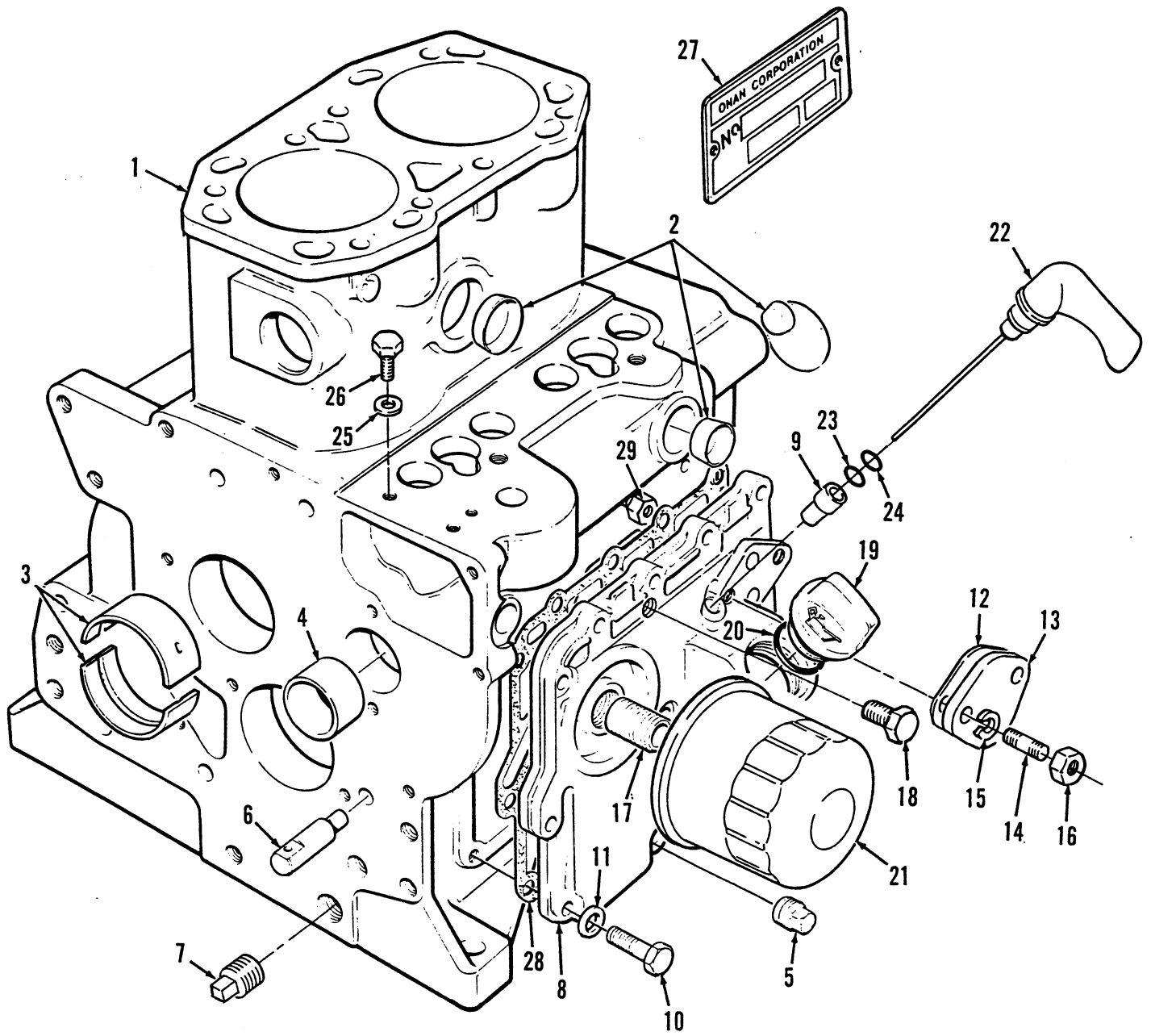
WARNING

CONTACT WITH BENZENE and LEAD, FOUND IN GASOLINES, FUEL ADDITIVES AND SOLVENTS HAS BEEN IDENTIFIED BY A UNITED STATES FEDERAL AGENCY AND SOME USA STATE AGENCIES AS CAUSING CANCER or REPRODUCTIVE TOXICITY. WHEN CHECKING, DRAINING OR ADDING GASOLINE AND FUEL ADDITIVES, OR USING SOLVENTS TAKE ALL NECESSARY PRECAUTIONS NOT TO INGEST, BREATHE THE FUMES, OR CONTACT THE LIQUIDS. USE ADEQUATE VENTILATION AND WEAR PROTECTIVE GLOVES, MASKS AND CLOTHING!

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Crankcase



Crankcase

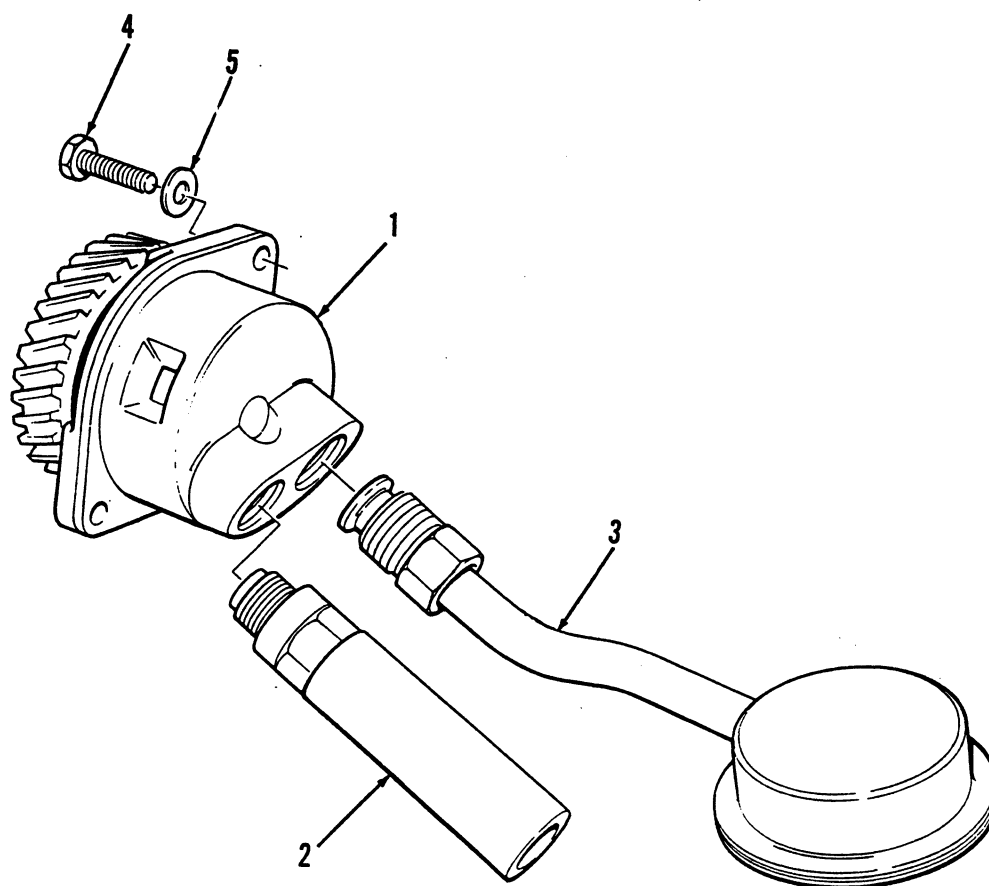
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	186-6000	1	Crankcase Assembly (Includes Parts Marked *)	16	186-6020	2	Nut, Hex (M8)
2	186-6002	1	*Kit, Expansion Plug	17	186-6021	1	Adapter, Oil Filter
3			Kit, Main Bearing	18	186-6022	1	Plug, Hex Head (1/8-27 NPTF)
	186-6003	1	Standard	19	186-6023	1	Cap, Oil Fill
	186-6004	1	.25 Undersize	20	186-6024	1	Seal, "O" Ring - Oil Fill Cap
	186-6005	1	.50 Undersize	21	186-6025	1	Filter, Oil
4	186-6006	1	*Bearing, Camshaft	22	186-6026	1	Dipstick Assembly (Includes Parts Marked +)
5	186-6228	1	*Plug (1/2" BSP)	23	186-6028	1	+Seal, "O" Ring - Dipstick
6	186-6008	2	*Support, Pivot	24	186-6029	1	+Seal, "O" Ring - Dipstick
7	186-6007	2	*Plug (3/8" BSP)	25	186-6097	2	Washer, Copper - Plain
8	186-6009	1	Door Assembly, Crankcase (Includes Parts Marked #)	26	186-6230	2	Screw, Cap - Hex Head (M8 x 1.25 x 8mm)
9	186-6013	1	#Adapter, Dipstick	27	186-6229	1	Plate, Identification
10	186-6014	11	Screw, Cap - Hex Head (M6 x 25mm)	28	186-6010	1	Gasket, Door Assembly
11	186-6015	11	Washer, Flat (M6)	29	186-6231	2	Adapter, Stud
12	186-6017	1	Gasket, Blanking Plate				
13	186-6016	1	Plate, Blanking				
14	186-6018	2	Stud (M8 x 25mm)				
15	186-6019	2	Washer, Lock - Spring (M8)				

* - Parts Included in 186-6000 Crankcase Assembly.

