

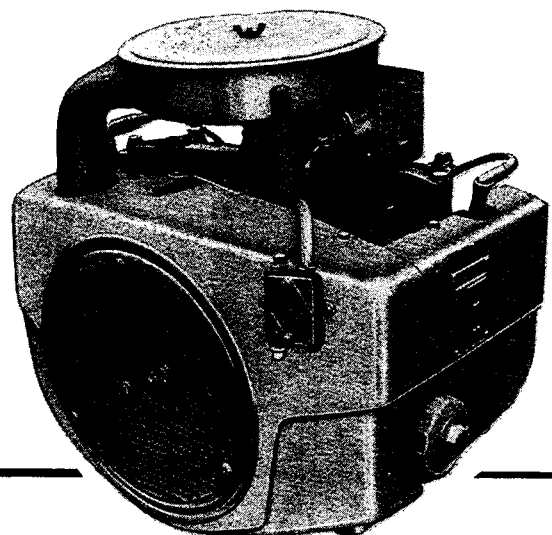
The following catalog  
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McGRAW-EDISON

**Onan**

# Parts Manual

N52M-GA019.9  
**Industrial  
Engines**



940-0252  
10-83 (SPEC A-B)  
Replaces  
7-79 (Spec A-B)  
Printed in U.S.A.

# GENERAL INFORMATION

For parts or service, contact the dealer from whom you purchased this equipment or refer to your Nearest Authorized Onan Parts and Service Center.

To avoid errors or delay in filling your parts order, please furnish all information requested.

Always refer to the nameplate on your unit.

1. Always give the MODEL, SPEC NO. and SERIAL NO.

The diagram shows a rectangular nameplate form. At the top, it features the 'McGraw-Edison' logo in a bold, sans-serif font, flanked by two small circles. Below this is the 'Onan' logo in a stylized, bold font. Under the Onan logo is a large rectangular box labeled 'MODEL AND SPEC NO.'. Below that is another rectangular box labeled 'SERIAL NO.'. The bottom right corner of the form is slightly torn, revealing a layer underneath. The text 'M-1149' is printed at the bottom right of the form.

For handy reference, insert "YOUR" nameplate information in the spaces above.

2. Do not order by reference number; always use part number and description.
3. Give the part number, description and quantity needed of each item. If an older part cannot be identified, return the part prepaid to your dealer or nearest Onan Parts and Service Center. Print your name and address plainly on the package. Write a letter to the same address stating the reason for returning the part.
4. State definite shipping instructions. Any claim for loss or damage to your unit in transit should be filed promptly against the transportation company making the delivery. Shipments are complete unless the packing list indicates items are back ordered.

# Important Safety Precautions

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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.**

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## NOTICE!

ITEMS REFERENCED AS **OPTIONAL** INDICATE PART IS FACTORY INSTALLED AND MAY NOT BE APPLICABLE TO ALL MODELS. FOR FIELD CONVERSIONS ADDITIONAL PARTS ARE USUALLY REQUIRED.

# INTRODUCTION

This catalog applies to the Industrial N52M-GA019.9 Engines and factory installed options. Parts are arranged in groups of related items. Each illustrated part is identified by a reference number corresponding to the same reference number in the parts list for that group. Parts illustrations are typical. Using the *MODEL* and *SPEC NO.* from the nameplate, select parts that apply to your engine. Unless otherwise mentioned in the description, parts are interchangeable between models. Right and left sides are determined by facing the blower end (front) of the engine.

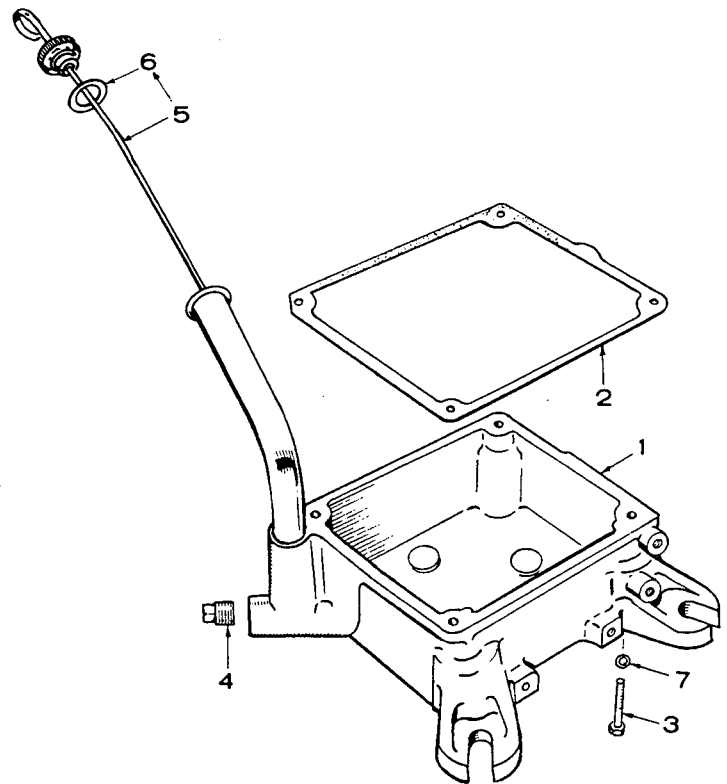
The Specification Letter advances (A to B, B to C, etc.) with each major manufacturing change.

## STANDARD ENGINE PARTS SECTION

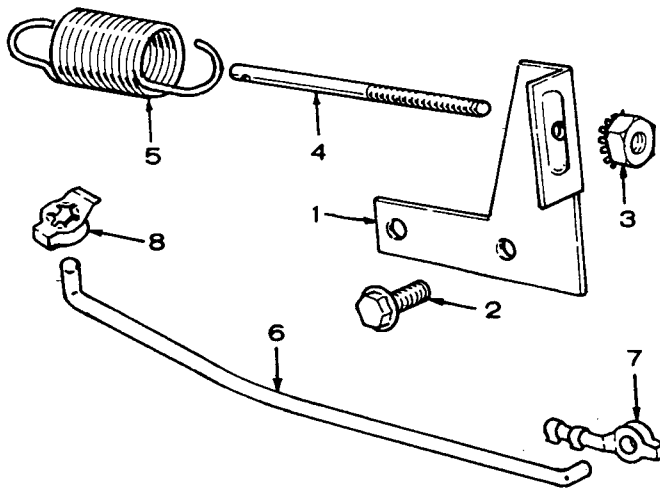
This section contains the engine parts used on standard engines.

## OIL BASE

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	102-0850	1	Base, Oil (Includes Plug)
2	102-1200	1	Gasket, Base
3	800-0051	4	Screw, Cap - Hex Head (3/8-16 x 1-1/4")
4	505-0056	1	Plug, Drain
5	123-1292	1	Cap and Indicator, Oil Fill
6	509-0142	1	Gasket, Oil Fill Cap ("O" Ring)
7	850-0050	4	Washer, Lock - Spring (3/8")



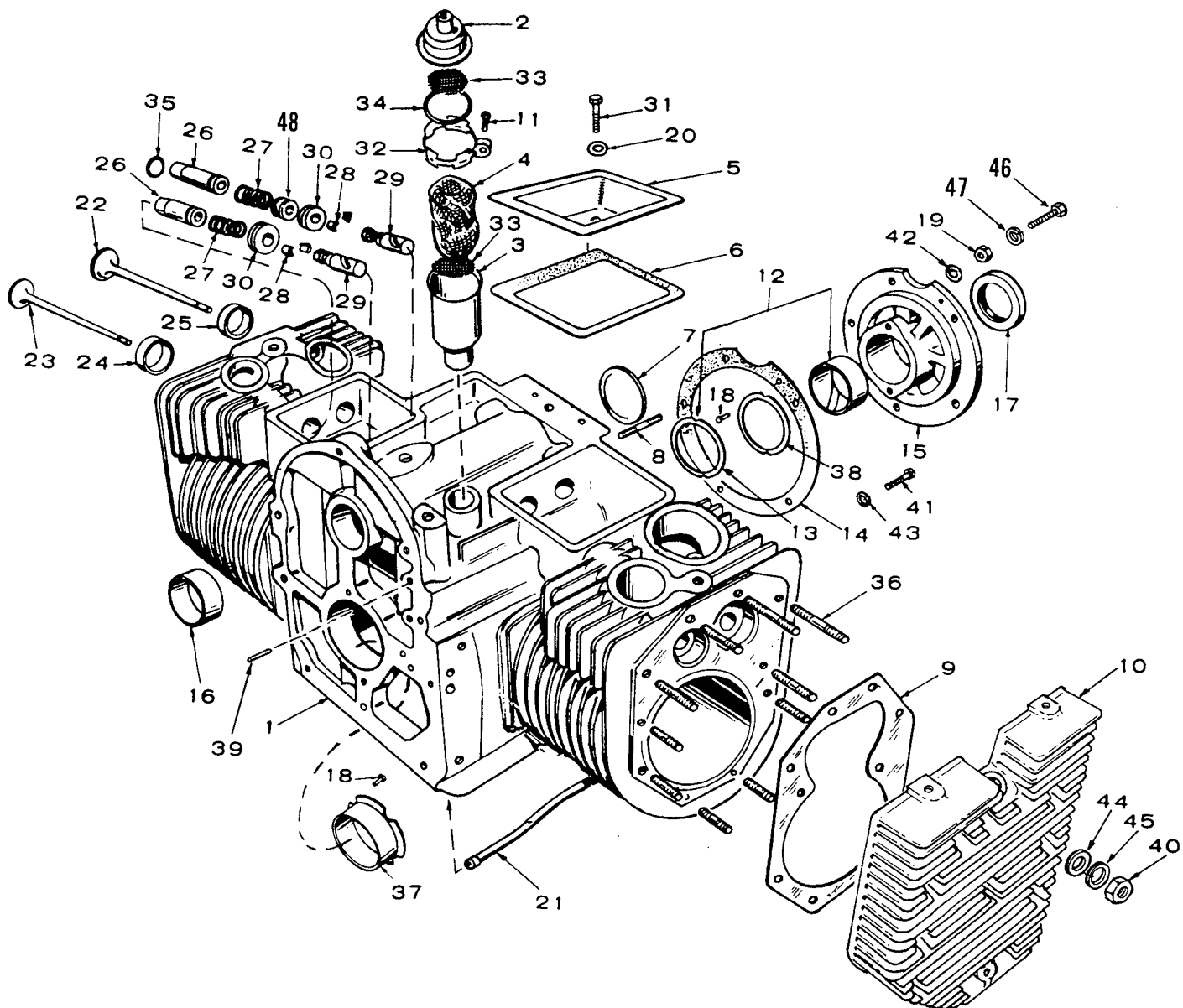
## GOVERNOR



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	150-1433	1	Bracket, Speed Control
2	821-0010	2	Screw, Cap - Hex Head Locking (1/4-20 x 1/2")
3	870-0131	1	Nut, Hex W/ET (#10-32)
4	150-0694	1	Stud, Speed Control
5	150-1214	1	Spring, Governor
6	150-1613	1	Link, Throttle
7	518-0004	1	Clip, Throttle Link
8	870-0278	1	Clip, Throttle Link



# CYLINDER BLOCK



# CYLINDER BLOCK

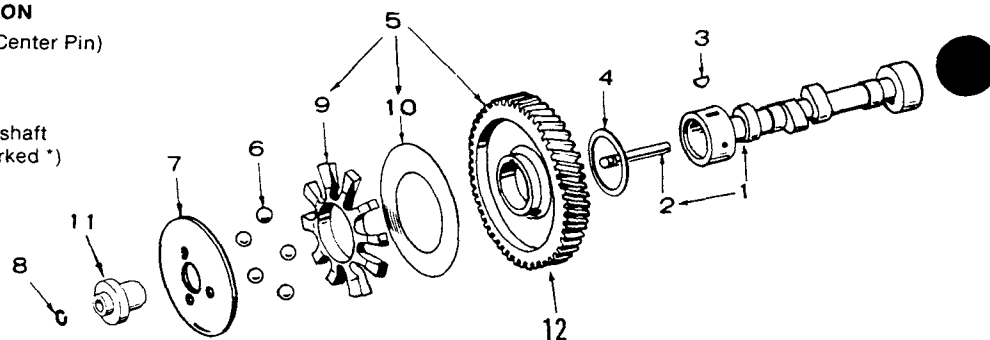
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	110-2686	1	Block Assembly, Cylinder (Includes Parts Marked *)
2	123-0954	1	Cap and Valve, Breather
3	123-0952	1	*Tube, Breather
4	123-0865	1	Baffle, Breather Tube
5	110-1624	2	Cover, Valve Compartment
6	110-1720	2	Gasket, Valve Cover
7	517-0048	1	*Plug, Expansion
8	520-0736	5	*Stud, Bearing Plate Mounting - Spec A
9	110-2987	2	Gasket, Cylinder Head
10	110-2575	2	Head, Cylinder
11	809-0035	1	Screw, Tapping - Round Head (#8 x 3/4")
12	BEARING, CRANKSHAFT REAR		
	101-0450	1	*Standard
	101-0450-02	1	.002" Undersize
	101-0450-10	1	.010" Undersize
	101-0450-20	1	.020" Undersize
	101-0450-30	1	.030" Undersize
13	104-0575	2	*Washer, Thrust - Crankshaft Bearing
14	101-0415	1	*Gasket, Bearing Plate
15	101-0439	1	*Plate, Bearing - Rear
16	101-0405	2	*Bearing, Camshaft
17	509-0041	1	Seal, Oil - Crankshaft (1/2" W) (In Kit 168-142)
18	516-0072	4	*Pin, Bearing Stop
19	104-0091	5	*Nut, Hex - Spec A (Special)
20	526-0063	2	Washer, Flat - Copper (17/64" ID x 7/16" OD x 1/32" Thk)
21	120-0680	1	*Tube, Oil - Crankcase
22	110-1974	2	Valve, Intake
23	110-1719	2	Valve, Exhaust
24	INSERT, VALVE SEAT - EXHAUST		
	110-1716	2	*Standard
	110-1716-02	2	.002" Oversize
	110-1716-05	2	.005" Oversize
	110-1716-10	2	.010" Oversize
	110-1716-25	2	.025" Oversize
25	INSERT, VALVE SEAT - INTAKE		
	110-1933	2	*Standard
	110-1933-02	2	.002" Oversize
	110-1933-05	2	.005" Oversize
	110-1933-10	2	.010" Oversize
	110-1933-25	2	.025" Oversize

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
26	110-3167	4	*Guide, Valve
27	110-0539	4	Spring, Valve
28	110-0639	8	Lock, Valve Spring
29	TAPPET, VALVE		
	115-0006	4	Standard
	115-0006-05	4	.005" Oversize
30	110-0904	4	Rotator, Valve
31	800-0011	2	Screw, Cap - Hex Head (1/4-20 x 2")
32	123-0951	1	Clamp, Loop - Breather Tube Cap
33	123-0958	2	Screen, Breather Tube
34	509-0117	1	Seal, "O" Ring - Breather Tube
35	110-0068	2	*Gasket, Valve Guide (Intake)
36	*STUD, CYLINDER HEAD MOUNTING		
	520-0919	8	3/8 x 2-3/16"
	520-0876	4	3/8 x 2-3/4"
	520-0918	8	3/8 x 3"
37	BEARING, SLEEVE - FLANGED, CRANKSHAFT		
	101-0432	1	*Standard
	101-0432-02	1	.002" Undersize
	101-0432-10	1	.010" Undersize
	101-0432-20	1	.020" Undersize
	101-0432-30	1	.030" Undersize
38	104-0776	As Req.	*Shim, Crankshaft Thrust (.005")
39	516-0141	2	*Pin, Gearcase Alignment
40	104-0091	20	Nut, Hex (Special)
41	800-0046	2	*Screw, Cap - Hex Head (3/8-16 x 1/2")
42	526-0251	5	*Washer, Flat (.406" ID x .688" OD x .1345" Thk) - Spec A
43	526-0066	2	*Washer, Flat - Copper (25/64" ID x 9/16" OD x 1/16" Thk)
44	526-0250	20	Washer, Flat - Heat Treated (.407" ID x 1" OD x 1/8" Thk)
45	851-0029	20	Washer, Lock - Compression (Special)
46	800-0051	5	Screw, Cap - Hex Head Begin Spec B (3/8-16 x 1-1/4")
47	850-0050	5	Washer, Lock Begin Spec B (3/8")
48	509-0090	2	Seal Assembly, Valve Stem - Intake (Incl. Seal and Retaining Rings)

\* - Parts Included in 110-2686 Cylinder Block Assembly.

