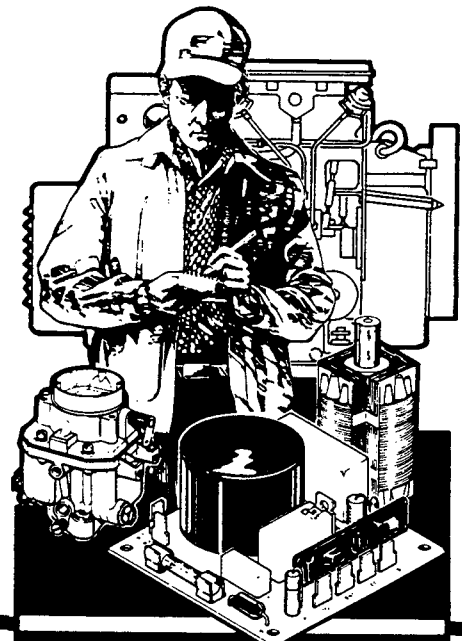

Onan

**Parts
Manual
3.0 & 4.0
BFA
RV GenSet**



Onan Service Parts

965-0222
3-86 (SPECS A-D)
replaces
9-83 (SPECS A-C)
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, always give the MODEL, SPEC NO. and SERIAL NO. from the Onan nameplate.

The diagram shows a rectangular nameplate with two circular mounting holes at the top. The Onan logo is prominently displayed. Below the 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 nameplate is shown peeling away, revealing a second identical nameplate underneath. The text 'M-1149' is printed at the bottom right of the top nameplate.

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

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.

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Introduction

This catalog applies to the standard BFA Recreational Vehicle Generator Sets 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 set *Model* and *Spec No.* Unless otherwise mentioned in the description, parts are interchangeable between models. Right and left sides are determined by facing the engine end (front) of the set.

Generator Set Data Table

MODEL AND SPEC NO.	ELECTRICAL DATA			
	WATTS	HERTZ	VOLTS	PHASE
3.0BFA-51R/*	3,000	50	120	1
3.0BFA-53CR/*	3,000	50	120/240	1
4.0BFA-1R/*	4,000	60	120	1
4.0BFA-3CR/*	4,000	60	120/240	1

* - The specification letter advances (A to B, B to C, etc.) with manufacturing changes.

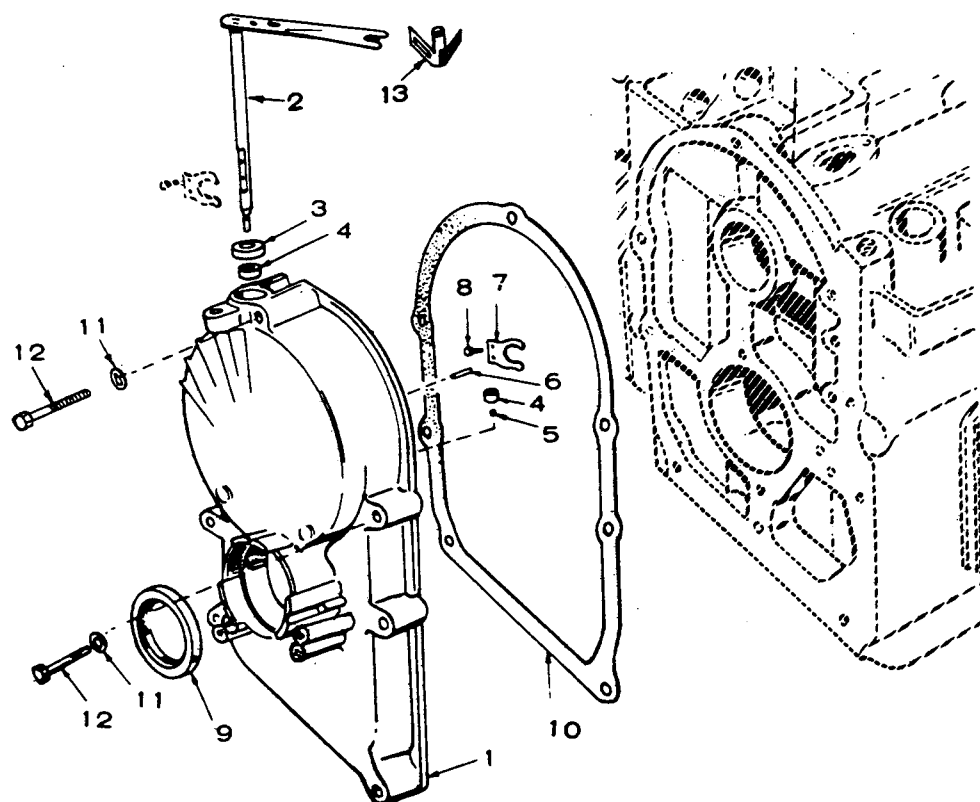
NOTICE!