- Parts Included in 186-6009 Crankcase Door Assembly.

+ - Parts Included in 186-6026 Dipstick Assembly.

Oil Pump and Strainer

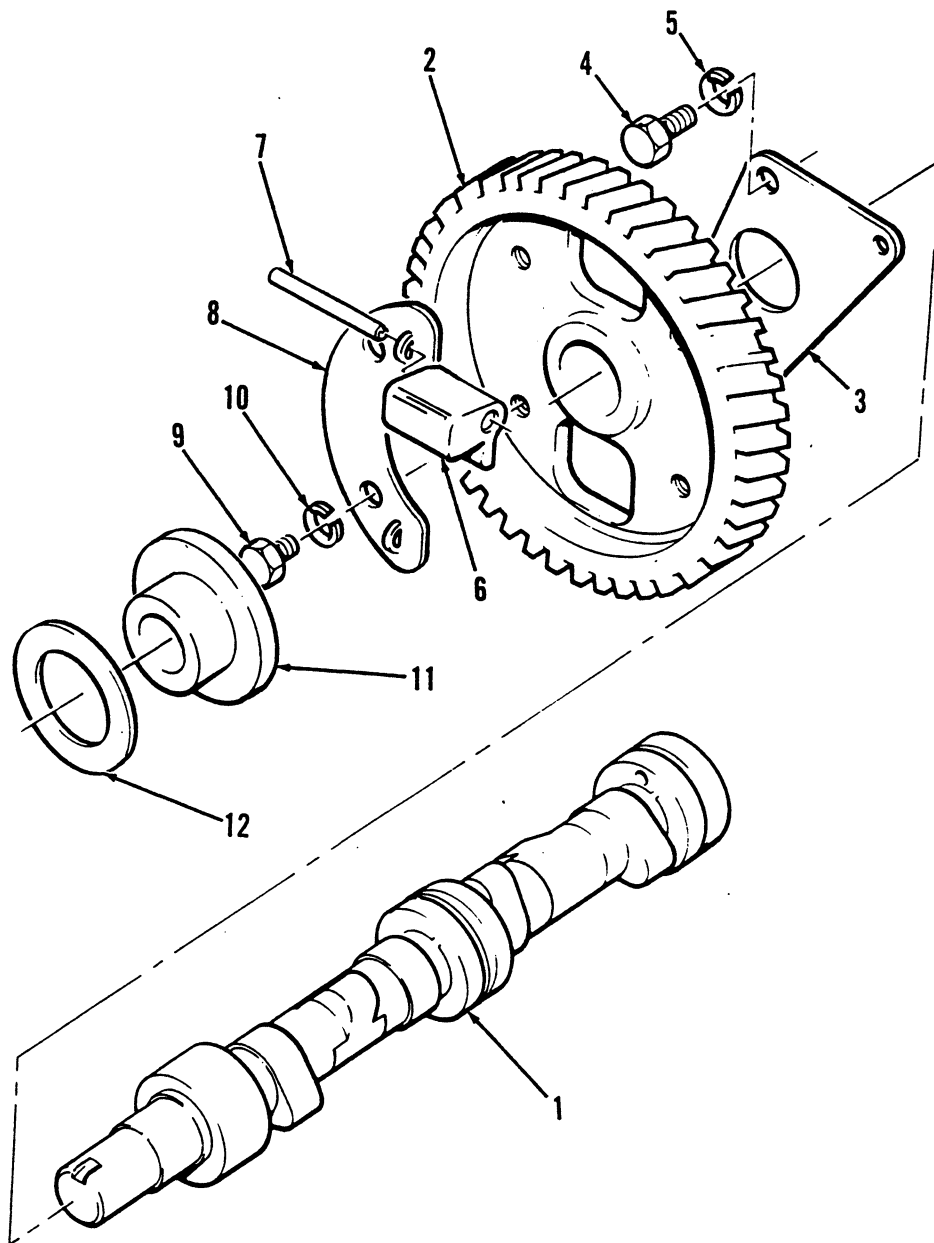


REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	186-6030	1	Pump and Gear Assembly, Oil (Includes Parts Marked *)
2	186-6031	1	*Valve, Oil Relief
3	186-6032	1	Strainer Assembly, Oil

REF NO.	PART NO.	QTY USED	PART DESCRIPTION
4	186-6034	2	Screw, Cap - Hex Head (M6 x 20mm)
5	186-6015	2	Washer, Flat (M6)

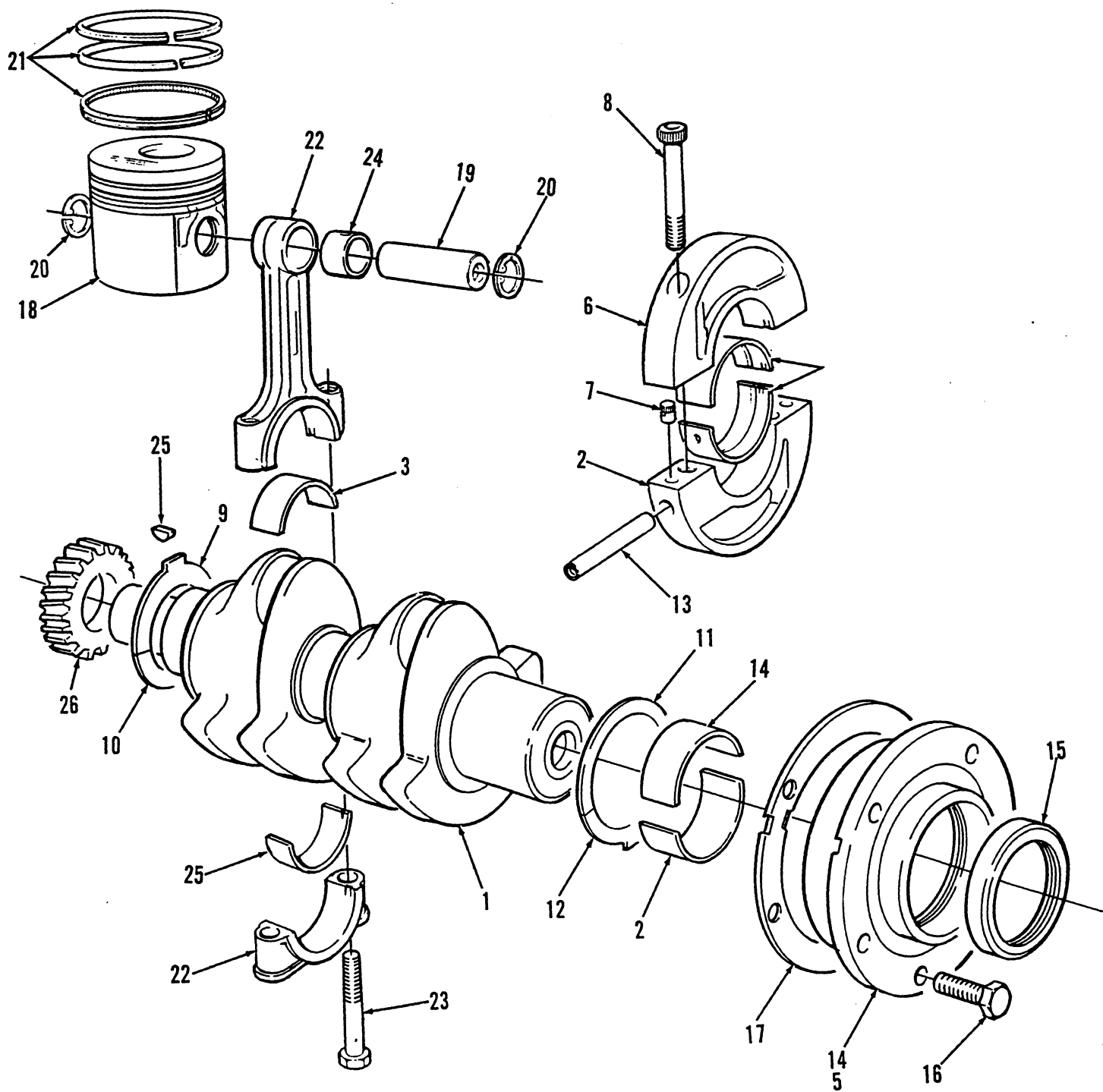
* - Parts Included in 186-6030 Oil Pump and Gear Assembly.