## CAMSHAFT

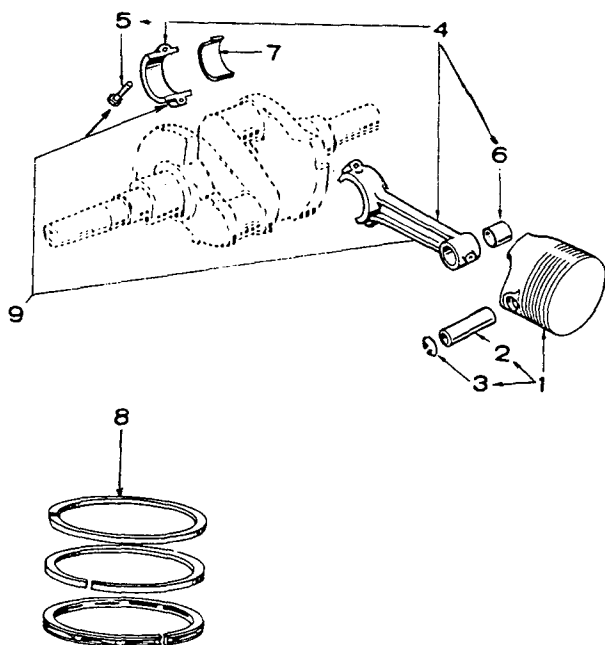
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	105-0382	1	Camshaft (Includes Center Pin)
2	150-0075	1	Pin, Camshaft
3	515-0001	1	Key - Camshaft Gear
4	105-0541	1	Washer, Thrust
5	105-0332	1	Gear Assembly, Camshaft (Includes Parts Marked *)
6	510-0015	5	Ball, Fly - Governor
7	150-1520	1	+Cup, Governor
8	150-0078	1	Ring, Retaining
9	150-1257	1	*Spacer, Fly Ball
10	150-0077	1	*Plate, Fly Ball
11	150-1519	1	+Hub, Governor Cup
12	105-0030	1	*Gear, Camshaft
	150-1695	1	Kit, Cup - Governor (Includes Parts Marked +)



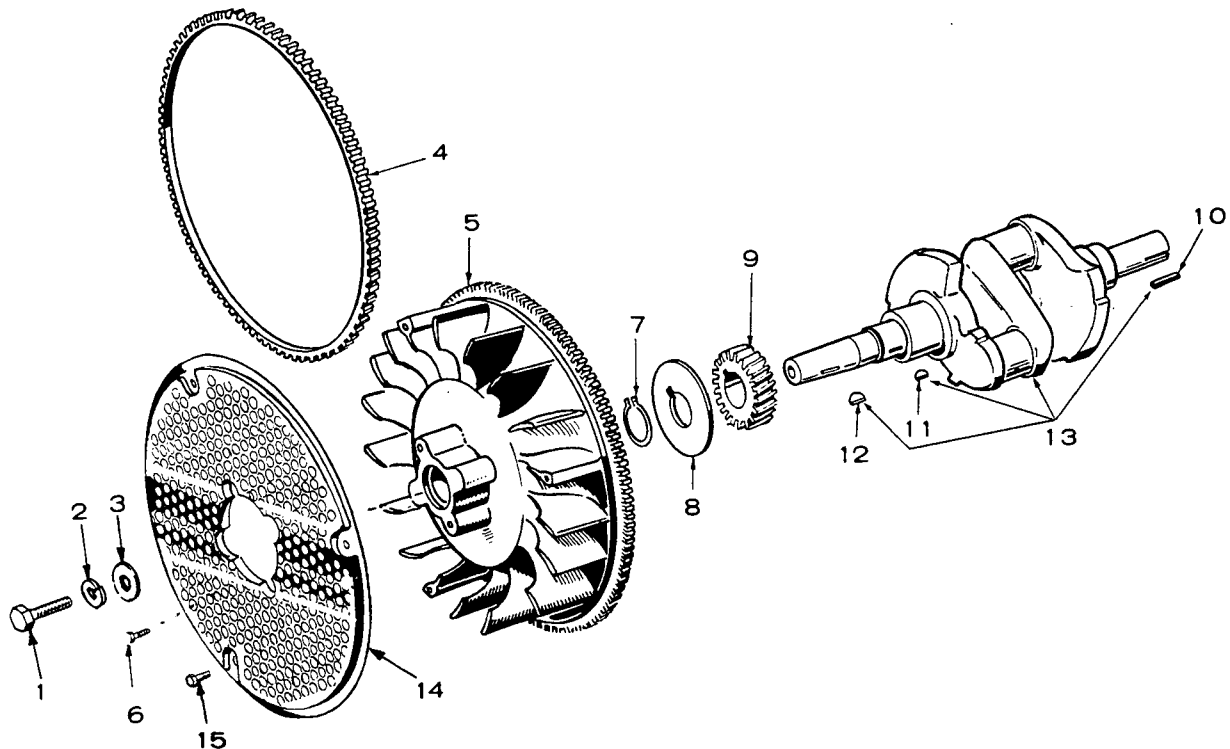
\* - Parts Included in 105-0332 Camshaft Gear Assembly.  
+ - Parts Included in 150-1695 Governor Cup Kit.

## PISTON AND ROD

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	PISTON AND PIN (Includes Pin & Retaining Rings)		
			Begin Spec B
	112-0158	2	Standard
	112-0158-05	2	.005" Oversize
	112-0158-10	2	.010" Oversize
	112-0158-20	2	.020" Oversize
	112-0158-30	2	.030" Oversize
	112-0158-40	2	.040" Oversize
			Spec A
	112-0141	2	Standard
	112-0141-05	2	.005" Oversize
	112-0141-10	2	.010" Oversize
	112-0141-20	2	.020" Oversize
	112-0141-30	2	.030" Oversize
	112-0141-40	2	.040" Oversize
2	PIN, PISTON		
	112-0069	2	Begin Spec B
	112-0112	2	Spec A
3	518-0294	4	Ring, Retaining
4	114-0270	2	Rod Assembly, Connecting (Forged Steel) - Less Bearings - Spec A
5	BOLT, ROD CAP		
	806-0036	4	Begin Spec B
	805-0010	4	Spec A
6	114-0036	2	Bushing, Piston Pin - Spec A
7	BEARING, HALF - CONNECTING ROD - SPEC A		
	114-0188	4	Standard
	114-0188-02	4	.002" Undersize
	114-0188-10	4	.010" Undersize
	114-0188-20	4	.020" Undersize
	114-0188-30	4	.030" Undersize
8	RING SET, PISTON		
			Begin Spec B
	113-0203	2	Standard
	113-0203-05	2	.005" Oversize
	113-0203-10	2	.010" Oversize
	113-0203-20	2	.020" Oversize
	113-0203-30	2	.030" Oversize
	113-0203-40	2	.040" Oversize
			Spec A
	113-0202	2	Standard
	113-0202-05	2	.005" Oversize
	113-0202-10	2	.010" Oversize
	113-0202-20	2	.020" Oversize
	113-0202-30	2	.030" Oversize
	113-0202-40	2	.040" Oversize
9	ROD, CONNECTING (Forged Aluminum) - BEGIN SPEC B		
	114-0295	2	Standard
	114-0295-10	2	.010" Undersize
	114-0295-20	2	.020" Undersize
	114-0295-30	2	.030" Undersize

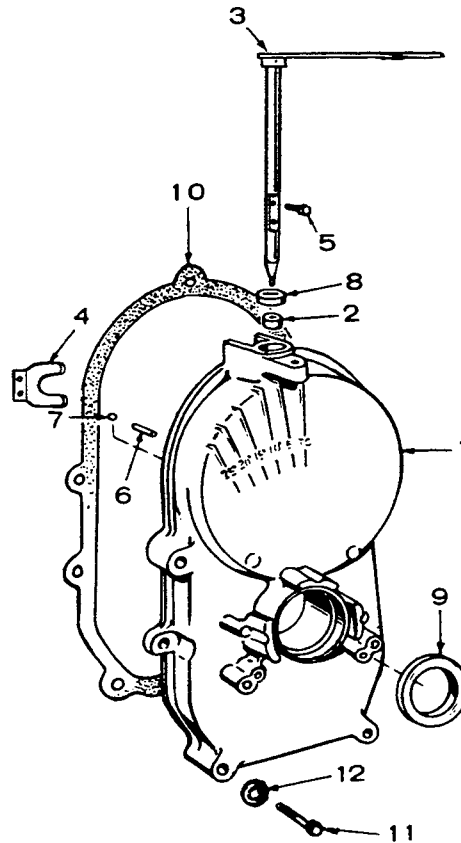


## CRANKSHAFT AND FLYWHEEL



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	104-0170	1	Screw, Flywheel Mounting - Special
2	850-0055	1	Washer, Lock - Spring (7/16")
3	526-0262	1	Washer, Flat (15/16" ID x 1.50" OD x .31" Thk)
4	104-0779	1	Gear, Ring (Part of Flywheel)
5	FLYWHEEL WITH RING GEAR		
	134-3208	1	Begin Spec B
	134-3476	1	Spec A
6	821-0014	2	Screw, Cap - Hex Head Locking (5/16-18 x 1/2")
7	518-0014	1	Ring, Retaining - Gear
8	104-0043	1	Washer, Gear Retaining - Special
9	104-0032	1	Gear, Crankshaft
10	515-0103	1	Key, Crankshaft Stub
11	515-0001	1	Key, Crankshaft Gear
12	515-0227	1	Key, Flywheel
13	CRANKSHAFT (Kit) (Includes Keys)		
	104-1357	1	Begin Spec B
	104-1328	1	Spec A
14	134-3920	1	Guard, Flywheel
15	815-0400	3	Screw, Truss Head - W/ET (1/4-20 x 1/2")

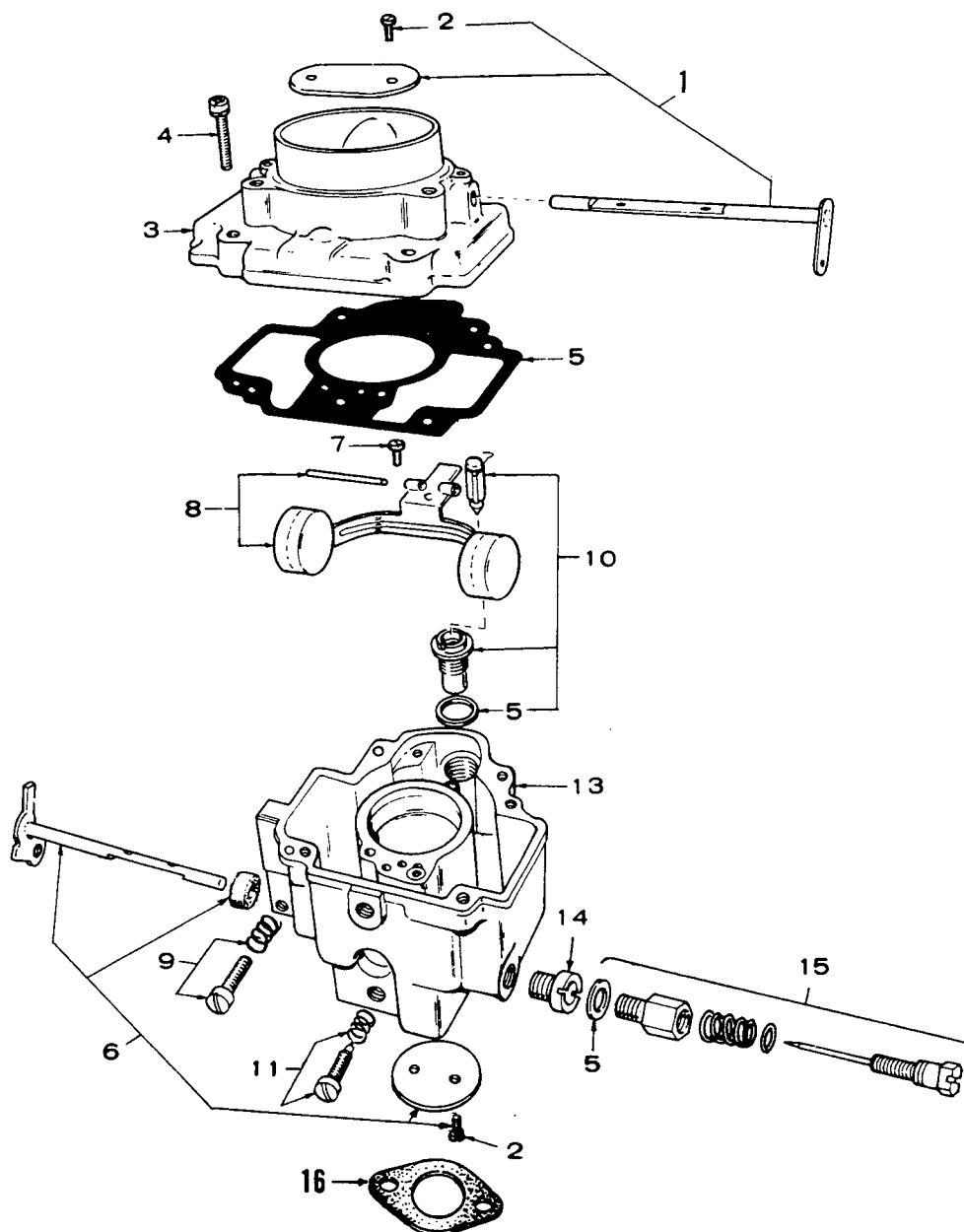
# GEARCASE



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	103-0701	1	Gearcase Assembly (Includes Parts Marked *)
2	510-0105	1	*Bearing, Governor Shaft
3	150-1470	1	*Shaft and Arm, Governor
4	150-1187	1	*Yoke, Governor Shaft
5	815-0046	2	*Screw, Machine - Pan Head - Cross Recessed (#8-32 x 3/8")
6	516-0130	1	*Pin, Roll
7	510-0014	1	*Bearing, Ball
8	509-0008	1	*Seal, Oil
9	509-0040	1	*Seal, Oil
10	103-0408	1	Gasket, Gearcase
11	SCREW, CAP-HEX HEAD		
	800-0032	4	5/16-18 x 1-3/4"
	800-0034	1	5/16-18 x 2-1/4"
12	526-0065	5	Washer, Flat (21/64" ID x 9/16" OD x 1/16" Thk)