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.

Standard Parts Section

This section contains the parts used on standard generator sets.

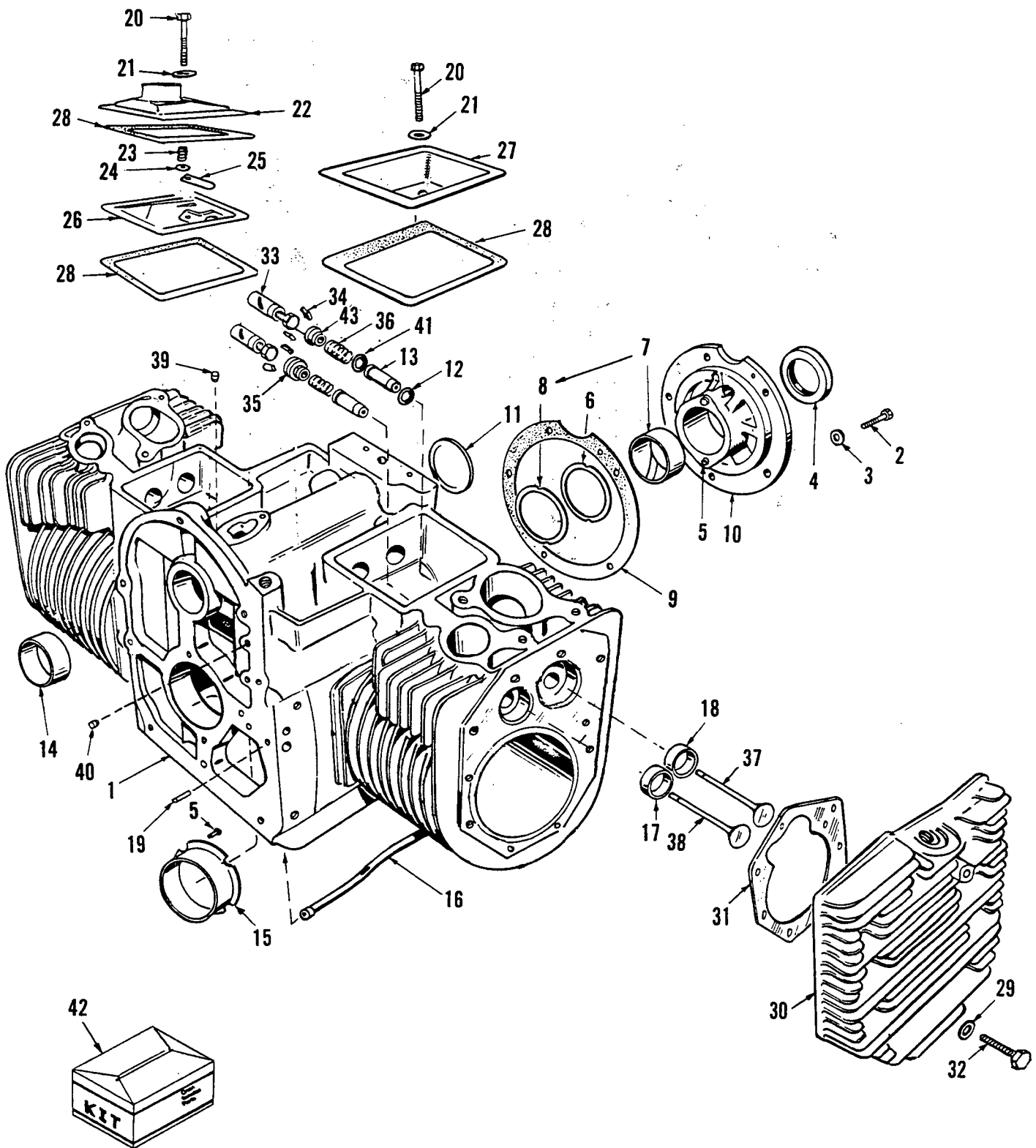
Gearcase



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	103-0667	1	Gearcase Assembly (Includes Parts Marked *)
2	150-1542	1	*Arm and Shaft, Governor
3	509-0008	1	*Seal, Oil - Governor Shaft
4	510-0013	2	*Bearing, Needle
5	510-0014	1	*Ball, Bearing
6	516-0130	1	*Pin, Governor Cup Stop
7	150-1187	1	*Yoke, Governor
8	815-0046	2	*Screw, Machine - Pan Head (#8-32 x 3/8")
9	509-0040	1	*Seal, Oil - Crankshaft
10	103-0408	1	Gasket, Gearcase
11	526-0065	5	Washer, Flat - Copper (21/64" ID x 9/16" OD x 1/16" Thk)
12	SCREW, CAP-HEX HEAD		
	800-0032	4	5/16-18 x 1-3/4"
	800-0034	1	5/16-18 x 2-1/4"
13	150-0678	1	*Clip, Sensitivity Adjustment

* - Parts Included in 103-0667 Gearcase Assembly.