Camshaft and Governor



REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	186-6035	1	Camshaft Assembly (Includes Parts Marked *)	7	186-6040	2	Pin
2		1	*Gear, Timing	8	186-6041	2	Plate, Retaining
3		1	*Plate, Thrust	9	186-6043	4	Screw, Cap - Hex Head (M6 x 8mm)
4	186-6037	2	Screw, Cap - Hex Head (M6 x 12mm)	10	186-6038	4	Washer, Lock - Spring (M6)
5	186-6038	2	Washer, Lock - Spring (M6)	11	186-6044	1	Sleeve, Governor
6	186-6039	2	Weight, Governor	12	186-6045	1	Washer, Thrust

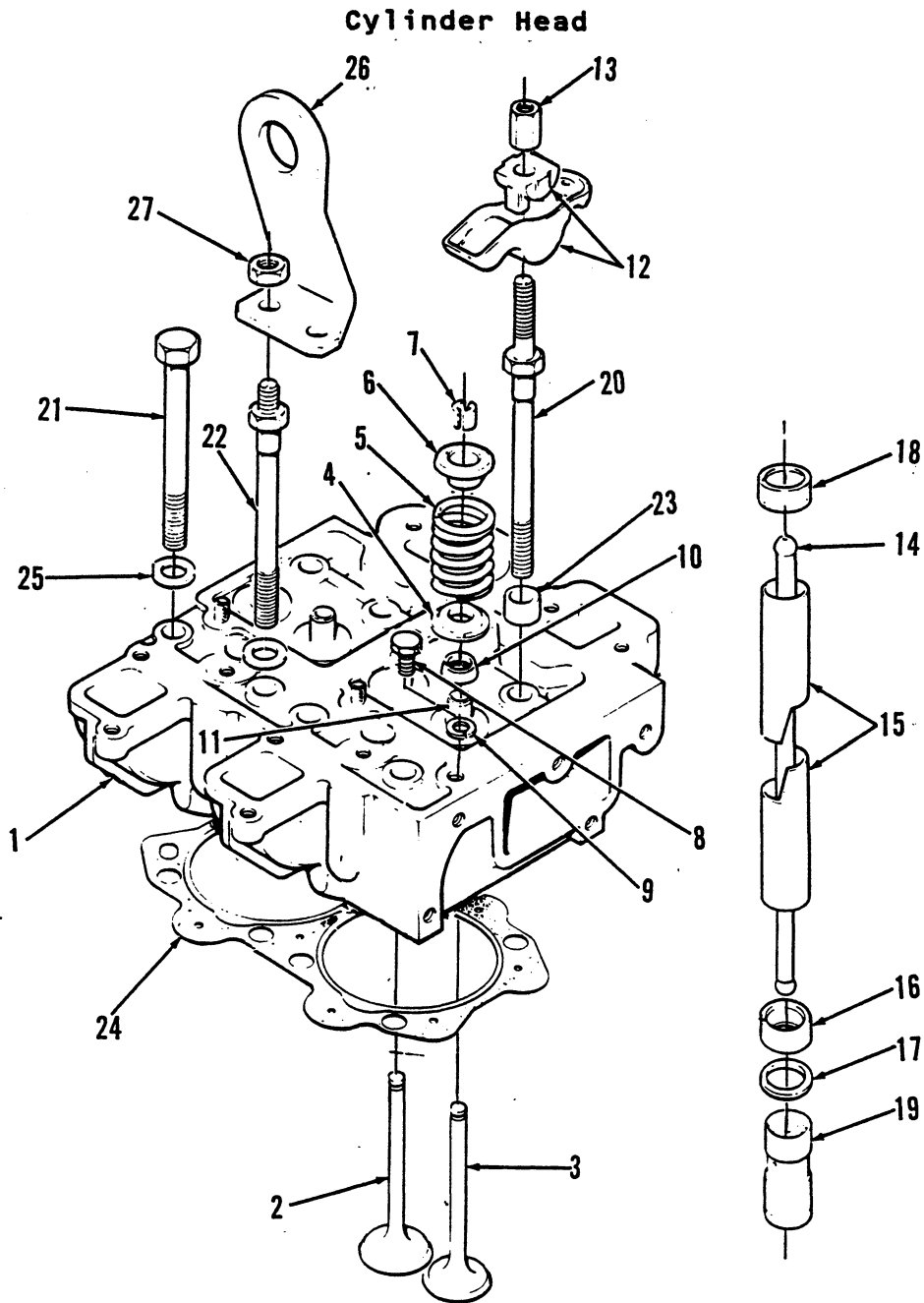
Crankshaft and Piston



Crankshaft and Piston

REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	186-6046	1	Kit, Crankshaft (Includes Parts Marked *)	17			Shim
2			*Kit, Main Bearing	186-6065	1		0.38mm
	186-6060	1	Standard	186-6066	1		0.50mm
	186-6061	1	.25 Undersize	18			Piston Assembly (Includes Parts Marked @)
	186-6062	1	.50 Undersize		186-6067	2	Standard
3			*Kit, Bearing - Big End	186-6068	2		.25 Oversize
	186-6081	2	Standard	186-6069	2		.50 Oversize
	186-6082	2	.25 Undersize	186-6070	2		.75 Oversize
	186-6083	2	.50 Undersize	186-6071	2		1.00 Oversize
4			*Kit, Center Main Bearing	19		2	@Pin, Wrist
	186-6051	1	Standard	20	186-6072	4	@Circlip
	186-6052	1	.25 Undersize	21			@Set, Piston Ring
	186-6053	1	.50 Undersize		186-6073	2	Standard
5	186-6059	1	Screw, Drive		186-6074	2	.25 Oversize
6	186-6048	1	Housing Assembly, Center Bearing (Includes Parts Marked #)		186-6075	2	.50 Oversize
					186-6076	2	.75 Oversize
7	186-6049	2	#Dowel		186-6077	2	1.00 Oversize
8	186-6050	2	#Screw, Cap - Socket Head (M8 x 50mm)	22	186-6078	2	Connecting Rod Assembly (Includes Parts Marked \$)
9	186-6056	1	Kit, Thrust Washer (Includes Parts Marked +)	23	186-6079	4	\$Screw, Cap - Hex Head - Special
10		1	+Washer, Thrust	24	186-6080	2	\$Bushings, Small End
11		1	+Washer, Thrust	25	186-6055	1	Key
12		1	+Washer, Thrust	26	186-6054	1	Gear, Pinion - Crankshaft
13	186-6057	1	Tube, Locating				
14	186-6058	1	Housing, Main Bearing				
15	186-6063	1	Seal, Oil				
16	186-6064	5	Screw, Cap - Hex Head (M8 x 20mm)				

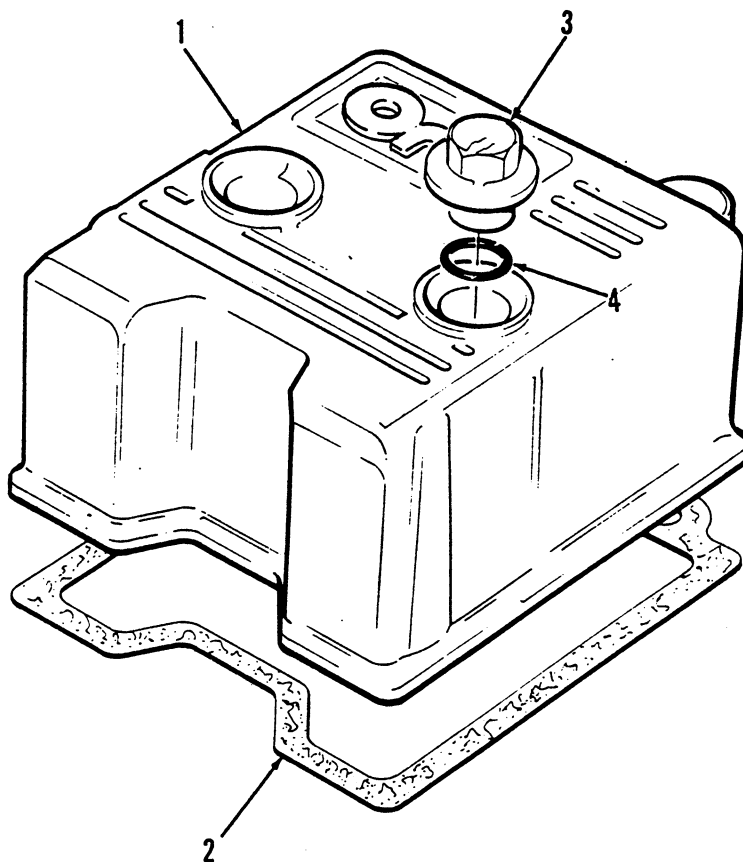
* - Parts Included in 186-6046 Crankshaft Kit.
- Parts Included in 186-6048 Center Bearing Housing Assembly.
+ - Parts Included in 186-6056 Thrust Washer Kit.
@ - Parts Included in 186-6067 through 186-6071 Piston Assembly.
\$ - Parts Included in 186-6078 Connecting Rod Assembly.



REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	186-6084	1	Head Assembly, Cylinder (Includes Parts Marked *)	17	186-6101	4	Washer
2	186-6086	2	*Valve, Intake	18	186-6102	4	Boot, Rubber - Sealing Tube to Cylinder Head
3	186-6087	2	*Valve, Exhaust	19	186-6103	4	Tappet
4	186-6088	4	*Plate, Valve Spring	20	186-6104	4	Bolt, Cylinder Head and Rocker
5	186-6089	4	*Spring, Valve	21	186-6105	2	Bolt, Cylinder Head
6	186-6090	4	*Carrier, Spring	22	186-6106	2	Bolt, Cylinder Head and Lift Eye
7	186-6091	4 pr.	*Cotter, Valve	23	186-6107	4	Spacer
8	186-6096	1	*Screw, Cap - Hex Head (M8 x 1.25 x 12mm)	24	186-6108	1	Gasket, Cylinder Head 1.35mm
9	186-6097	1	*Washer, Copper - Plain (5/16)		186-6109	1	1.47mm
10	186-6093	4	*Shield, Valve Stem		186-6110	1	1.60mm
11	186-6092	4	*Guide, Valve	25	186-6114	4	Washer, Flat (M10)
12	186-6094	4	Kit, Rocker Lever	26	186-6115	1	Eye, Lifting
13	186-6095	4	Nut, Rocker	27	186-6020	2	Nut, Hex (M8 x 1.25)
14	186-6098	4	Rod, Push				
15	186-6099	4	Tube, Push Rod Sealing				
16	186-6100	4	Boot, Rubber - Sealing Tube to Crankcase				

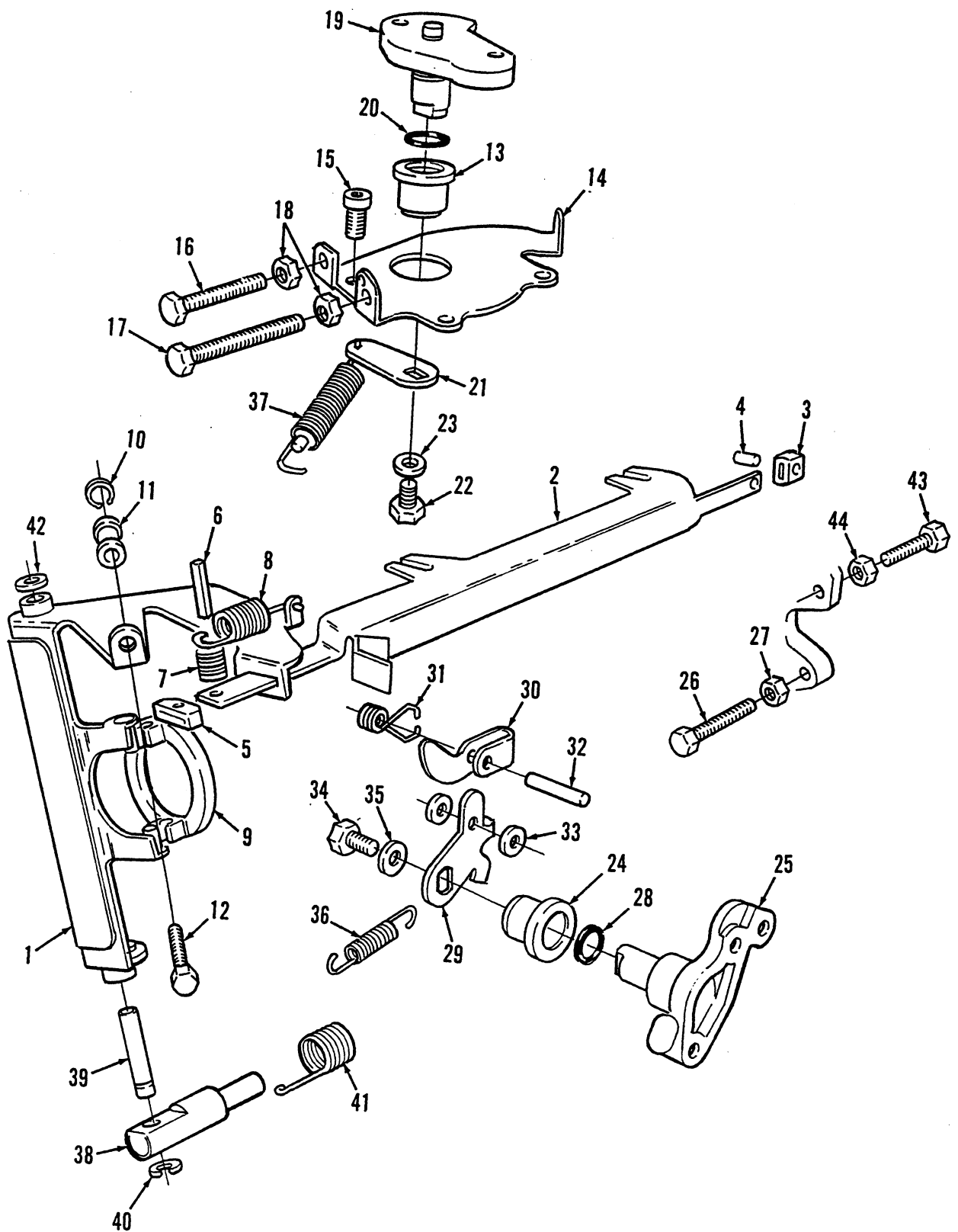
* - Parts Included in 186-6084 Cylinder Head Assembly.

Cylinder Head Cover



REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	186-6116	2	Cover, Cylinder Head	3	186-6118	4	Nut, Hex - Special
2	186-6117	2	Gasket, Cylinder Head Cover	4	186-6028	4	Seal, "O" Ring