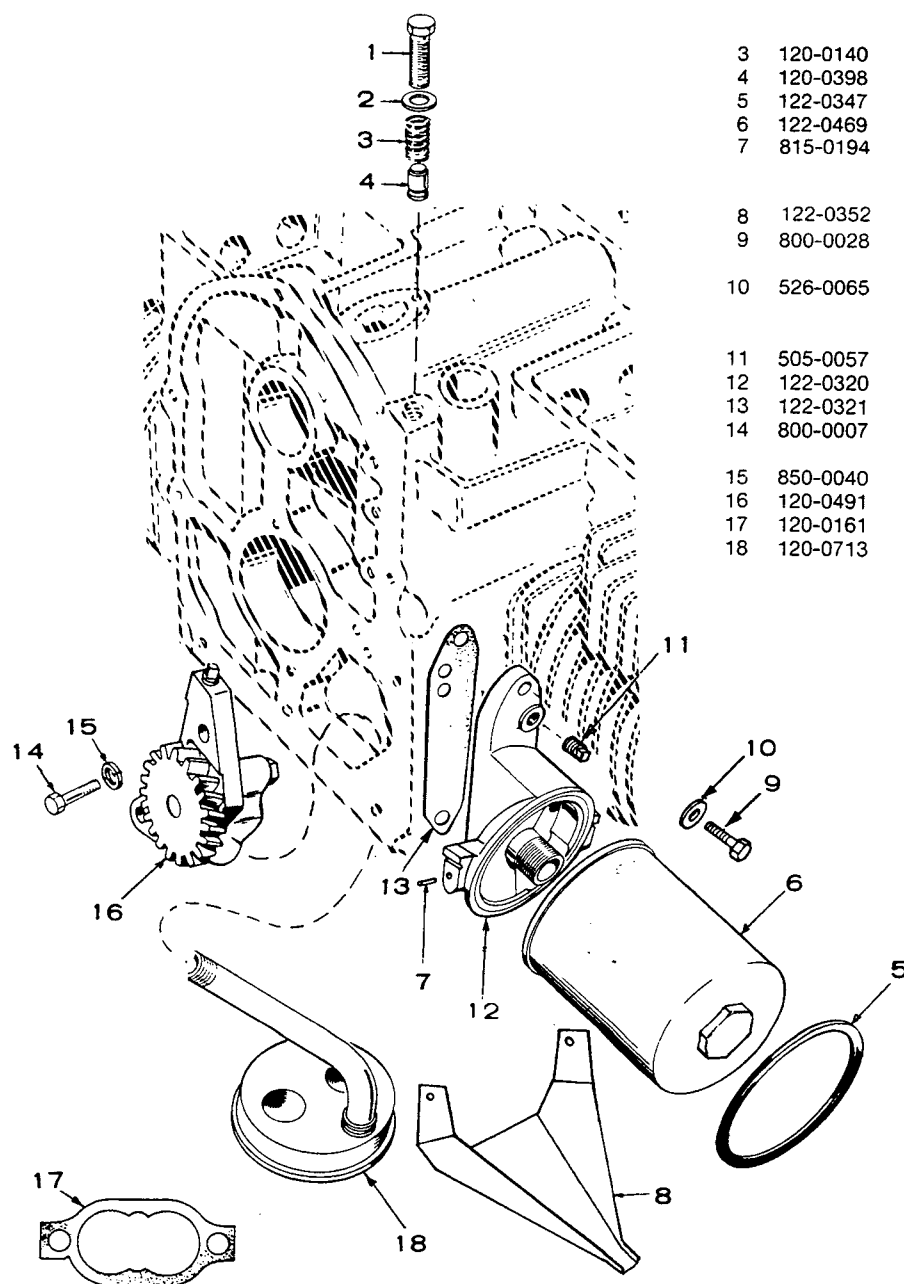
\* - Parts Included in 103-0701 Gearcase Assembly.

## CARBURETOR PARTS



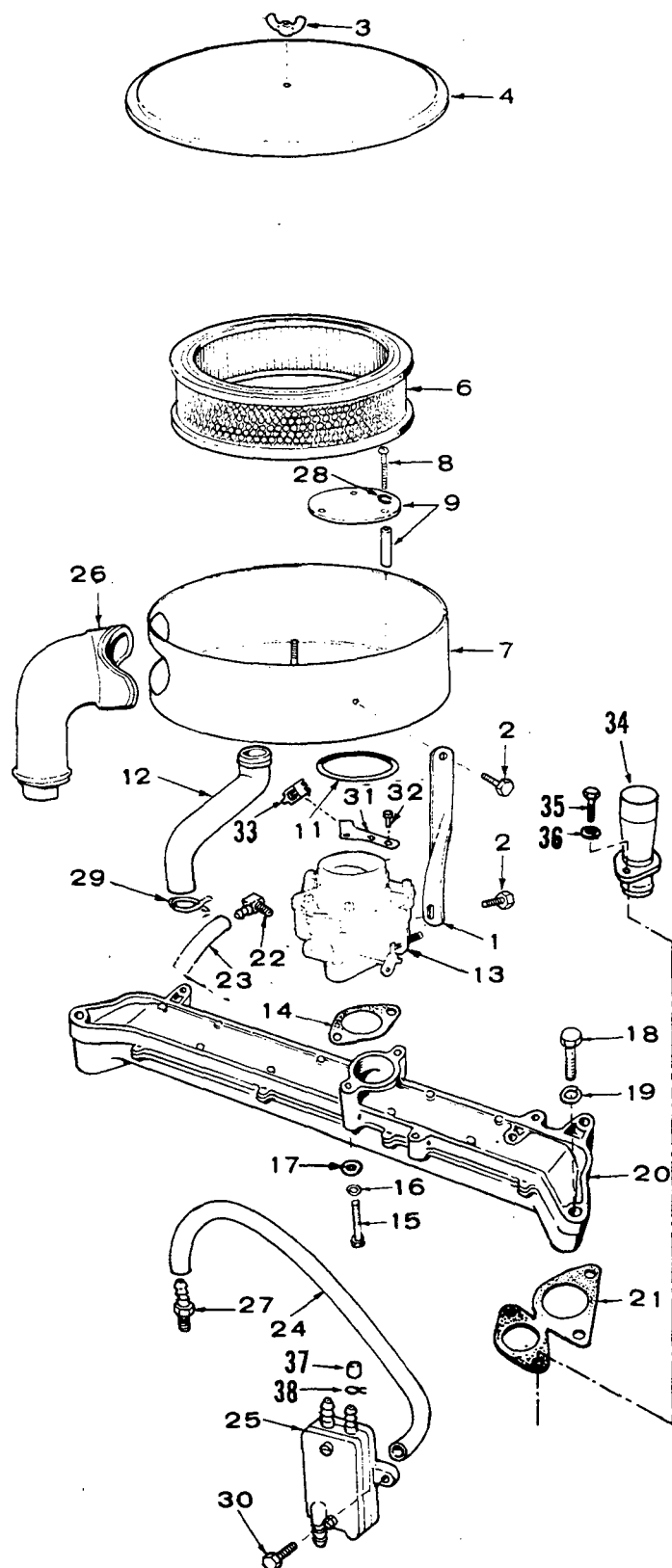
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	CARBURETOR ASSEMBLY - COMPLETE (Includes Mounting Gasket)			7	146-0222	1	Screw, Lever Pin
	146-0312	1	Begin Spec B	8	146-0262	1	Float Package
	146-0232	1	Spec A Only	9	146-0261	1	Idle Speed Adjusting Screw Package
1	CHOKE SHAFT PACKAGE			10	146-0227	1	Valve and Seat Package
	146-0281	1	Begin Spec B	11	146-0209	1	Idle Needle Package
	146-0260	1	Spec A	13		1	Body (Not Sold Separately)
2	146-0142	4	Screw, Valve Mounting	14	146-0238	1	Jet Power
3		1	Intake, Air (Not Sold Separately)	15	146-0282	1	Power Needle Package
4	146-0247	4	Screw, Body to Intake	16	154-0733	1	Gasket, Carburetor Mounting Kit, Repair
5	146-0220	1	Gasket Kit		146-0283	1	
6	THROTTLE SHAFT PACKAGE						
	146-0270	1	Begin Spec B				
	146-0267	1	Spec A				

# OIL SYSTEM



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	801-0050	1	Screw, Cap - Hex Head (3/8-24 x 1")
2	526-0066	1	Washer, Flat - By-Pass Valve (25/64" ID x 9/16" OD x 1/16" Thk)
3	120-0140	1	Spring, By-Pass Valve
4	120-0398	1	Valve, Check - Oil By-Pass
5	122-0347	1	Seal, Air - Oil Filter
6	122-0469	1	Filter, Oil
7	815-0194	2	Screw, Tapping - Hex Head with External Tooth Lockwasher (#10-32 x 3/8")
8	122-0352	1	Drain, Oil
9	800-0028	2	Screw, Cap - Hex Head (5/16-18 x 1")
10	526-0065	2	Washer, Flat - Copper (21/64" ID x 9/16" OD x 1/16" Thk)
11	505-0057	1	Plug, Pipe - 1/8 NPT
12	122-0320	1	Adapter, Oil Filter
13	122-0321	1	Gasket, Adapter
14	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
15	850-0040	2	Washer, Lock - Spring (1/4")
16	120-0491	1	Pump, Oil
17	120-0161	1	Gasket Kit - Oil Pump
18	120-0713	1	Cup, Oil Pump Intake