Cylinder Block

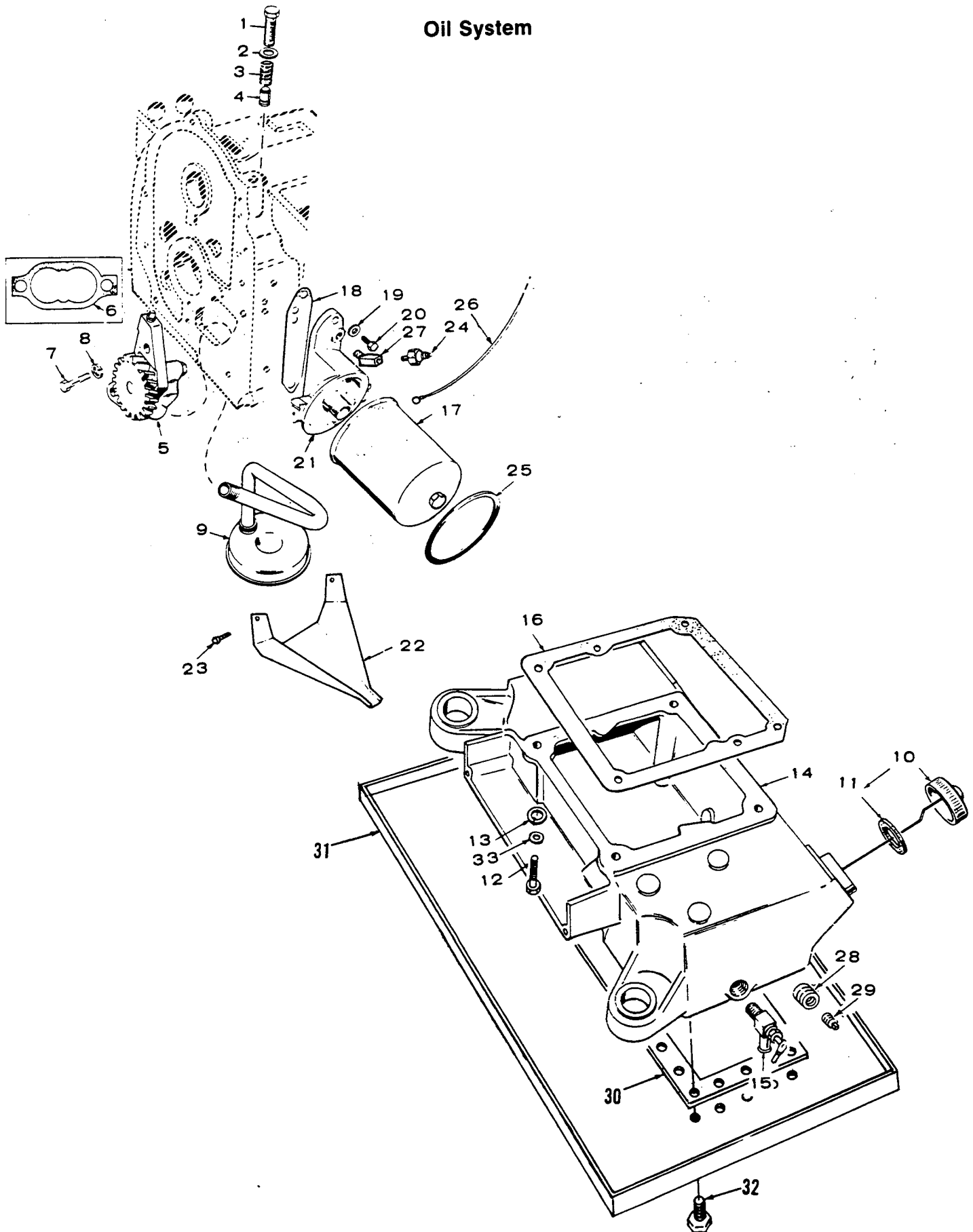


Cylinder Block

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	110-3148	1	Block Assembly, Cylinder (Includes Parts Marked *)	19	516-0141	2	*Pin, Gearcase Alignment
2	800-0051	5	*Screw, Cap - Hex Head (3/8-16 x 1-1/4")	20	800-0010	2	Screw, Cap - Hex Head (1/4-20 x 1-3/4")
3	850-0050	5	*Washer, Lock - Spring (3/8")	21	526-0063	2	Washer, Flat - Copper (17/64" ID x 7/16" OD x 1/32" Thk)
4	509-0041	1	*Seal, Oil - Crankshaft Rear	22	110-2274	1	Cover, Valve (With Breather Port)
5	516-0072	4	*Pin, Drive - Bearing Stop	23	123-1174	1	Spring, Breather Valve
6	104-0776	As Req.	*Shim (.005")	24	526-0018	1	Washer, Flat (17/64" ID x 5/8" OD x 1/16" Thk)
7	BEARING, CRANKSHAFT - REAR (Includes Thrust Washer)			25	123-1175	1	Reed, Breather Valve
	101-0450	1	*Standard	26	123-1173	1	Baffle, Breather Valve
	101-0450-02	1	.002" Undersize	27	110-1879	1	Cover, Valve (Without Breather Port)
	101-0450-10	1	.010" Undersize	28	110-1921	3	Gasket, Valve Cover
	101-0450-20	1	.020" Undersize	29	526-0122	18	Washer, Flat (11/32" ID x 23/32" OD x 1/8" Thk)
	101-0450-30	1	.030" Undersize	30	HEAD, CYLINDER		
8	104-0575	2	*Washer, Thrust		110-2562	1	Right Side
9	101-0415	1	*Gasket		110-2561	1	Left Side
10	101-0439	1	*Plate, Bearing - Rear	31	110-0892	2	Gasket, Head
11	517-0048	1	*Plug, Expansion - Welch	32	SCREW, CAP-HEX HEAD		