Governor Lever and Rack

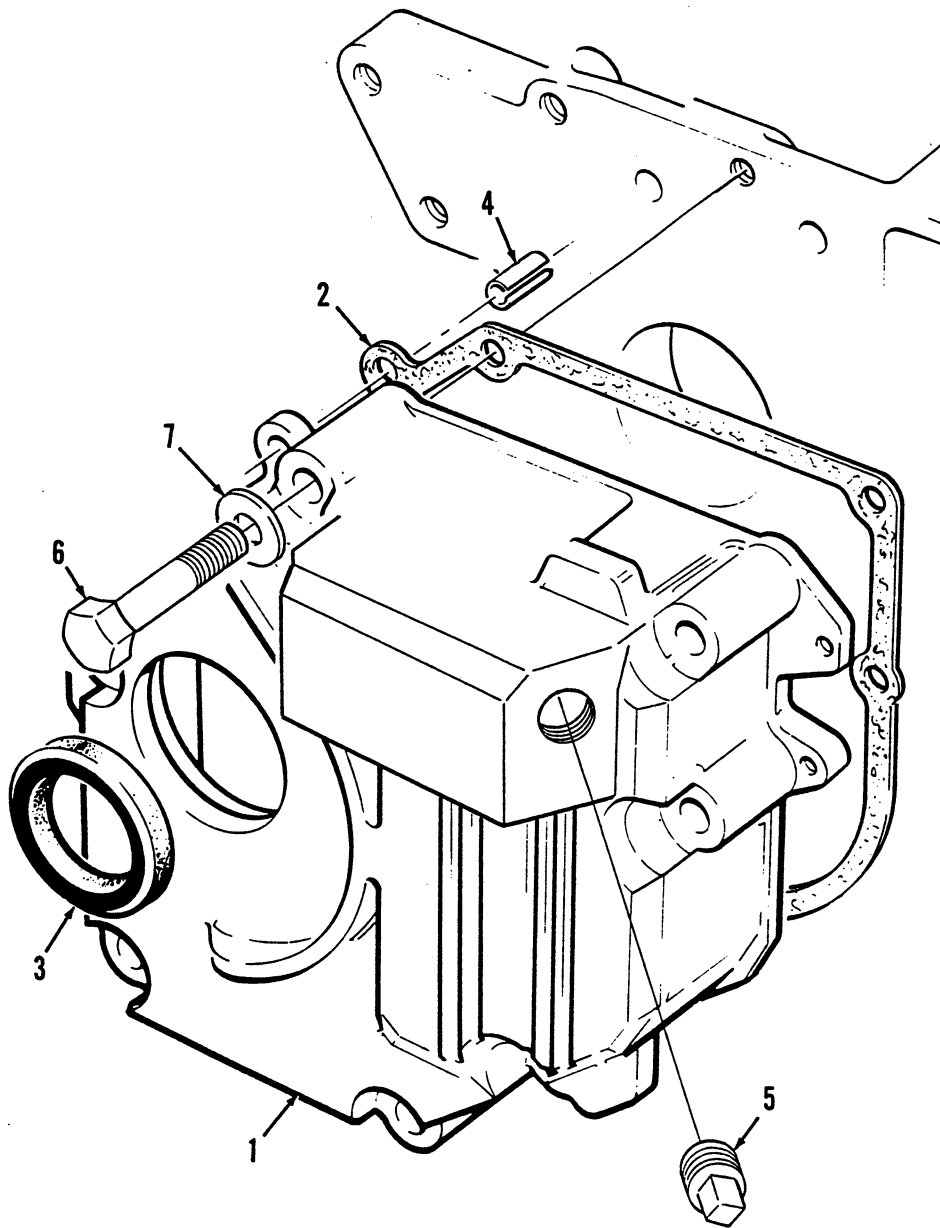


Governor Lever and Rack

REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
	186-6119	1	Lever and Rack Assembly (Includes Parts Marked *)	24	186-6133	1	+Bushing
1			*Lever, Governor	25			+Lever, External - Stop/Run
2			*Rack, Fuel Pump	26	186-6144	1	+Screw, Cap - Hex Head (M5 x 0.8 x 30mm)
3			*Bearing	27	186-6128	1	+Nut, Hex - Jam (M5 x 0.8)
4			*Pin, Spring	28	186-6129	1	+Seal, "O" Ring
5			*Toe	29		1	+Lever, Internal - Stop/Run
6			*Pin, Spring	30		1	+Lever, Trip
7			*Bushing	31	186-6136	1	+Spring, Trip Lever
8	186-6121	1	*Spring, Rack to Governor Lever	32		1	+Pin
9	186-6122	1	*Collar, Thrust	33		2	+Washer
10		1	*Circlip	34	186-6130	1	+Screw, Cap - Hex Head (M5 x 0.8 x 12mm)
11		1	*Retainer, Spring				
12		1	*Screw, Droop Adjust - Special	35	186-6131	1	+Washer, Flat (M5)
	186-6123	1	Kit, Governor Speed Control (Includes Parts Marked #)	36	186-6137	1	+Spring, Stop/Run Lever
13	186-6124	1	#Bushing	37	186-6138	1	Spring, Speeder
14		1	#Plate, Base	38	186-6008	2	Support, Pivot
15	186-6125	1	#Screw, Cap - Socket Head (M6 x 1.0 x 12mm)		186-6140	1	Kit, Pivot Pin (Includes Parts Marked @)
16	186-6126	1	#Screw, Cap - Hex Head (M5 x 0.8 x 50mm)	39		2	@Pin, Pivot
17	186-6127	1	#Screw, Cap - Hex Head (M5 x 0.8 x 35mm)	40	186-6141	2	@Retainer
18	186-6128	2	#Nut, Hex - Jam (M5 x 0.8)	41	186-6142	1	Clip, Pivot Pin
19		1	#Quadrant, Speed Control	42	186-6143	AR	Shim, Governor Lever
20	186-6129	1	#Seal, "O" Ring	43	186-6145	1	Screw, Cap - Hex Head (M5 x 0.8 x 25mm)
21		1	#Lever, Speeder Spring	44	186-6128	1	Nut, Hex - Jam (M5 x 0.8)
22	186-6130	1	#Screw, Cap - Hex Head (M5 x 0.8 x 12mm)				
23	186-6131	1	#Washer, Flat (M5)				
	186-6132	1	Kit, Fuel Pump Lever (Includes Parts Marked +)				

* - Parts Included in 186-6119 Governor Lever and Rack Assembly.
- Parts Included in 186-6123 Governor Speed Control Kit.
+ - Parts Included in 186-6132 Fuel Pump Lever Kit.
@ - Parts Included in 186-6140 Pivot Pin Kit.

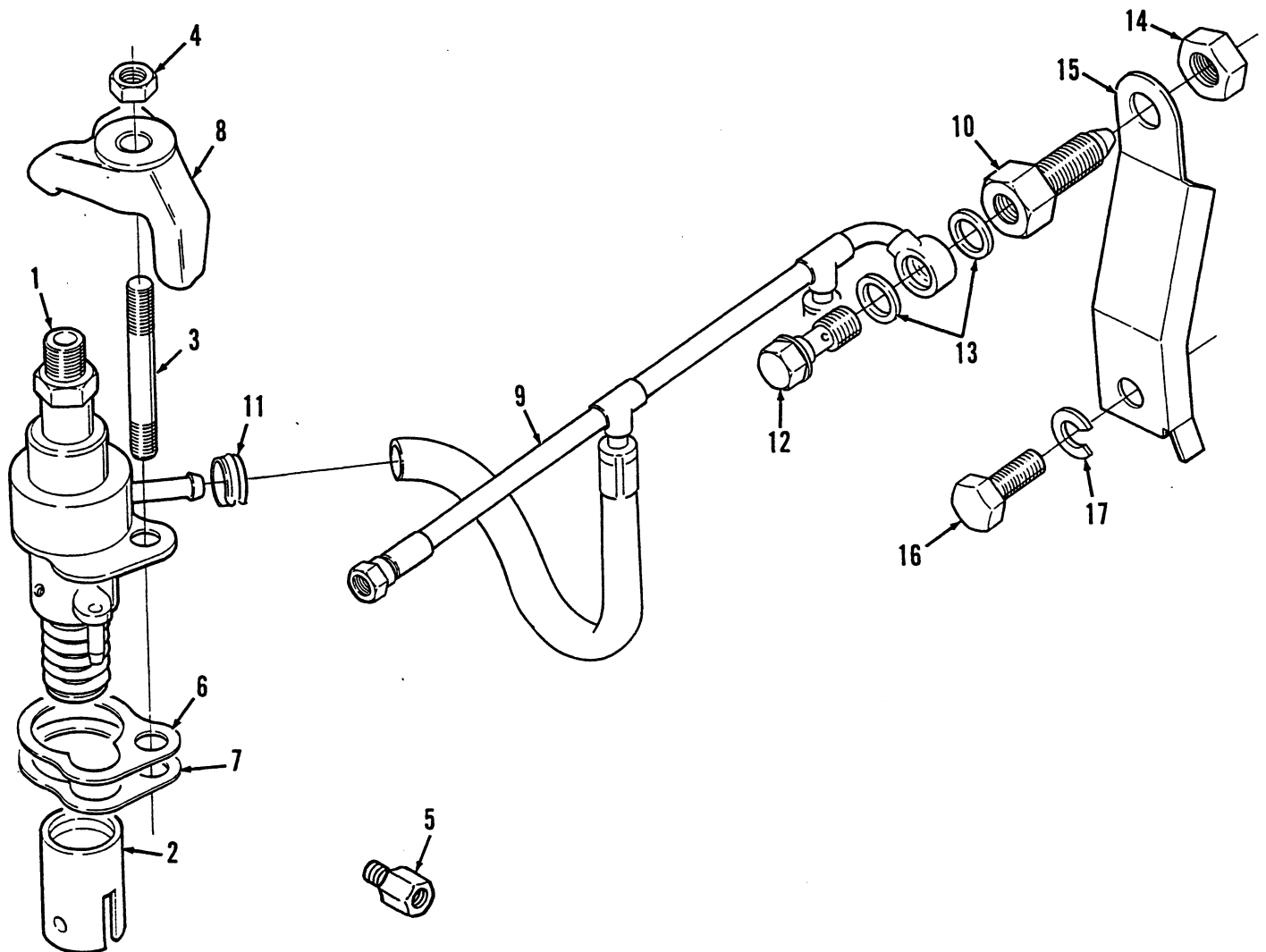
Gear End Cover



REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	186-6146	1	End Cover
2	186-6147	1	Gasket, End Cover
3	186-6148	1	Seal, Oil
4	186-6149	2	Dowel

REF NO.	PART NO.	QTY USED	PART DESCRIPTION
5	186-6007	1	Plug, Square Head (3/8 BSP)
6	186-6150	7	Screw, Cap - Hex Head (M6 x 1.0 x 50mm)
7	186-6015	7	Washer, Flat (M6)