# FUEL SYSTEM

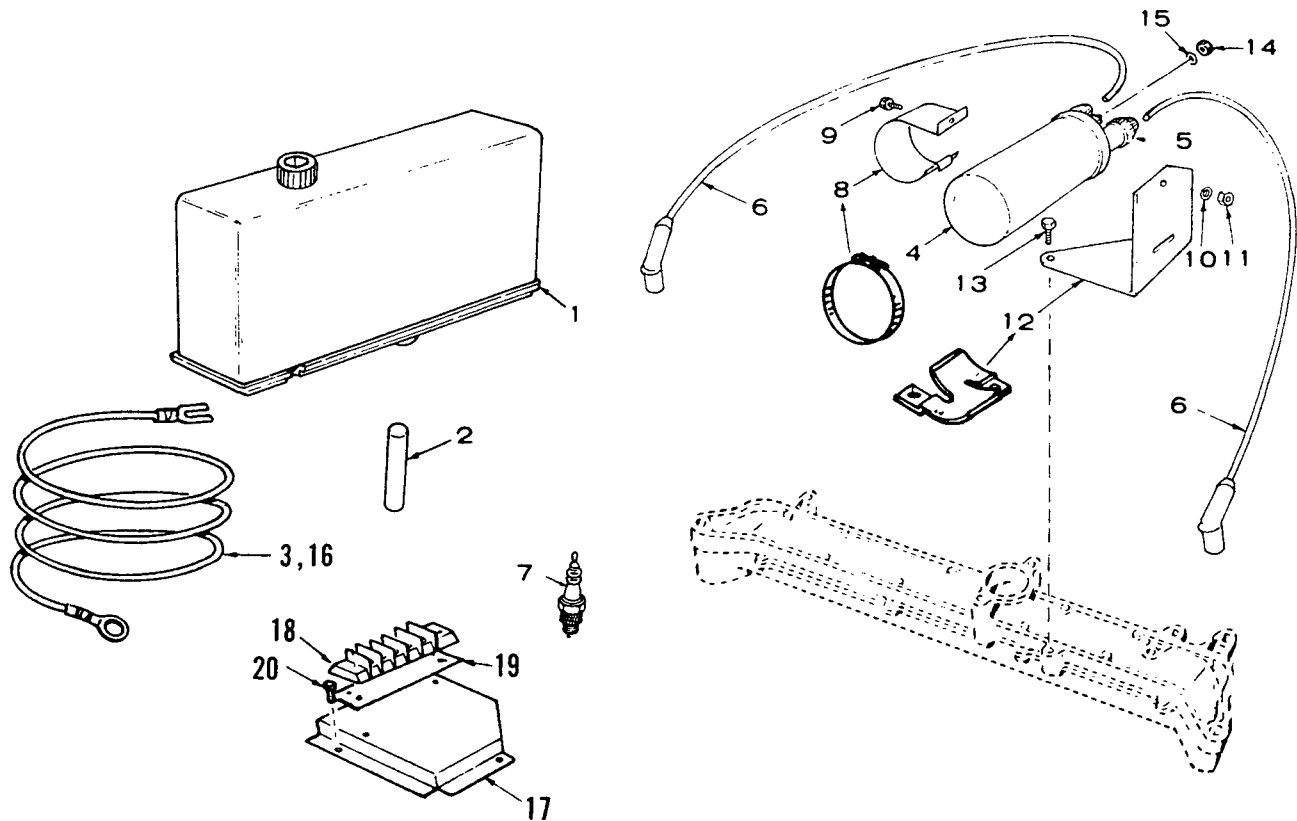


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	140-1499	1	Support, Air Cleaner
2	821-0009	2	Screw, Cap - Hex Head - Locking (1/4-20 x 3/8")
3	865-0020	1	Nut, Wing (1/4-20)
4	140-1494	1	Cover, Air Cleaner
6	140-1228	1	Element, Air Cleaner
7	140-1498	1	Housing, Air Cleaner
8	815-0470	3	Screw, Machine - Binder Head W/Nylon Patch (#10-32 x 1-1/2")
9	145-0522	1	Plate, Deflector - Air Cleaner
11	509-0145	1	Seal, "O" Ring - Air Cleaner
12	123-1264	1	Tube, Breather
13	CARBURETOR ASSEMBLY - GASOLINE (See Separate Group for Components) (Includes Mounting Gasket)		
	146-0312	1	Begin Spec B
	146-0232	1	Spec A
14	154-0733	1	Gasket, Carburetor Mounting
15	800-0035	2	Screw, Cap - Hex Head (5/16-18 x 2-1/2")
16	850-0045	2	Washer, Lock - Spring (5/16")
17	526-0115	2	Washer, Flat (11/32" ID x 11/16 OD x 1/16" Thk)
18	800-0058	4	Screw, Cap - Hex Head (3/8-16 x 3" lg)
19	850-0050	4	Washer, Lock - Spring (3/8")
20	154-2293	1	Manifold, Intake
21	154-1528	2	Gasket, Intake Manifold
22	502-0313	1	Elbow, Carburetor Inlet
23	503-0874	1	Line, Fuel
24	503-0694	1	Line, Impulse
25	149-1982	1	Pump, Fuel (See Separate Group for Components) (Includes Parts Marked *)
26	140-1495	1	Tube, Air Inlet - Blower Housing to Air Cleaner
27	502-0395	1	Connector, Hose
28	WASHER 850-0030	3	Lock (#10) Use on 2 Piece Air Deflector 140-1500
	526-0008	3	Flat (13/64 ID x 7/16 OD x 1/32" Thk) Use on 1 Piece Air Deflector 145-0522
29	503-0171	1	Clamp, Hose
30	815-0555	2	Screw, Tapping - Pan Head (#10-24 x 5/8")
31	153-0515	1	Bracket, Choke Cable Begin Spec B
32	821-0002	2	Screw, Cap - Hex Head Locking (#10-32 x 1/4") - Begin Spec B
33	518-0176	1	Clip, Choke Cable
34	154-1484	2	Adapter, Exhaust
35	800-0512	4	Screw, Cap - Hex Head - Exhaust - Special
36	850-0045	4	Washer, Lock - Exhaust (5/16")
37	149-1321	1	*Cap, Fuel Outlet
38	503-0301	1	*Clamp, Fuel Outlet Cap

\* - Parts Included in 149-1982 Fuel Pump Kit.

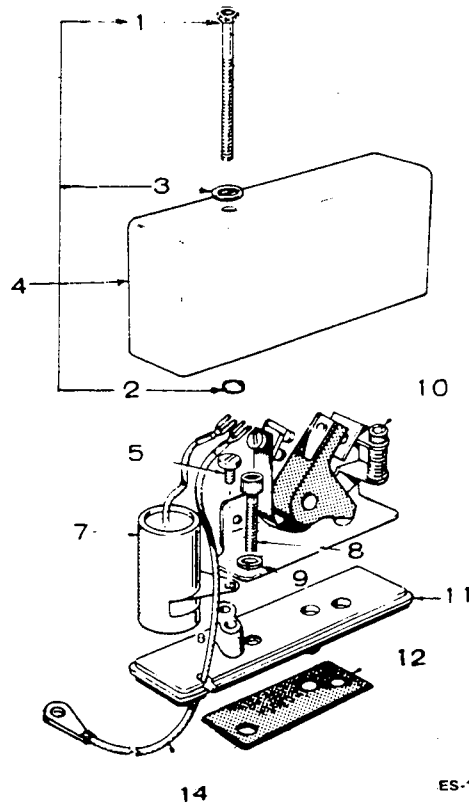


## IGNITION SYSTEM



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	160-1303	1	Box Assembly, Breaker (See Separate Group for Components) (Includes Mounting Gasket)
2	160-1151	1	Plunger, Breaker Points
3	336-2378	1	Lead, Coil to Breaker Points
4	166-0535	1	Coil, Ignition
5	166-0604	2	Cap (Part of Ignition Coil)
6	167-1595	2	Cable, Spark Plug (19")
7	167-0291	2	Plug, Spark
8	CLAMP, COIL		
	166-0588	1	Earlier Models
	503-0311	1	Later Models
9	800-0003	1	Screw, Cap - Hex Head (Earlier Models) (1/4-20 x 1/2")
10	850-0040	1	Washer, Lock - Spring (1/4") (Earlier Models)
11	862-0001	1	Nut, Hex (1/4-20) (Earlier Models)
12	BRACKET, COIL MOUNTING		
	166-0690	1	Earlier Models
	166-0741	1	Later Models
13	815-0261	2	Screw, Cap - Hex Head Locking (1/4-20 x 1/2")
14	166-0554	2	Nut, Hex (Special)
15	850-2005	2	Washer, Lock - Spring
16	336-3145	1	Lead, Coil to Terminal Block
17	301-3530	1	Bracket, Terminal Block
18	332-0604	1	Block, Terminal
19	332-1273	1	Strip, Marker
20	SCREW, HEX WASHER HEAD		
	821-0004	2	Spec A (10-32 x 5/16")
	815-0340	2	Begin Spec B (10-32 x 3/8")

# BREAKER BOX

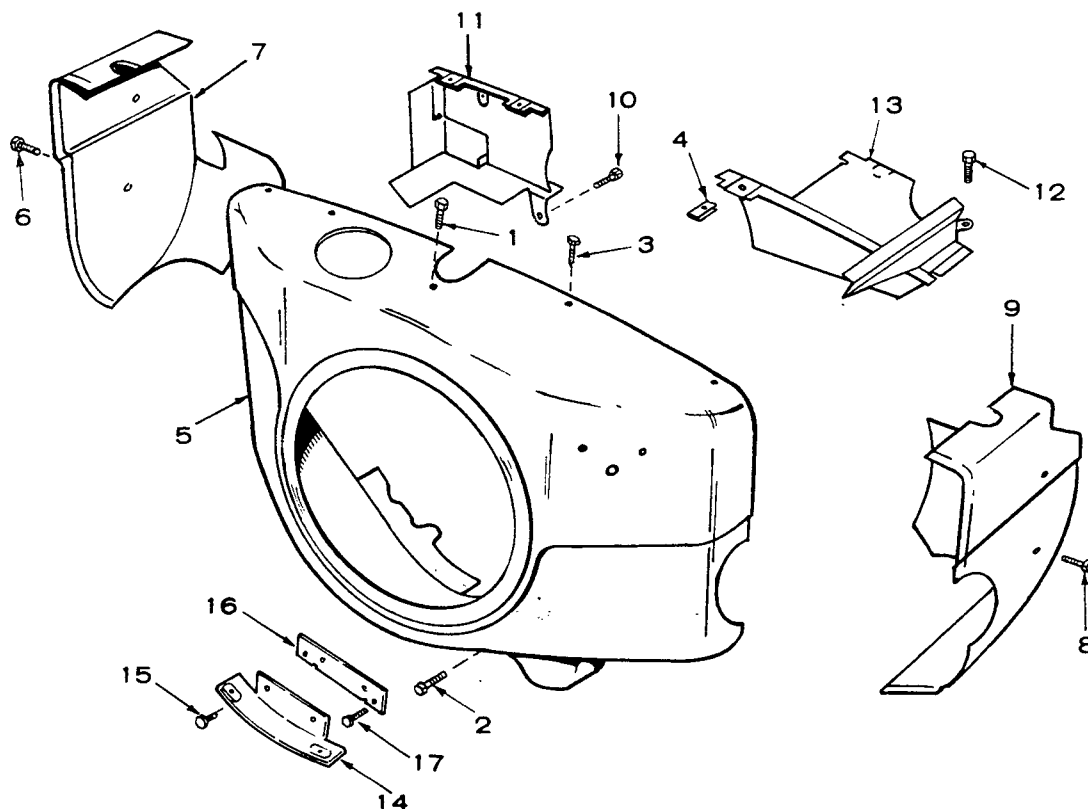


ES-1217

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	160-1303	1	Breaker Box (Includes Parts Marked *)
1	802-0022	1	*Screw, Cap - Hex Socket (#10-24 x 1-1/2")
2	509-0065	1	*Retainer ("O" Ring)
3	526-0008	1	*Washer, Flat (13/64 ID x 7/16 OD x 1/32" Thk)
4	160-1285	1	*Cover, Breaker Box
5	815-0358	1	*Screw, Cap - Slotted (#8-32 x 5/16")
7	312-0244	1	*Condenser
8	802-0034	2	*Screw, Cap - Socket Head (1/4-20 x 3/4")
9	850-0040	2	*Washer, Lock (1/4")
10	160-1183	1	*Point Set, Breaker
11	160-1219	1	*Base, Breaker
12	160-1150	1	*Gasket, Breaker Box
14	336-2378	1	Lead, Breaker Box to Coil
	160-1311	1	Tune Up Kit (Includes Points and Condenser)

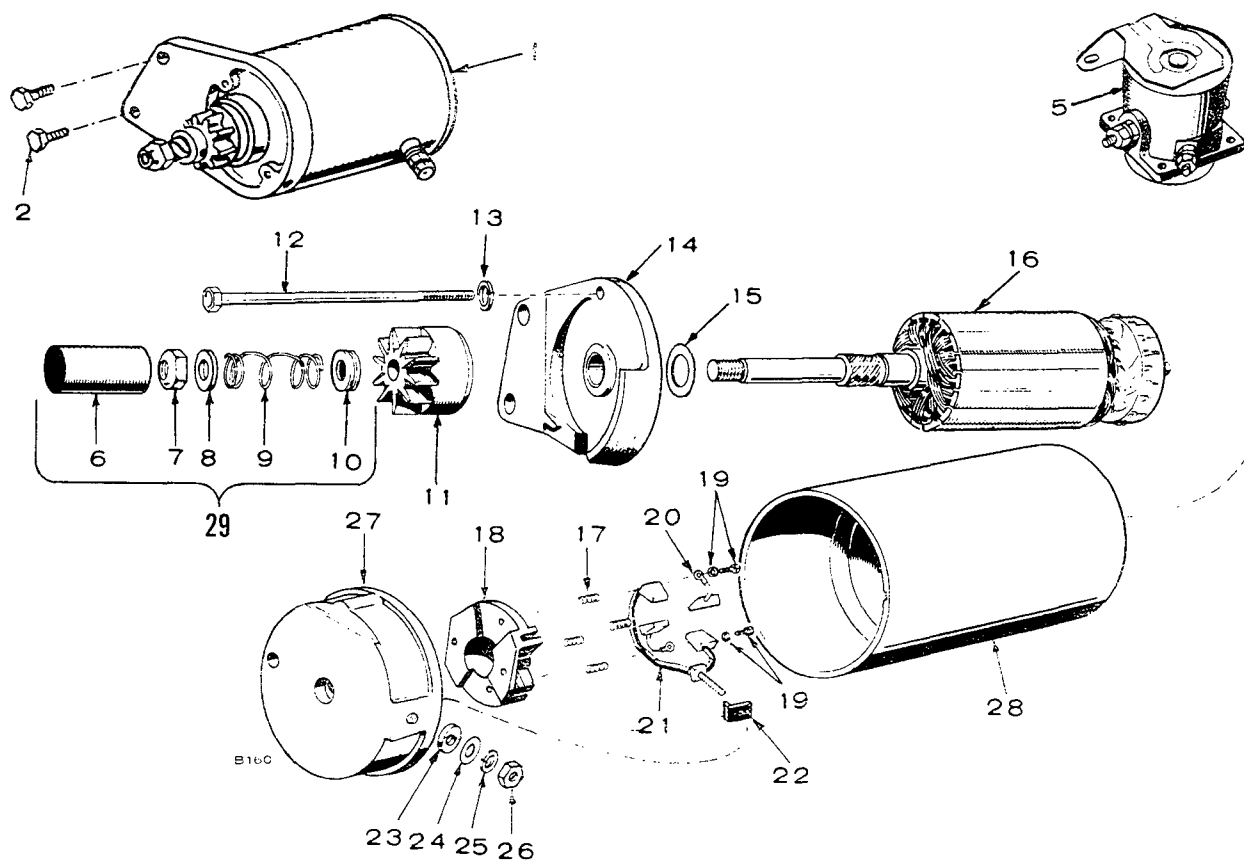
Parts Included in 160-1303 Breaker Box.

# AIR HOUSING



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	815-0261	1	Screw, Tapping - Hex Washer Head (1/4-20 x 7/16")
2	821-0010	4	Screw, Self-Locking - Hex Washer Head (1/4-20 x 1/2")
3	815-0474	4	Screw, Tapping - Round Head (1/4 x 1/2")
4	870-0107	4	Nut, Speed (#14)
5	134-3557	1	Housing, Blower
6	815-0261	2	Screw, Tapping - Hex Washer Head (1/4-20 x 7/16")
7	134-3449	1	Housing, Air - Left Side
8	815-0261	2	Screw, Tapping - Hex Washer Head (1/4-20 x 7/16")
9	134-3448	1	Housing, Air - Right Side
10	815-0370	2	Screw, Tapping - Hex Head (1/4-20 x 1/2")
11	134-2646	1	Baffle, Housing Support - Left Side
12	815-0370	2	Screw, Tapping - Hex Head (1/4-20 x 1/2")
13	134-3591	1	Baffle, Housing Support - Right Side
14	134-3511	1	Support, Blower Housing
15	821-0009	2	Screw, Cap - Hex Head Locking (1/4-20 x 3/8")
16	134-3510	1	Bracket, Support Mounting
17	815-0261	2	Screw, Cap - Hex Head (1/4-20 x 1/2")

## STARTER PARTS



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	191-1205	1	Motor, Starter (Complete)
2	815-0570	2	Screw, Cap - Hex Washer Head (5/16"-18 x 1")
5	307-1031	1	Relay, Start Solenoid
6	£	1	xCover, Dust
7	£	1	xNut, Stop
8	£	1	xWasher, Stop Nut
9	£	1	xSpring, Anti-drift
10	£	1	xSpacer, Dust Cover
11	191-1156	1	Drive Assembly
12	191-1157	2	Screw, Hex Cap - Special
13	850-0040	2	Washer, Lock (1/4")
14	191-1223	1	Cap Assembly, Drive End
15	191-1038	1	Washer, Armature Thrust - Special
16	191-1154	1	Armature
17	£	4	†Spring, Brush
18	£	1	†Brush Holder

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
19	£	2	†Screw and Lockwasher
20	£	2	†Brush, Ground
21	£	1	†Stud and Brush Assembly, Input
22	£	1	†Bushing, Insulation - Input Stud
23	£	1	†Washer, Insulation - Input Stud
24	£	1	†Washer, Flat - Input Stud
25	£	1	†Washer, Lock - Input Stud
26	£	1	†Nut, Securing - Input Stud
27	191-1155	1	Cap Assembly, Commutator (Includes Parts Marked †)
28	£	1	Housing, Starter Motor
	191-1222	1	Repair Kit, Brush, Spring and Stud (Includes Parts Marked †)
29	191-1359	1	Dust Cover Assembly (Includes Parts Marked x)

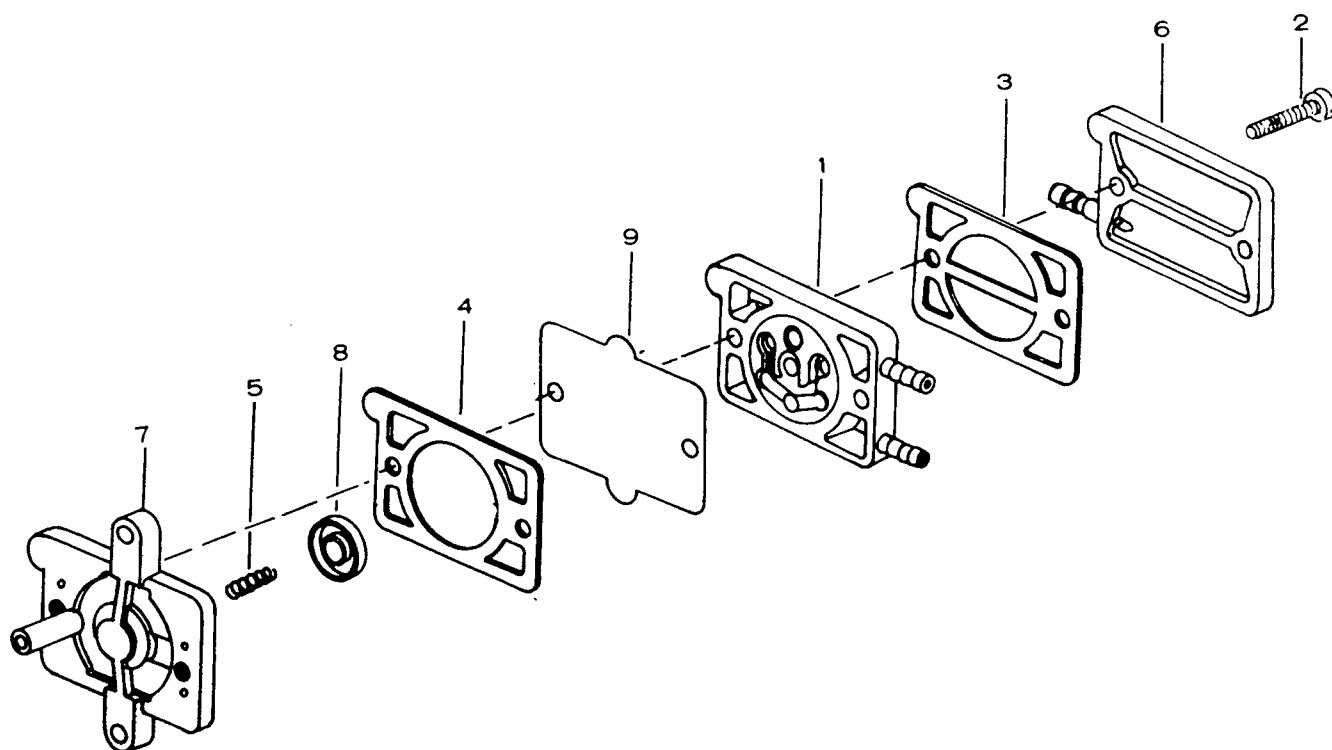
† - Included in the 191-1155 Cap Assembly.

\* - Included in the 191-1222 Brush, Spring and Stud Kit.

£ - Not Sold Separately.

x - Included in the 191-1359 Dust Cover Assembly.

## FUEL PUMP PARTS



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	149-1982	1	Pump, Fuel (Complete)
1	142-0537	1	Valve Plate Assembly
2	142-0540	2	Screw, Cover - Special
3	149-1323	1	Gasket, Base
4	142-0541	1	Gasket, Valve Plate
5	142-0545	1	Spring, Pump
6	149-1983	1	Cover, Pump (Includes Cap and Clamp)
7	149-1324	1	Base, Pump
8	142-0552	1	Disc, Pump
9	142-0555	1	Diaphragm, Pump

## SERVICE KITS AND MISCELLANEOUS

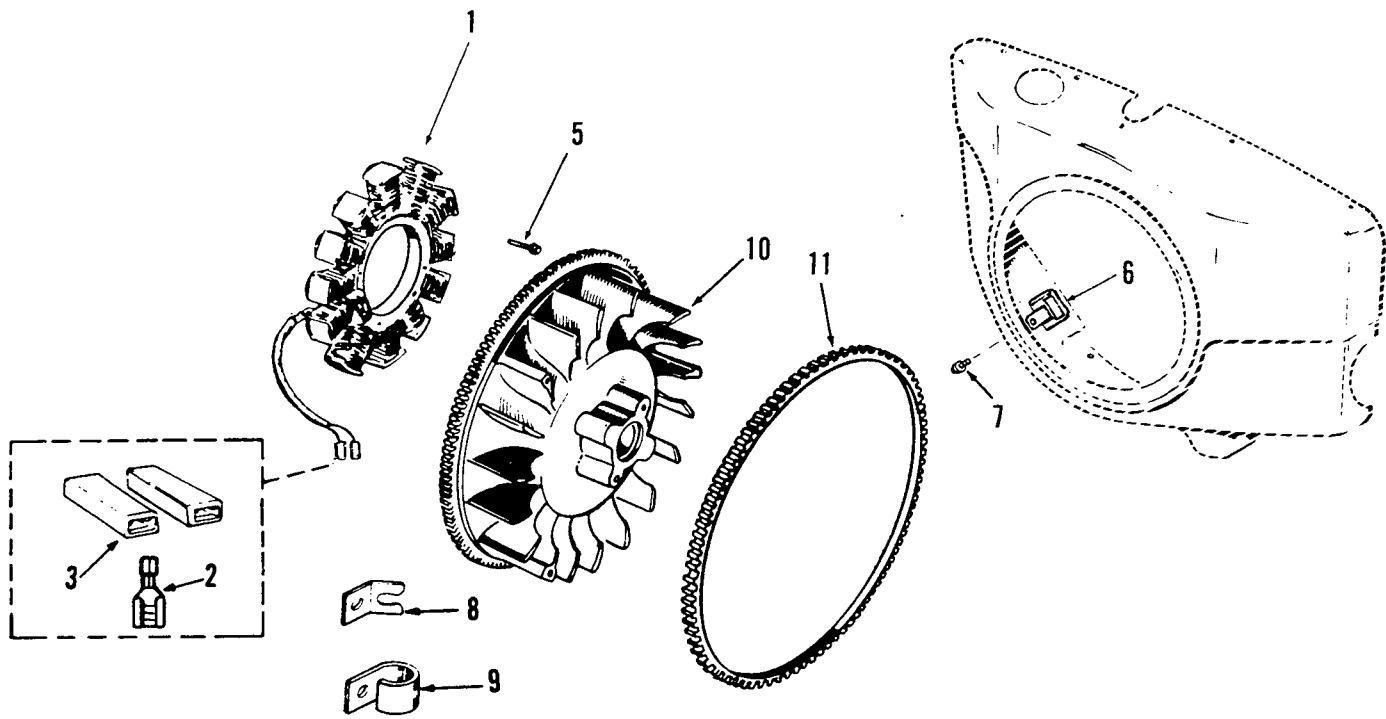
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	98-2629	1	Kit, Decal
	168-0142	1	Kit, Gasket, Complete Engine
	168-0121	1	Kit, Gasket, Carbon Removal
	522-0300	1	Kit, Engine Overhaul
	525-0305	1	Paint, Touch-Up, Non-Metallic Green (13 oz. Pressurized Can)
	110-3037	1	Kit, Gasket and Stud - Cyl. Hd.

**NOTE:** For Additional Kits, refer to the Applicable Parts Group in Question.

## **OPTIONAL EQUIPMENT PARTS SECTION**

**This section contains illustrated parts listing of factory installed options for these Industrial Engines. Options may not be applicable to all models; for field conversions additional parts are usually required. Optional parts listed in this section are in addition or in place of those shown in the standard engine parts section.**

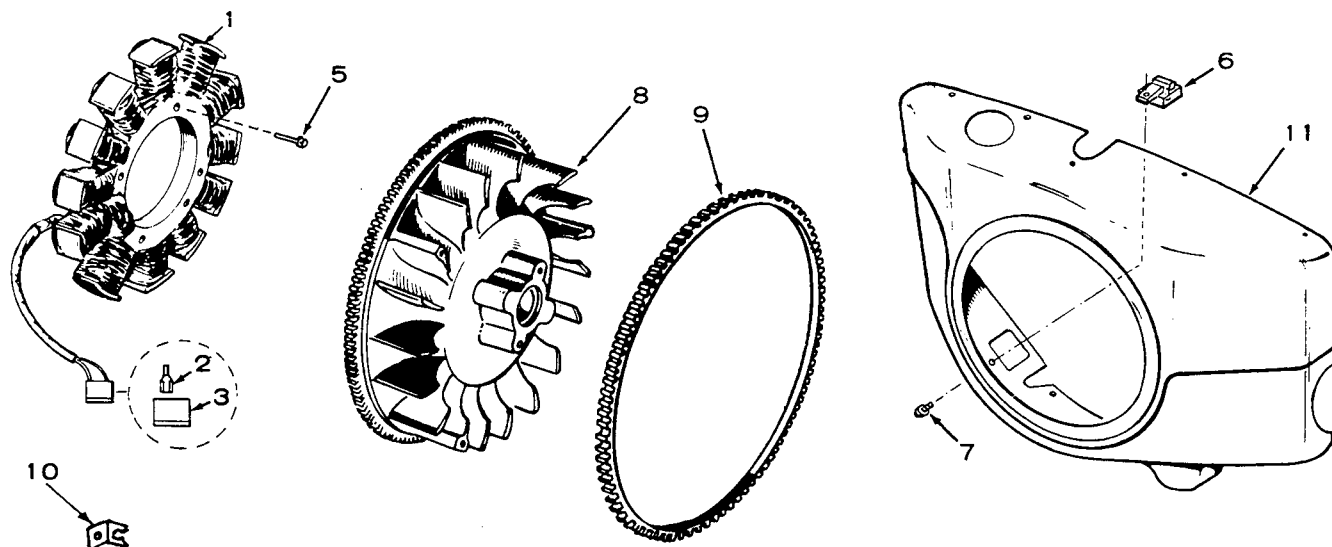
**OPTION 1**  
**FLYWHEEL ALTERNATOR - 20 AMPERE (PHELON)**



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	191-1276	1	Stator (Includes Terminals and Connector Bodies)
2	332-2423	2	Terminal, Stator Leads
3	323-1216	2	Body, Terminal Connector
5	815-0470	3	Screw, Machine - Hex Head - Self-Lock (#10-32 x 1-1/2")
6	191-1275	1	Regulator, Voltage
7	821-0007	1	Screw, Cap - HWH (1/4-20 x 1/4")
8	167-0188	1	Clip, Cable
9	332-2319	1	Clamp, Wire - Alternator Leads
10	134-3737	1	Flywheel (Includes Ring Gear and Rotor)
11	104-0779	1	Gear, Ring

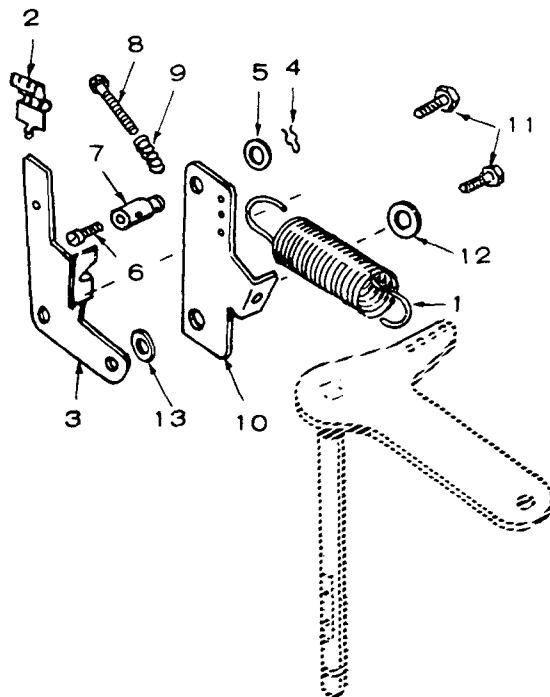


**OPTION 2**  
**FLYWHEEL ALTERNATOR - 15 AMPERE (PHELOX)**



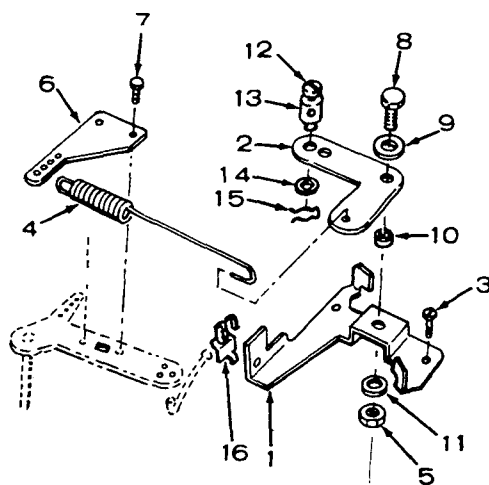
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	191-1256	1	Stator (Includes Terminals and Connector Body)
2	332-2073	2	Terminal, Stator Leads
3	323-1075	1	Body, Terminal Connector Stator Leads
5	815-0593	3	Screw, Machine - Hex Head-Self-Lock (#10-32 x 1-3/8")
6	191-1206	1	Regulator, Voltage
7	821-0010	1	Screw, Cap - Hex Head Locking (1/4-20 x 1/2")
8	134-3477	1	Flywheel (Includes Ring Gear and Rotor)
9	104-0779	1	Gear, Ring
10	167-0188	1	Clip, Alternator Lead
11		1	Housing, Air ( <b>NOTE:</b> Housing number changes when other options are added to Engine. Order by description giving complete Model, Spec and Serial Numbers for these engines.)