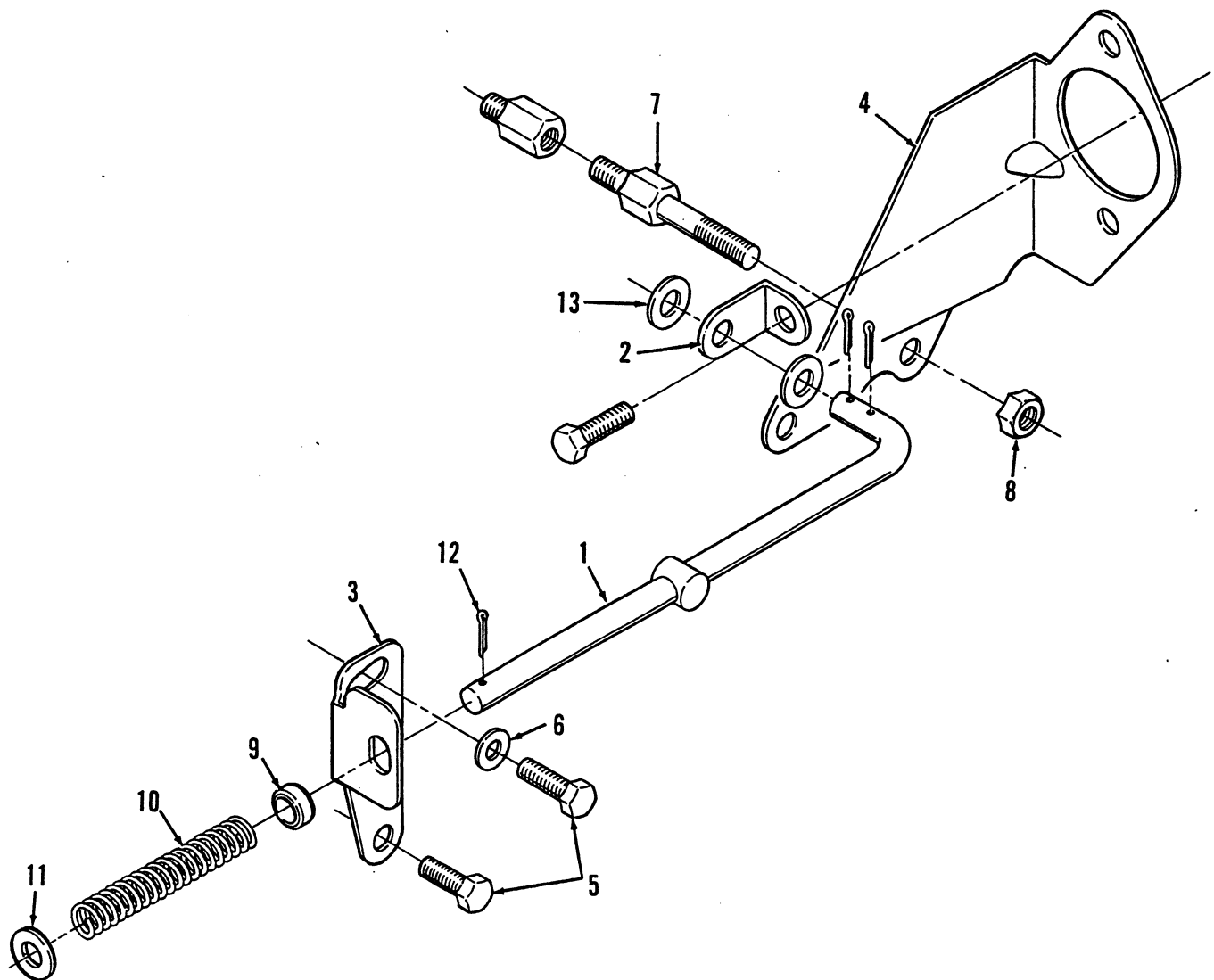
Fuel Pump



REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	186-6151	2	Pump, Fuel
2	186-6152	2	Tappet, Fuel Pump
3	186-6153	2	Stud (M8 x 1.25 x 55mm)
4	186-6154	2	Nut, Hex - Spherical Faced (M8 x 1.25)
5	186-6231	2	Adapter, Stud
6	186-6156	2	Gasket
7	186-6157	AR	Kit, Shim
8	186-6158	2	Clamp

REF NO.	PART NO.	QTY USED	PART DESCRIPTION
9	186-6159	1	Pipe Assembly, Fuel
10	502-1119	1	Connector, Bulkhead
11	186-6161	2	Clip, Hose
12	186-6162	1	Plug, Swivel - Union
13	186-6163	2	Washer, Sealing
14	868-0004	1	Nut, Hex - Jam (7/16 x 20)
15	149-2264	1	Bracket, Fuel Line
16	800-0047	1	Screw, Cap - Hex Head
17	850-0050	1	Washer, Lock - Spring

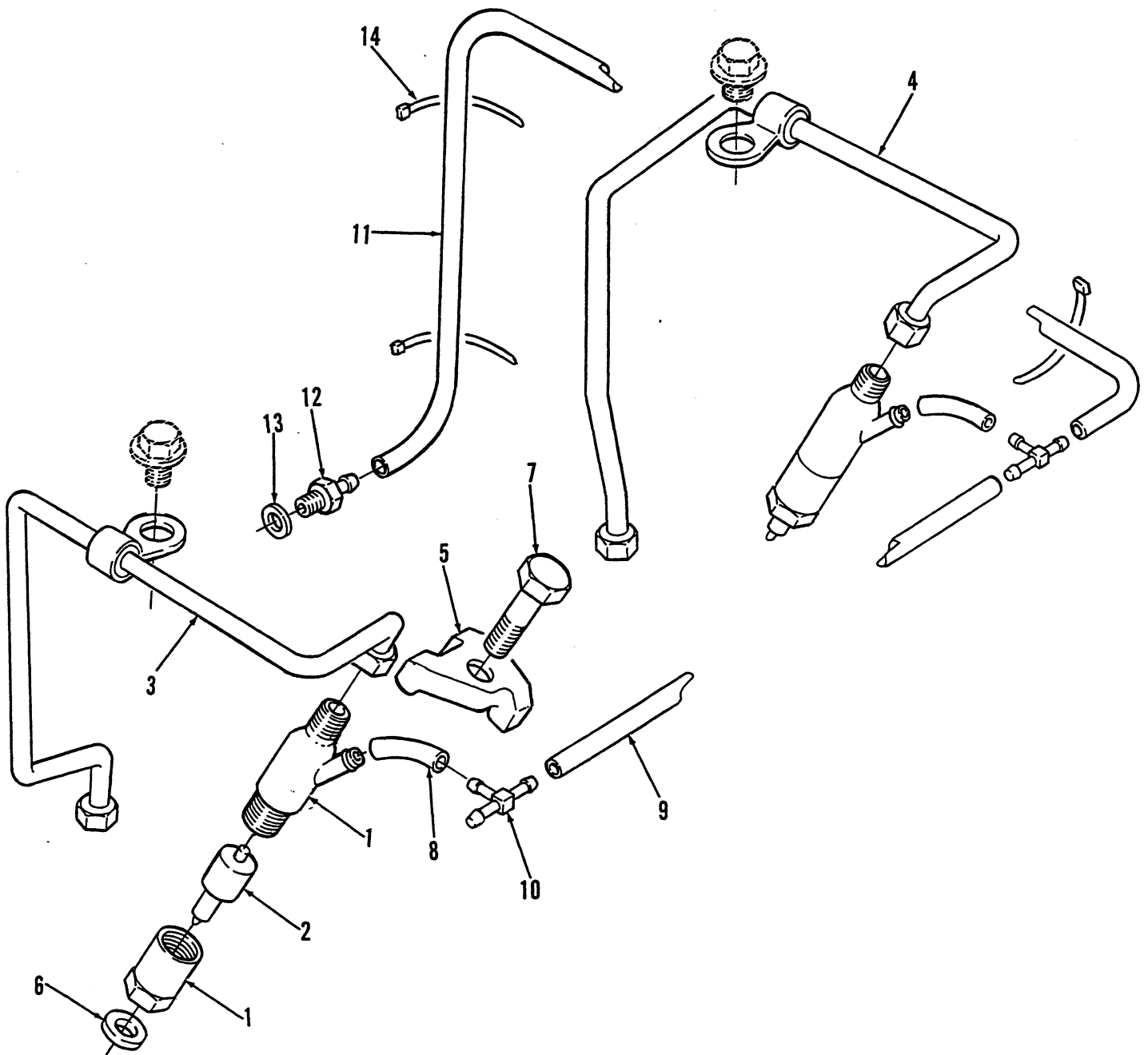
Fuel Solenoid



REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
	186-6179	1	Kit, Solenoid Mounting (Includes Parts Marked *)	7	186-6234	2	*Stud, Shouldered
1	186-6134	1	*Rod Assembly, Push/Pull	8	186-6235	2	*Nut, Hex (M6)
2	186-6135	1	*Bracket	9	186-6236	1	*Ferrule, Spring
3	186-6197	1	*Lever, Stop/Run	10	186-6237	1	*Spring, Return
4	186-6207	1	*Bracket, Solenoid Mounting	11	186-6238	1	*Washer (M6)
5	186-6232	2	*Screw, Cap - Hex Head (M5 x 0.8 x 12mm)	12	186-6239	3	*Pin, Split
6	186-6233	2	*Washer (M5)	13	186-6240	2	*Washer (M6 x 1.6 Thk)

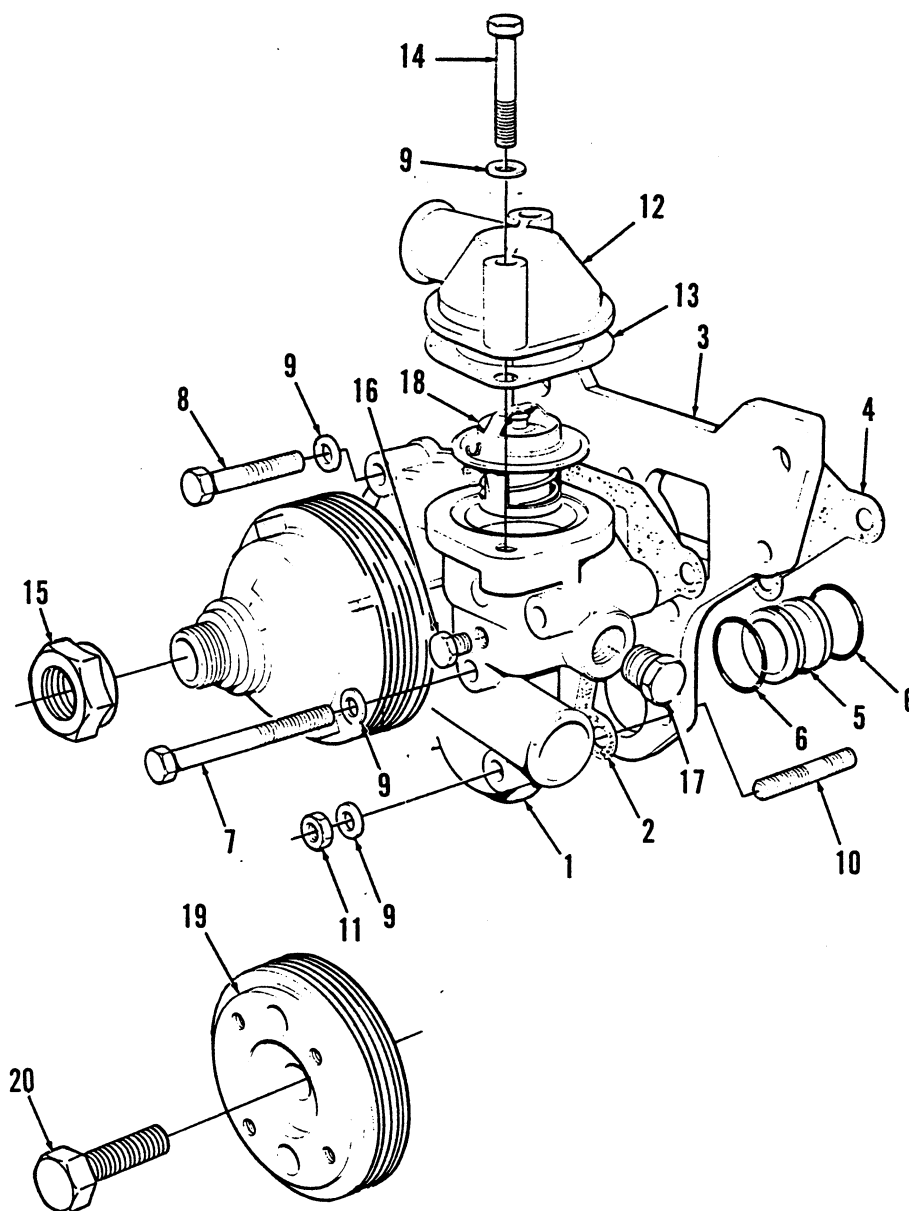
* - Parts Included in 186-6179 Solenoid Mounting Kit.