### OPTION 3 GOVERNOR CONTROL (VARIABLE SPEED) (SIDE PULL)



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	150-1214	1	Spring, Governor
2	518-0176	1	Clip, Cable
3	150-1725	1	Bracket, Cable
4	516-0059	1	Pin, Cotter
5	526-0006	1	Washer, Flat (15/64" ID x 1/2" OD x 3/64" Thk)
6	815-0104	1	Screw, Machine - Fillister Head (#8-32 x 5/16")
7	152-0155	1	Swivel, Cable Holding
8	815-0475	1	Screw, Machine - HWH (#6-32 x 7/8")
9	150-1398	1	Spring, Idle Setting
10	150-1345	1	Arm, Governor Control
11	821-0010	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
12	526-0214	1	Washer, Flat (17/64" ID x 1/2" OD x 1/16" Thk)
13	150-1269	1	Bushing, Control Arm

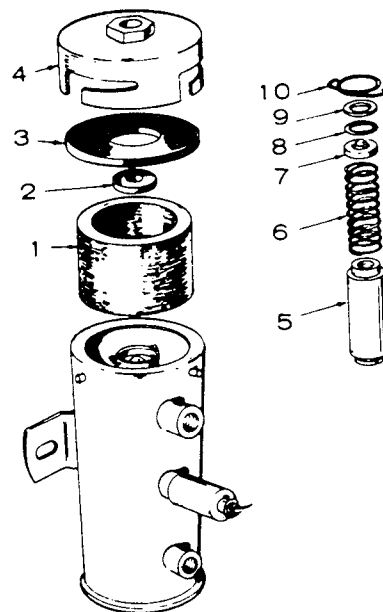
### OPTION 3A GOVERNOR CONTROL - VARIABLE SPEED (FRONT PULL)



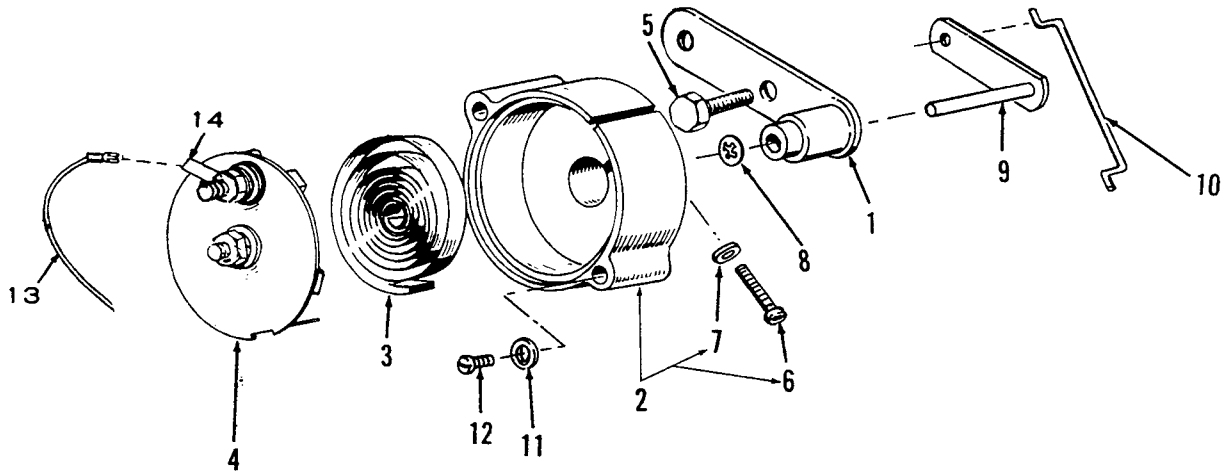
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	150-1368	1	Bracket, Governor Control
2	150-1366	1	Link, Governor Control
3	815-0439	3	Screw, Cap - Hex Head Locking (#8 x 1/2")
4	150-1369	1	Spring, Governor
5	862-0001	1	Nut, Hex (1/4-20)
6	150-1367	1	Adapter, Governor Arm
7	815-0181	2	Screw, Cap - Hex Head W/ET (#10-32 x 1/2")
8	800-0004	1	Screw, Cap - Hex Head (1/4-20 x 5/8")
9	526-0021	1	Washer, Flat (17/64" ID x 3/4" OD x 1/16" Thk)
10	150-1269	1	Bushing, Governor Control
11	850-0040	1	Washer, Lock - Spring (1/4")
12	815-0104	1	Screw, Machine - Fillister Head (#8-32 x 5/16")
13	152-0155	1	Swivel, Cable - Throttle
14	526-0006	1	Washer, Flat (15/64" ID x 1/2" OD x 3/64" Thk)
15	516-0059	1	Pin, Cotter
16	518-0176	1	Clip, Cable - Throttle

# **OPTION 4** **FUEL PUMP PARTS (ELECTRIC)**

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	149-0650	1	Pump, Fuel
1	149-1445	1	Filter
2	149-1447	1	Magnet
3	149-1446	1	Gasket, Cover
4	149-1453	1	Cover
5	149-1452	1	Plunger
6	149-0767	1	Spring, Plunger Return
7	149-1451	1	Spring Cup & Valve
8	149-1450	1	Gasket, Spring Cup
9	149-1449	1	Washer, Cup Gasket
10	149-1448	1	Retainer, Cup & Plunger

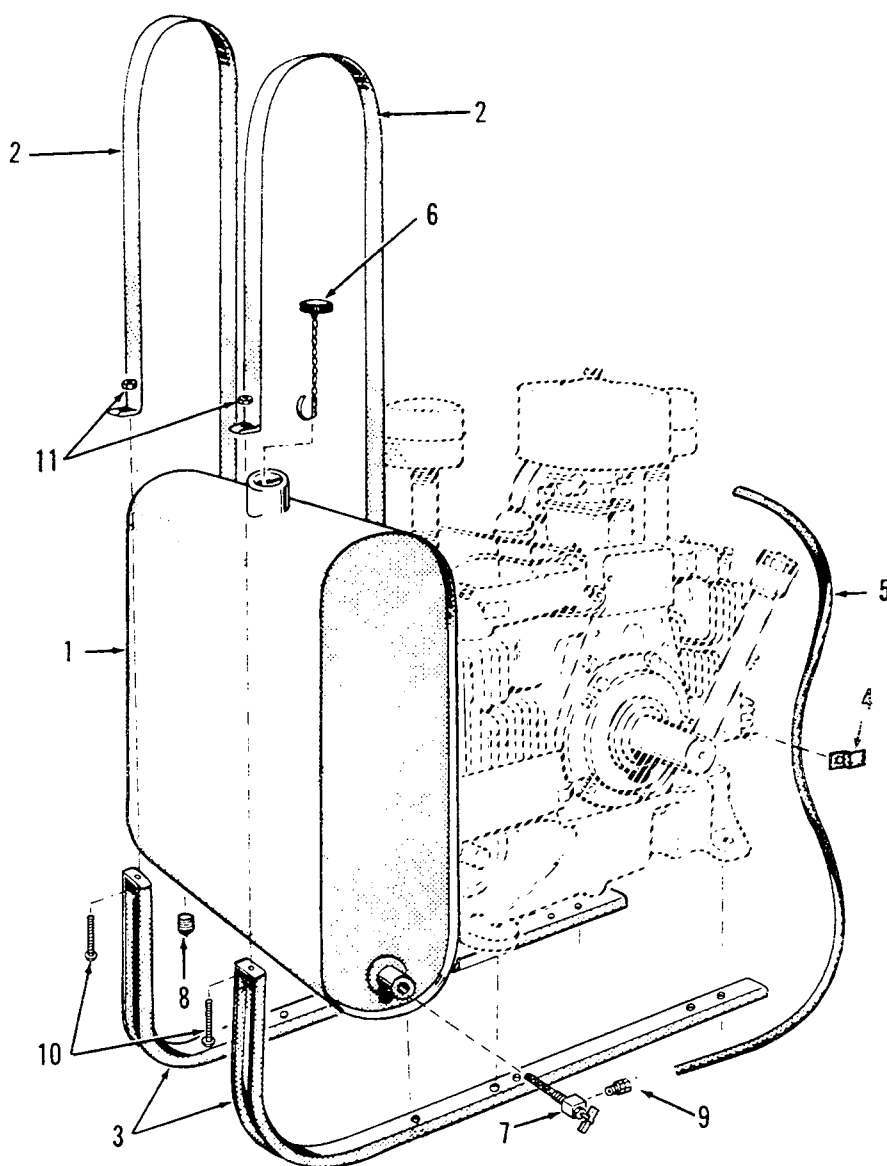


# OPTION 5 ELECTRIC CHOKE



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	153-0509	1	Bracket, Choke
2	153-0440	1	Housing, Choke (Includes Washer and Screw)
3	153-0017	1	Element, Bimetal
4	153-0113	1	Cover Assembly (12 Volt)
5	821-0004	2	Screw, Cap - Hex Head Locking (#10-32 x 5/16")
6	815-0110	1	Screw, Machine - Fillister Head (#10-32 x 7/8")
7	850-0030	1	Washer, Lock - Spring (#10)
8	518-0387	1	Ring, Retaining
9	146-0241	1	Shaft, Choke
10	153-0511	1	Link, Choke
11	526-0062	2	Washer, Flat - Special
12	815-0285	2	Screw, Machine - Round Head W/ET (#8-32 x 5/16")
13	334-0028	1	Lead, Wire
14	332-0527	1	Terminal, Choke Cover

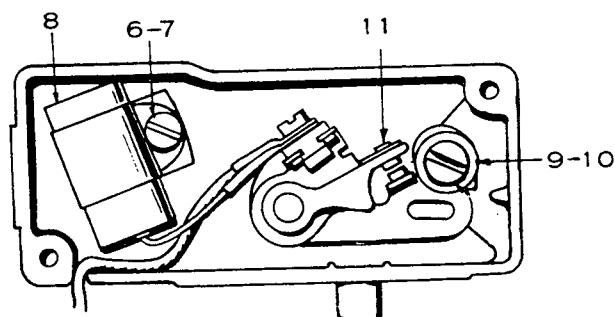
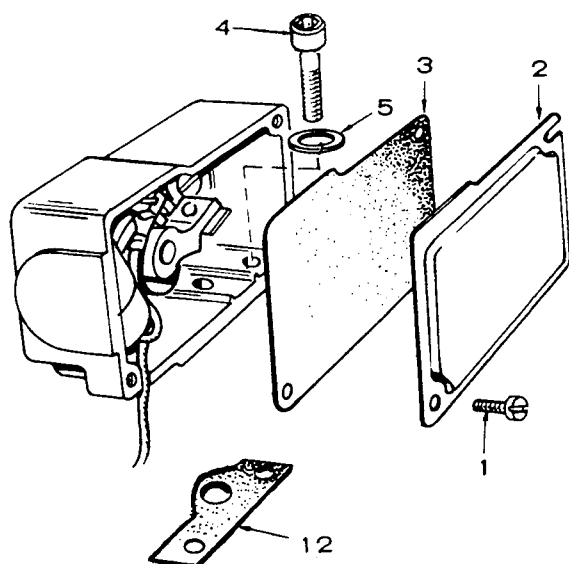
# OPTION 2 FUEL TANK (SIDE MOUNTED)



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	159-0597	1	Kit, Fuel Tank Without Gauge (Includes Parts Marked †)
1	159-0981	1	†Tank, Fuel (Less Cap)
2	159-0596	2	†Strap, Fuel Tank
3	159-0595	2	†Bracket, Fuel Tank
4	134-0599	1	†Clip, Fuel Line
5	503-0687	1	†Line, Fuel
6	159-0020	1	†Cap, Fuel Tank
7	504-0013	1	†Valve, Shut-off
8	505-0057	1	†Plug, Tank Drain
9	502-0626	1	†Nipple, Barbed
10	813-0108	2	†Screw, Machine - Round Head (#10-32 x 1-1/2")
11	870-0053	2	†Nut, Hex (#10-32)

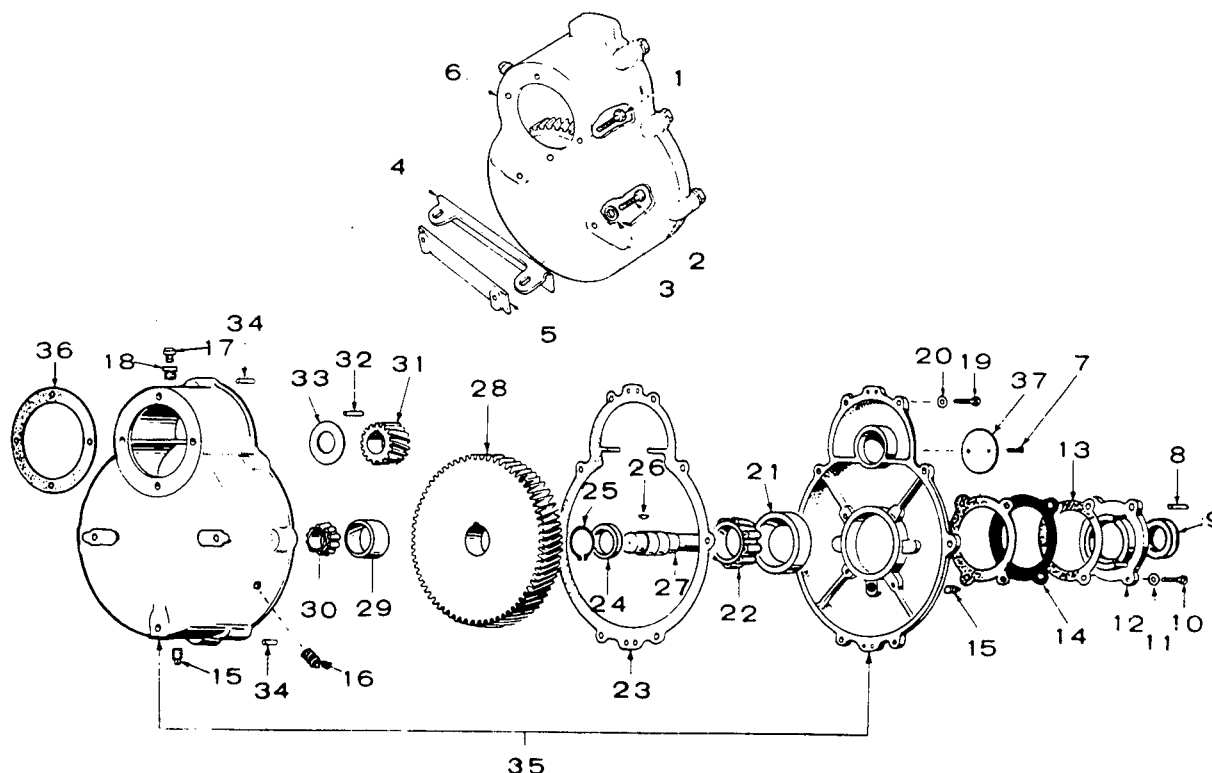
† - Included in 159-0597 Fuel Tank Kit.

# **OPTION 7** **BREAKER BOX (SIDE ADJUSTABLE)**



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	160-1158	1	Box Assembly, Breaker (Includes Mounting Gasket)
1	815-0358	2	Screw, Tapping - Hex Head, Slotted (#8-32 x 5/16")
2	160-1149	1	Cover, Breaker Box
3	160-1148	1	Gasket, Cover
4	802-0034	2	Screw, Cap - Socket Head (1/4-20 x 3/4")
5	850-0038	2	Washer, Lock - Spring (1/4")
6	815-0403	1	Screw, Tapping - Pan Head (#8-32 x 5/16")
7	850-0025	1	Washer, Lock - Spring (#8)
8	312-0069	1	Condenser, Ignition
9	870-0221	1	Nut, Hex with External Tooth Lockwasher (#8-32)
10	815-0405	1	Screw, Machine - Pan Head, Cross Recessed (#8-32 x 1/2")
11	160-1154	1	Point Set, Breaker
12	160-1150	1	Gasket
	160-1161	1	Kit, Ignition Tune-Up (Includes Point Set and Condenser)

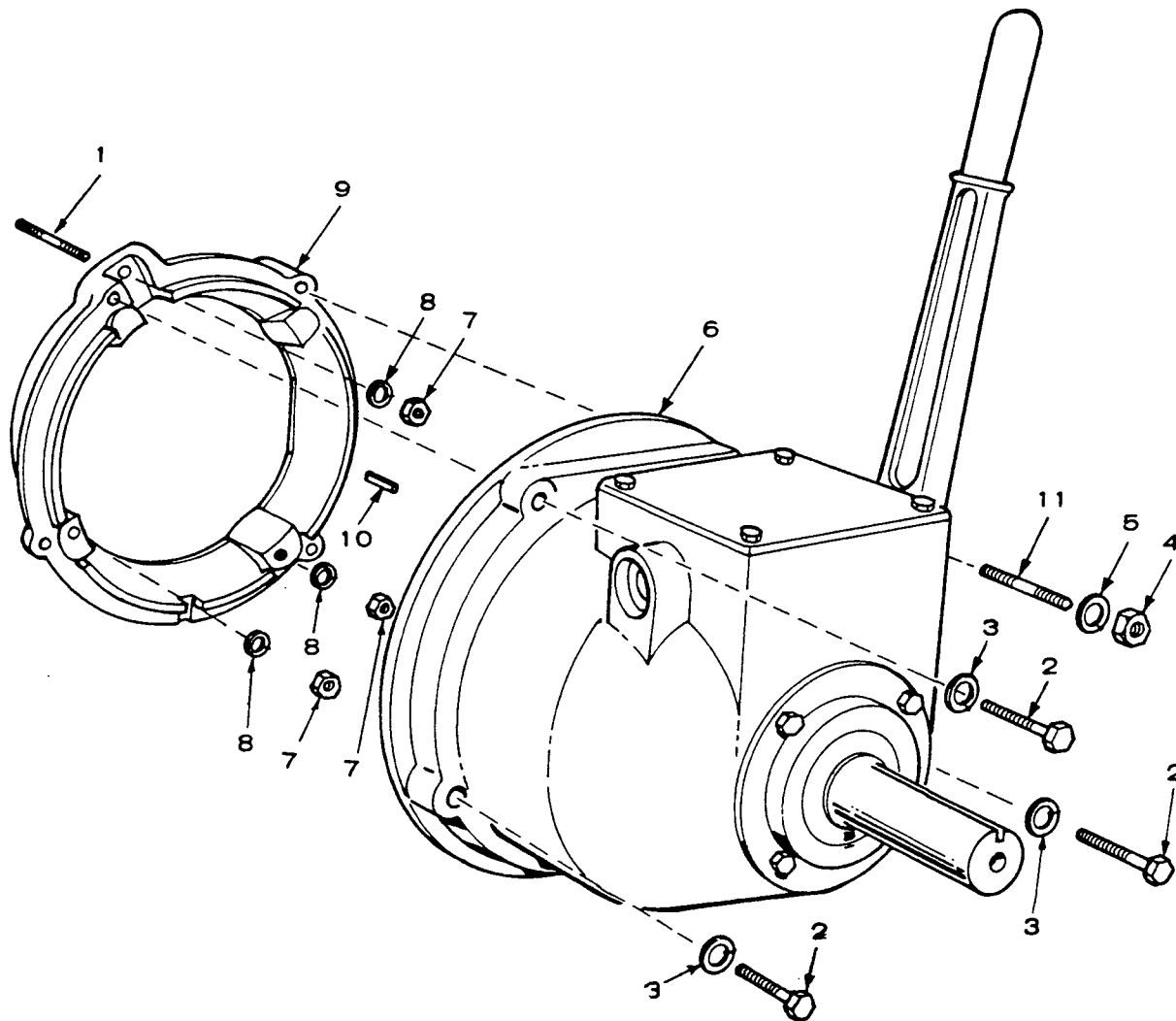
# **OPTION 8** **REDUCTION GEARBOX (3.3 to 1)**



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	805-0009	4	Bolt, Place - Hex Head (5-16-18 x 1")
2	800-0027	2	Screw, Cap - Hex Head (5/16-18 x 7/8")
3	526-0065	2	Washer, Flat - Copper (21/64 ID x 9/16 OD x 1/16" Thk)
4	190-0297	1	Bracket, Support - Housing
5	190-0298	1	Nut, Bar - Support Bracket
6	190-0445	1	Gear Reduction Assembly (Includes Following Components)
7	815-0019	2	Screw, Drive - Round Head (00 x 3/16")
8	515-0103	1	Key, Woodruff
9	509-0016	1	Seal, Oil
10	800-0007	4	Screw, Cap - Hex Head (1/4-20 x 1")
11	526-0063	4	Washer, Flat - Copper (17/64 ID x 7/16 OD x 1/32" Thk)
12	190-0016	1	Plate, Retaining - Bearing
13	190-0306	2	Gasket
14	190-0115	1	Shim Set
15	505-0054	2	Plug, Pipe - 1/4 NPT
16	505-0057	2	Plug, Pipe - 1/8 NPT
17	518-0172	1	Vent
18	505-0007	1	Reducer, Pipe (1/4 NPT to 1/8 NPT)
19	800-0028	8	Screw, Cap - Hex Head (5/16-18 x 1")

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
20	526-0065	8	Washer, Flat - Copper (21/64 ID x 9/16 OD x 1/16" Thk)
21	510-0024	1	Race, Outer - Roller Bearing (Cup)
22	510-0023	1	Race, Inner with Rollers (Cone)
23	190-0021	1	Gasket
24	190-0202	1	Spacer, Bearing
25	518-0013	1	Ring, Retaining
26	515-0159	1	Key, Woodruff
27	190-0192	1	Shaft, Power Take-off
28	190-0224	1	Gear, Helical, Drive
29	510-0022	1	Race, Outer - Roller Bearing (Cup)
30	510-0021	1	Race, Inner with Rollers (Cone)
31	190-0225	1	Gear, Pinion
32	515-0142	1	Key
33	190-0195	1	Washer, Thrust - Pinion Gear - Special
34	516-0012	2	Pin, Dowel
35	190-0300	1	Housing (Match Set)
36	190-0020	1	Gasket
37	99-1266	1	Plate, Instruction

## OPTION 9 CLUTCH

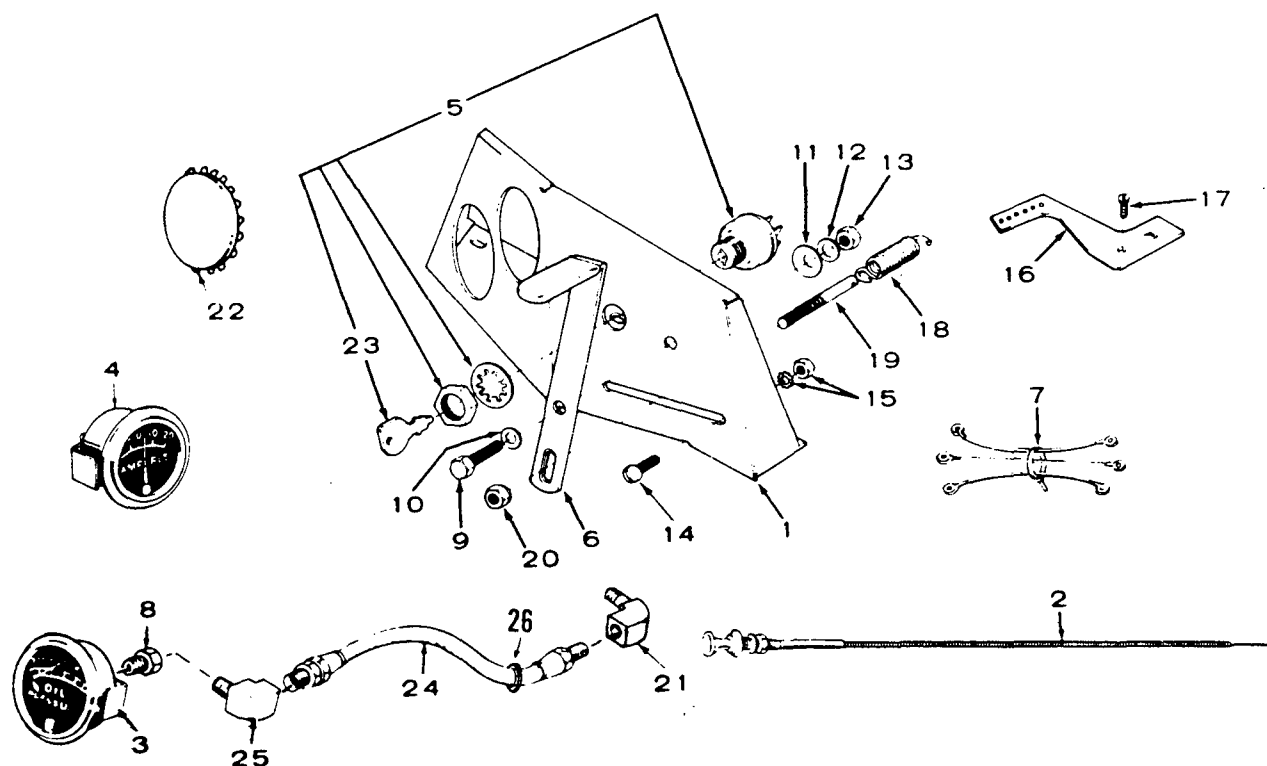


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	190-0289	1	Kit, Clutch Assembly (Includes All Parts Except Crankshaft)
1	520-0739	3	Stud (3/8-24 x 3/8-16 x 3")
2	800-0075	3	Screw, Cap - Hex Head (7/16-14 x 2")
3	850-0055	3	Washer, Lock - Spring (7/16")
4	104-0091	1	Nut, Hex - Hardened
5	850-0050	1	Washer, Lock - Spring (3/8")
6	190-0288	1	*Clutch Assembly
7	104-0091	3	Nut, Hex - Hardened
8	850-0050	3	Washer, Lock - Spring (3/8")
9	190-0171	1	Adapter, Clutch
10	515-0041	1	Key, Drive - Special
11	520-0738	1	Stud (3/8-24 x 3/8-16 x 4")

\* - For Components, check nameplate and contact nearest Rockford Clutch Dealer.