Fuel Injector



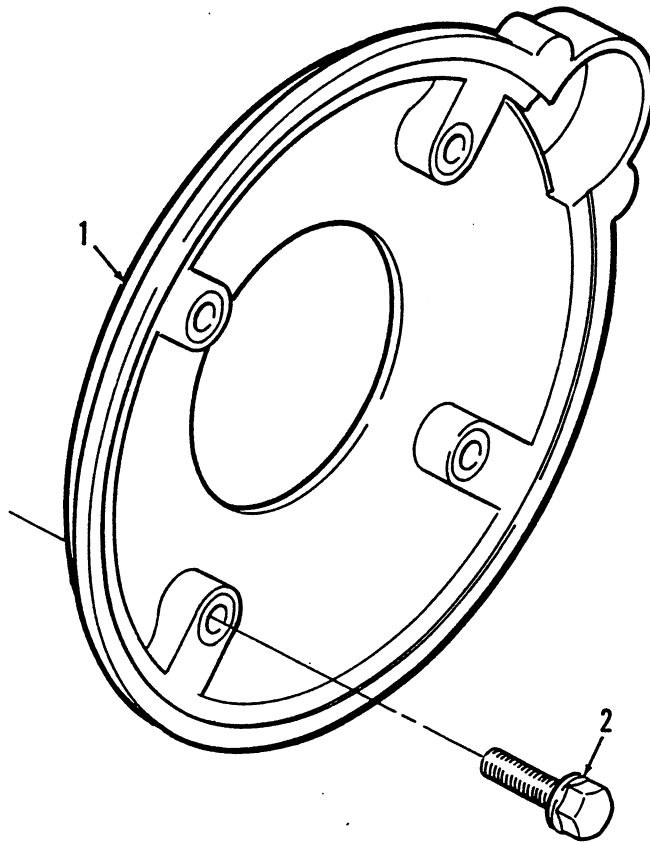
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	186-6168	2	Injector, Fuel (Includes Parts Marked *)	8	186-6175	2	Pipe, Leak Off
2	186-6169	2	*Nozzle	9	186-6176	1	Pipe, Leak Off
3	186-6170	1	Pipe Assembly, Fuel	10	186-6177	2	Tee Fitting
4	186-6171	1	Pipe Assembly, Fuel	11	186-6166	1	Hose
5	186-6172	2	Clamp, Injector	12	186-6164	1	Union
6	186-6173	2	Washer, Injector	13	186-6165	1	Washer, Flat
7	186-6174	2	Bolt, Injector	14	186-6167	3	Tie

Water Pump and Thermostat



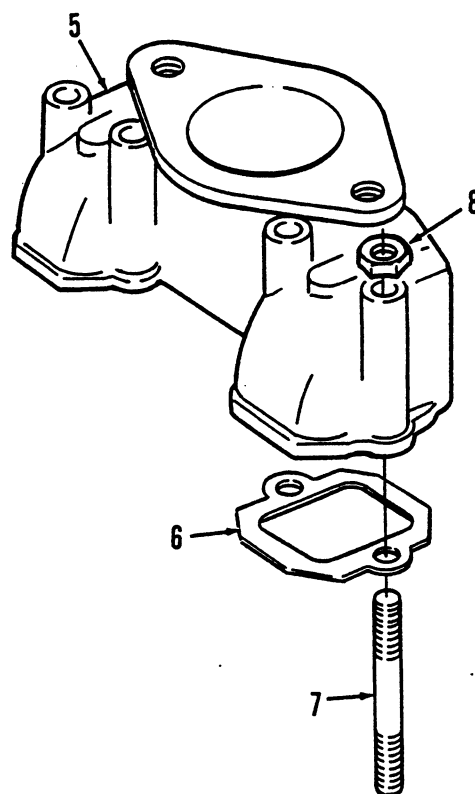
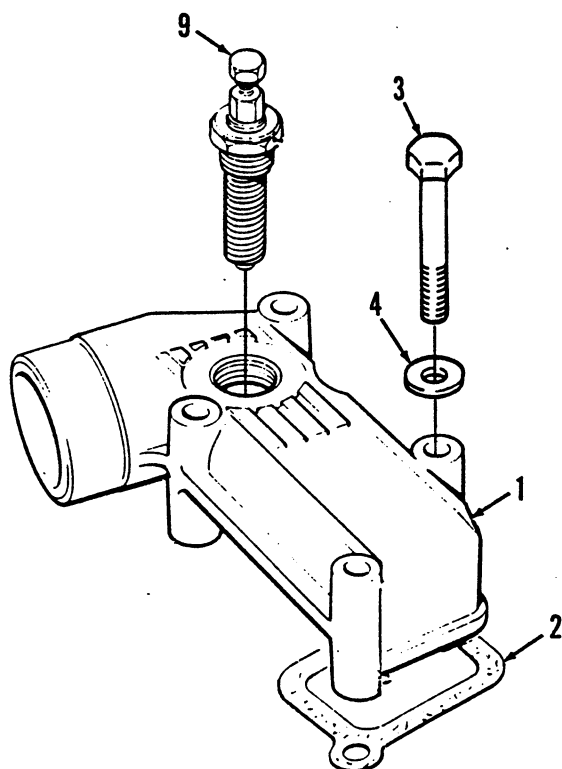
REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	186-6178	1	Pump, Water (Includes Pulley)	11	186-6020	2	Nut, Hex (M8)
2	186-6180	1	Gasket	12	186-6189	1	Outlet, Thermostat
3	186-6181	1	Plate, Mounting	13	186-6190	1	Gasket
4	186-6182	1	Gasket	14	186-6191	2	Screw, Cap - Hex Head (M8 x 60mm)
5	186-6183	1	Sleeve	15	186-6194	1	Nut, Fan
6	186-6184	2	Seal, "O" Ring	16	186-6022	1	Plug (1/8 - 27 NPTF)
7	186-6185	3	Screw, Cap - Hex Head (M8 x 75mm)	17	186-6192	1	Plug (3/8 - 18 NPTF)
8	186-6186	2	Screw, Cap - Hex Head (M8 x 45mm)	18	186-6193	1	Thermostat
9	186-6187	9	Washer, Flat (M8)	19	186-6195	1	Pulley, Crankshaft
10	186-6188	2	Stud (M8 x 40mm)	20	186-6196	1	Screw, Cap - Hex Head (M16 x 1.5 x 30mm) Left Hand

Flywheel Housing



REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	231-0307	1	Housing, Flywheel
2	186-6198	4	Screw, Cap - Hex Washer Head (M12 x 1.75 x 30mm)