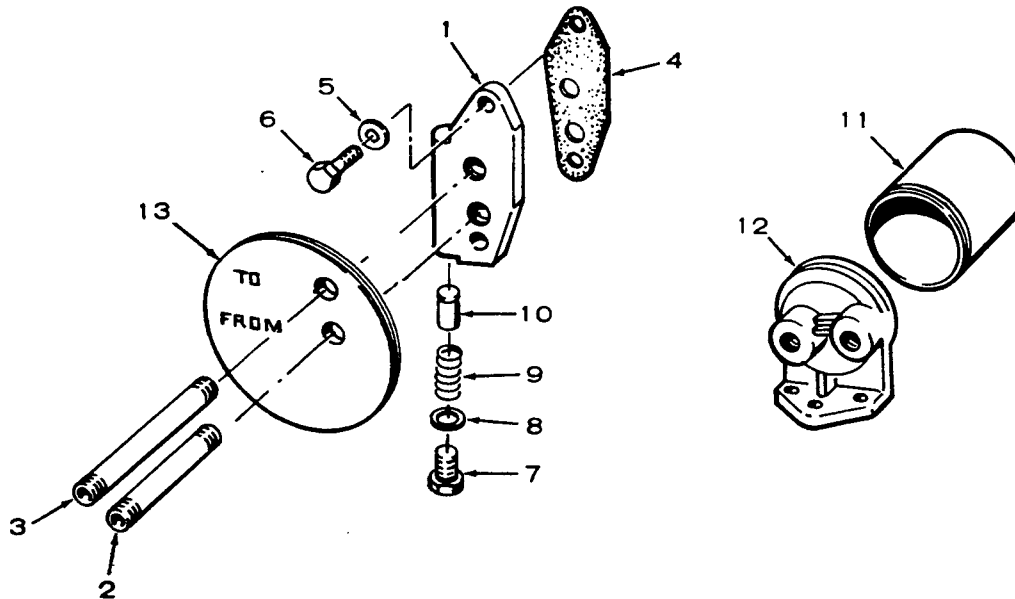


# OPTION NO. 10 CONTROL (ENGINE)



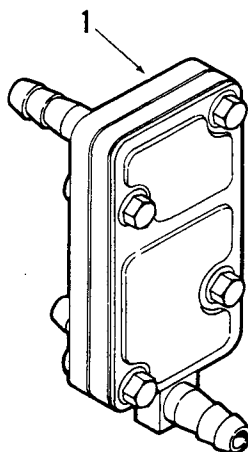
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	301-5065	1	Panel, Control
2	153-0097	1	Cable, Choke
3	193-0005	1	Gauge, Oil Pressure
4	302-0060	1	Ammeter (20-0-20)
5	308-0385	1	Switch, Ignition
6	152-0224	1	Lever, Throttle Control
7	338-1219	1	Harness, Wiring
8	502-0051	1	Coupling, Female
9	800-0005	1	Screw, Cap - Hex Head (1/4-20 x 3/4")
10	526-0016	1	Washer, Flat (17/64" ID x 9/16" OD x 1/32" Thk)
11	152-0041	1	Washer, Tension - Special
12	526-0015	2	Washer, Flat (9/32" ID x 9/16" OD x 1/16" Thk)
13	870-0065	1	Nut, Hex - Self Locking (1/4-20)
14	815-0199	2	Screw, Machine - Fillister Head (#10-32 x 5/16")
15	870-0131	2	Nut, Hex with ET (#10-32)
16	150-1749	1	Extension, Governor Arm
17	815-0181	1	Screw, Tapping - Hex Head with ET (#10-32 x 1/2")
18	150-1214	1	Spring, Governor
19	152-0177	1	Stud, Speed Adjusting
20	150-0621	1	Nut, Speed Adjusting Stud - Special
21	502-0005	1	Elbow, Inverted - Female (90°)
22	517-0009	As Req.	Plug, Dot Button
23	308-0490	1	Key, Ignition Switch
24	501-0009	1	Line, Oil - Flexible (36" Lg)
25	502-0065	1	Elbow, Inverted - Male (45°)
26	508-0199	1	Grommet, Oil Line

# **OPTION 11** **OIL FILTER (REMOTE)**



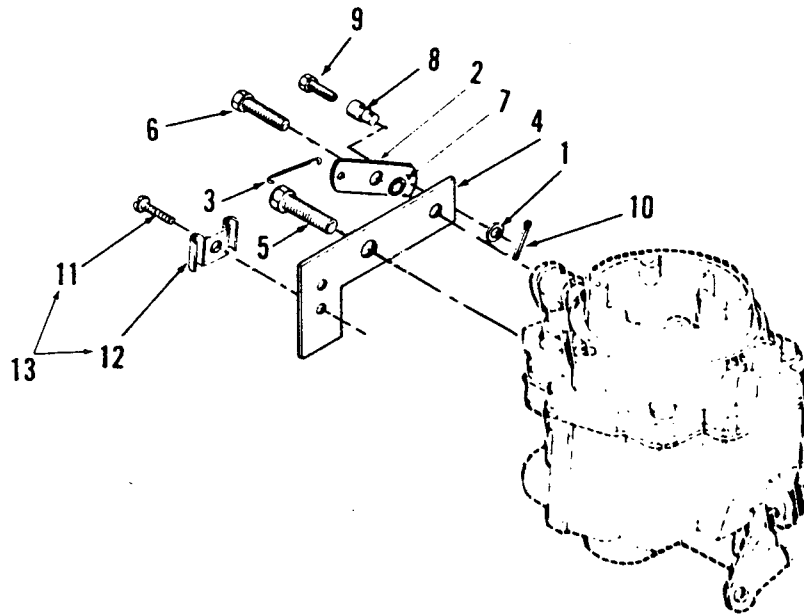
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
<b>NOTE:</b> Hoses vary with each installation. Purchase locally, hoses with a minimum pressure rating of 150 PSI (1035 kpa).			
1	122-0369	1	Adapter, Remote Oil Filter
2	505-0791	1	Nipple, Pipe (1/4 x 7")
3	505-0946	1	Nipple, Pipe (1/4 x 8")
4	122-0375	1	Gasket, Adapter
5	526-0065	2	Washer, Flat - Copper (21/64" ID x 9/16" OD x 1/16" Thk)
6	800-0028	2	Screw, Cap - Hex Head (5/16-18 x 1")
7	801-0050	1	Screw, Cap - Hex Head (3/8-24 x 1")
8	526-0066	1	Washer, Flat - Copper (25/64" ID x 9/16" OD x 1/16" Thk)
9	120-0140	1	Spring, By-Pass Valve
10	120-0398	1	Valve, By-Pass
11	122-0323	1	Filter, Oil
12	122-0476	1	Base, Remote Oil Filter
13	508-0184	1	Grommet, Air Seal

**OPTION 12**  
**FUEL PUMP (AUTO PULSE)**  
**BLOWER HOUSING MOUNTED**  
**RIGHT SIDE**



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	149-1544	1	Pump, Fuel - Auto Pulse Blower Housing Mounted - Right Side
	149-1552	1	Kit, Repair Package - Fuel Pump (Includes Check Valve, Diaphragm, Springs and Gaskets)

# **OPTION 13** **CHOKE CONTROL (FRONT PULL)**

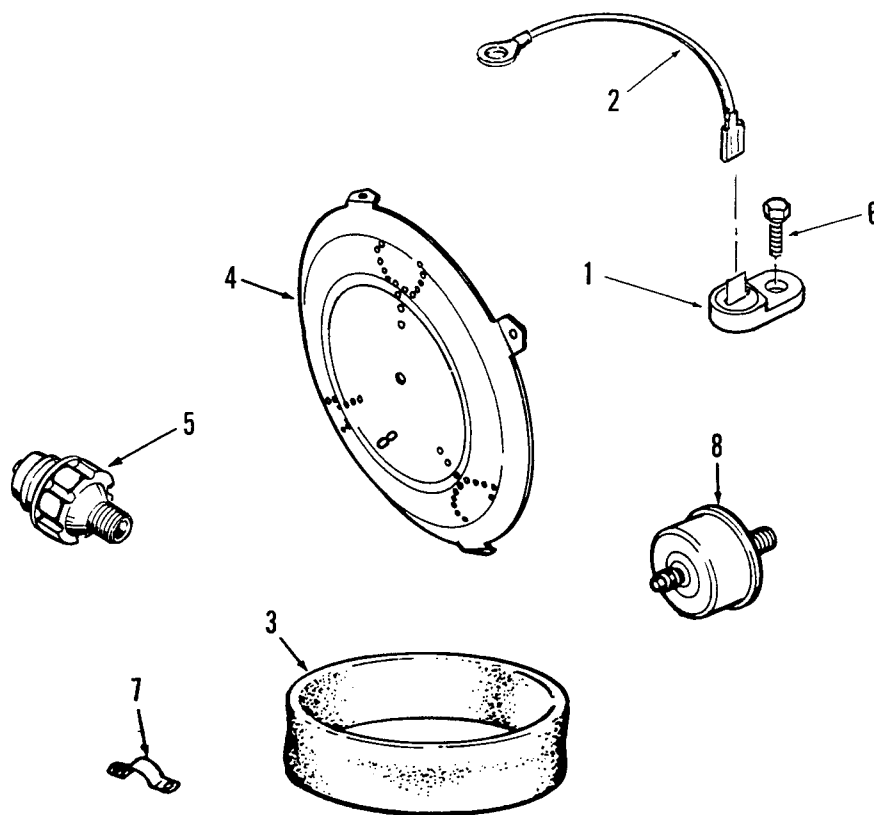


FS-1131R

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	526-0140	1	Washer, Flat
2	153-0523	1	Lever, Choke
3	153-0500	1	Link, Choke
4	153-0524	1	Bracket, Choke Cable
5	821-0002	1	Screw, Cap - HWH (#10-32 x 1/4")
6	815-0480	1	Screw, Shoulder (#10-32 x .34")
7	854-0010	1	Washer, Lock-It (#10)
8	152-0155	1	Swivel, Choke Lever
9	815-0104	1	Screw, Machine - Fillister Head (#8-32 x .31")
10	516-0059	1	Pin, Cotter
11	815-0391	2	*Screw, Tapping - Slotted HWH (#10-32 x 1/2")
12	153-0514	2	*Clip, Choke Cable
13	153-0520	1	Clamp Package, Choke Cable (Includes Parts Marked *)

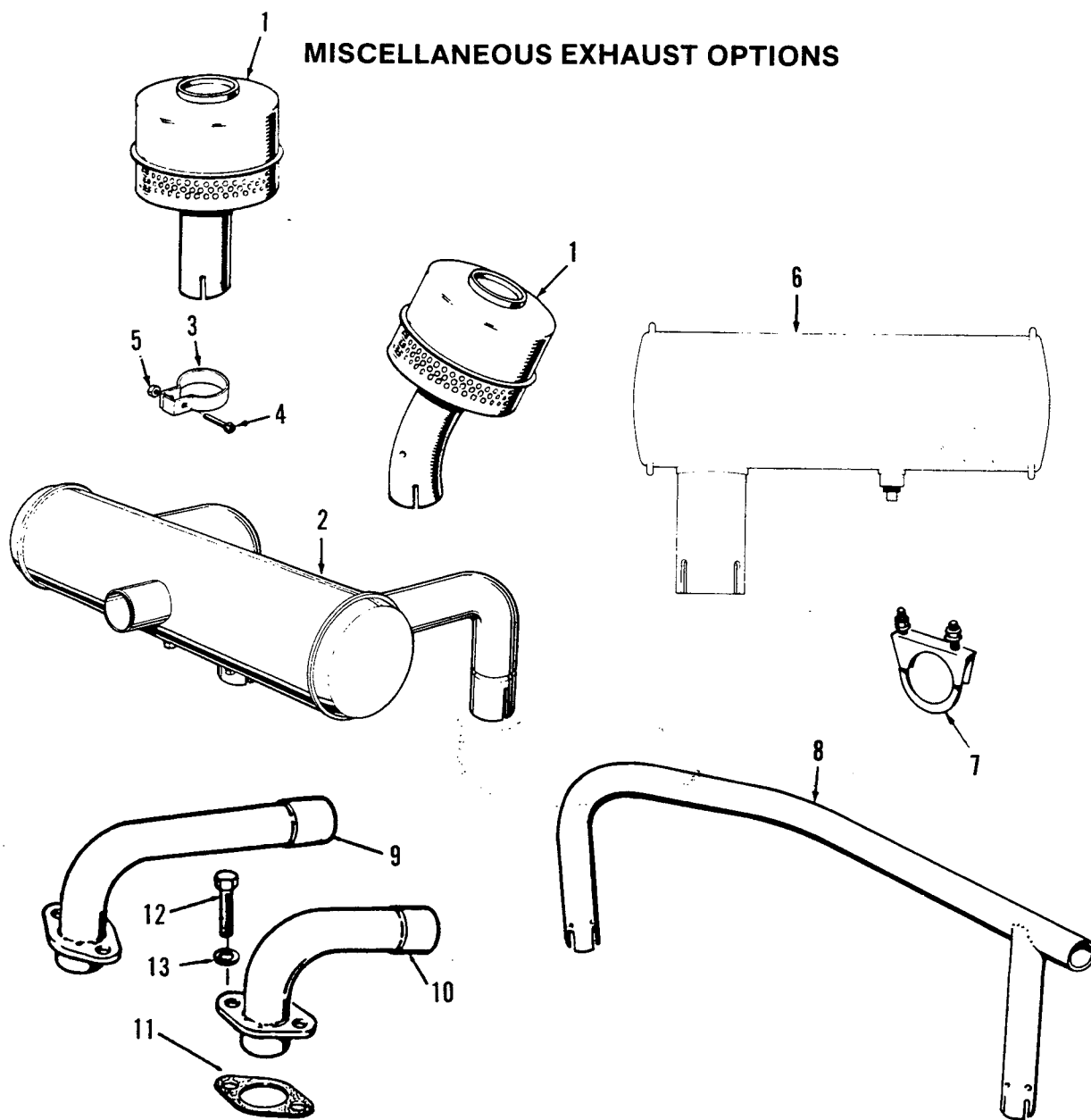
\* - Parts Included in 153-0520 Choke Cable Clamp Package.

## MISCELLANEOUS OPTIONAL PARTS



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	309-0329	1	Switch, High Air Temperature Cut-Off
2	336-3910	1	Lead, Two Terminal - Hatco Switch
3	140-1496	1	Wrapper, Filter Element
4	134-3589	1	Guard, Flywheel
5	309-0237	1	Switch, Low Oil Pressure
6	821-0018	1	Screw, HWH - Self-locking Hatco Switch (1/4-20 x 5/8")
7	403-1125	1	Bracket, Lifting (#1 Cylinder)
8	193-0108	1	Sender, Electric Oil Pressure Gauge

## MISCELLANEOUS EXHAUST OPTIONS



NOTE: Various exhaust options are used on N52M industrial engines. Select according to illustration.

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	MUFFLER, EXHAUST - PEPPER POT		
	155-1217	2	Straight
	155-1216	2	Angled Out
2	155-1686	1	Muffler, Exhaust - Crossover
3	155-1219	2	Clamp, Muffler
4	805-0019	2	Screw, Cap - Hex Head (3/8-16 x 1")
5	862-0003	2	Nut, Hex (3/8-16)
6	MUFFLER, EXHAUST - RAYGUN		
	155-1698	2	With Spark Arrestor
	155-1660	2	Without Spark Arrestor
7	155-1239	2	Clamp, Muffler (1-5/8")

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
8	MANIFOLD, EXHAUST - CROSSOVER		
	154-1609	1	Rear Crossover - Right Side Outlet
	154-1610	1	Rear Crossover - Left Side Outlet
	154-1492	1	Front Crossover - Left Side Outlet
9	154-2113	1	Adapter, Exhaust - Left (1-1/2" OD Outlet)
10	154-2112	1	Adapter, Exhaust - Right (1-1/2" OD Outlet)
11	154-1482	1	Gasket, Exhaust
12	802-0055	4	Screw, Hex Socket Head (5/16-18 x 1")
13	526-0022	4	Washer, Flat (21/64 ID x 9/16 OD x 1/16" Thk)