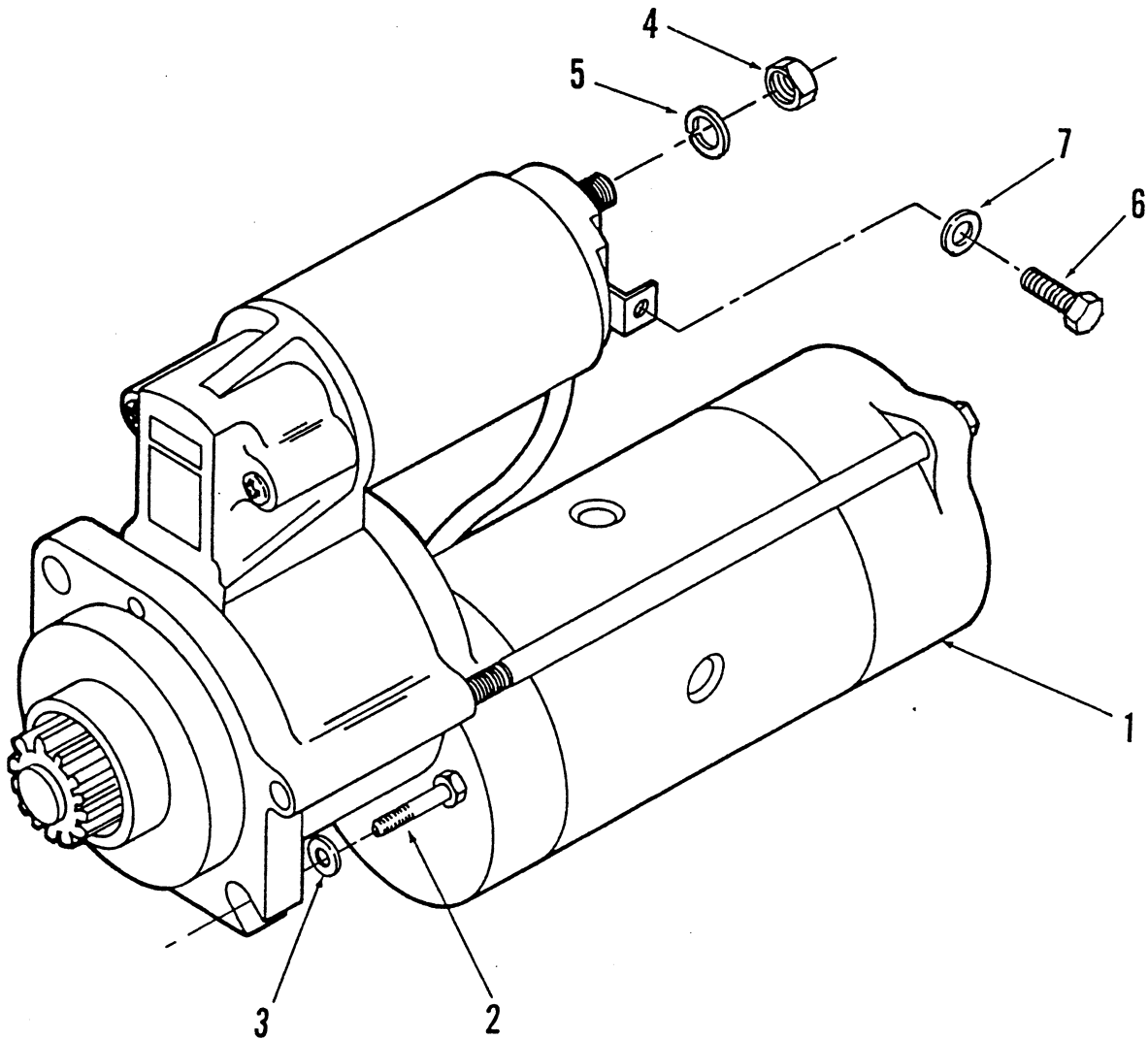
Intake and Exhaust Manifolds



REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	186-6199	1	Manifold, Intake
2	186-6202	2	Gasket
3	186-6203	4	Screw, Cap - Hex Head (M6 x 75mm)
4	186-6015	4	Washer, Flat (M6)

REF NO.	PART NO.	QTY USED	PART DESCRIPTION
5	186-6204	1	Manifold, Exhaust
6	186-6206	2	Gasket
7	186-6208	4	Stud
8	186-6209	4	Nut, Hex
9	186-6201	1	Plug, Heater - 24 Volt

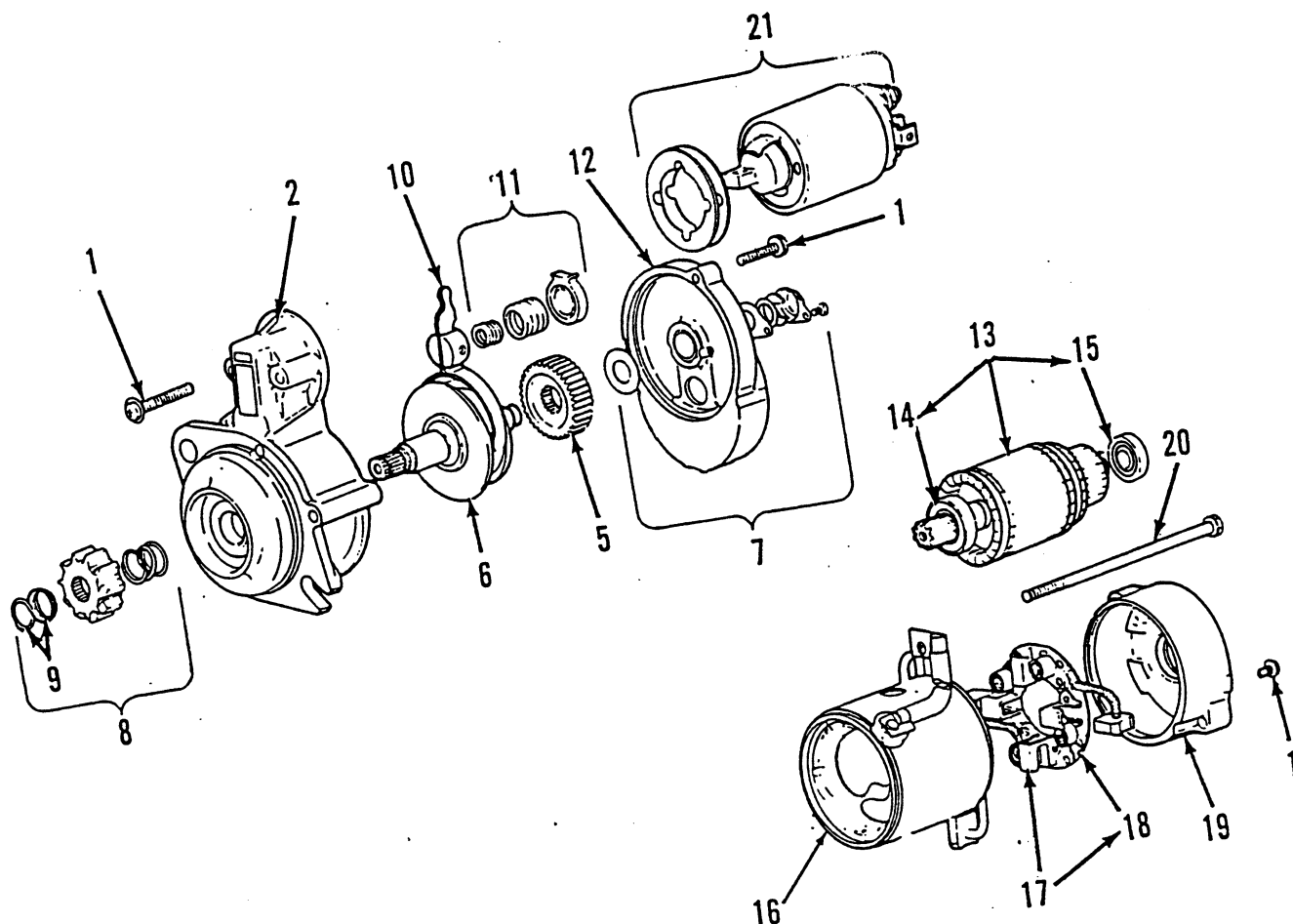
Starter



REF NO.	PART NO.	QTY USED	PART DESCRIPTION
1	191-1550	1	Starter - 24 VDC (See Separate Figure for Components)
2	720-1806	2	Screw, Cap - Hex Head (M12-1.75 x 35mm)
3	740-1010	2	Washer, Flat (M12)

REF NO.	PART NO.	QTY USED	PART DESCRIPTION
4	860-2008	2	Nut, Hex (M8)
5	850-2008	2	Washer, Lock - Spring (M8)
6	718-1002	1	Screw, Cap - Hex Head (M5 x 8mm)
7	850-2005	1	Washer, Lock - Spring (M5)

Starter Components



REF NO.	PART NO.	QTY USED	PART DESCRIPTION	REF NO.	PART NO.	QTY USED	PART DESCRIPTION
	191-1550		Starter - 24 VDC	11	191-1440	1	Set, Spring
1	191-1450	1	Set, Screw (Package)	12	191-1439	1	Bracket, Center
2	191-1605	1	Bracket Assy, Front (Includes Bearing)	13	191-1606	1	Armature (Includes Bearings)
5	191-1446	1	Gear	14	191-1437	1	Bearing, Sleeve - Center
6	191-1445	1	Clutch	15	191-1436	1	Bearing, Sleeve - Rear
7	191-1444	1	Set, Cover - Rear (Includes Cover, Plate, Washers, Screws and Snap Ring)	16	191-1607	1	Yoke (Includes Pole Shoes, Field Coil, Positive Brushes)
8	191-1443	1	Set, Pinion (Includes Pinion, Spring and Stopper Set)	17	191-1608	1	Holder, Brush (Includes Negative Brushes)
9	191-1442	1	Set, Stopper (Includes Stopper and Ring)	18	191-1433	4	Spring, Brush
10	191-1441	1	Lever	19	191-1432	1	Bracket, Rear
				20	191-1431	1	Set, Bolt
				21	191-1609	1	Switch Package (Includes Switch and Shims)



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