12	110-0068	2	*Gasket, Intake Valve Guide		800-0540	12	Special
13	GUIDE, VALVE				800-0541	6	Special
	Engines w/o Intake Valve Seals			33	TAPPET, VALVE		
	110-1807	2	Intake		115-0006	4	Standard
	110-1807	2	Exhaust		115-0006-02	4	.002" Oversize
	Engines with Intake Valve Seals				115-0006-05	4	.005" Oversize
	110-1807	2	*Exhaust	34	110-0639	8	Lock, Valve Spring
	110-3159	2	*Intake	35	110-0904	2	Rotocap, Valve - Exhaust
14	101-0405	2	*Bearing, Camshaft	36	110-0539	4	Spring, Valve
15	BEARING, CRANKSHAFT - FRONT			37	110-1808	2	Valve, Intake
	101-0432	1	*Standard	38	110-1809	2	Valve, Exhaust
	101-0432-02	1	.002" Undersize	39	517-0120	1	Plug, Cylinder Block Opening
	101-0432-10	1	.010" Undersize	40	517-0067	1	Plug, Core Hole
	101-0432-20	1	.020" Undersize	41	509-0168	2	Seal, Valve - Intake
	101-0432-30	1	.030" Undersize	42	168-0144	1	Gasket Kit, Carbon Removal
16	120-0735	1	*Tube, Oil Crankcase		168-0143	1	Gasket Kit, Engine
17	INSERT, VALVE SEAT - EXHAUST			43	110-0893	2	Retainer, Intake Valve Spring
	110-1824	2	*Standard				
	110-1824-02	2	.002" Oversize				
	110-1824-05	2	.005" Oversize				
	110-1824-10	2	.010" Oversize				
	110-1824-25	2	.025" Oversize				
18	INSERT, VALVE SEAT - INTAKE						
	110-0197	2	*Standard				
	110-0197-02	2	.002" Oversize				
	110-0197-05	2	.005" Oversize				
	110-0197-10	2	.010" Oversize				
	110-0197-25	2	.025" Oversize				

* - Parts Included in 110-3148 Cylinder Block Assembly.

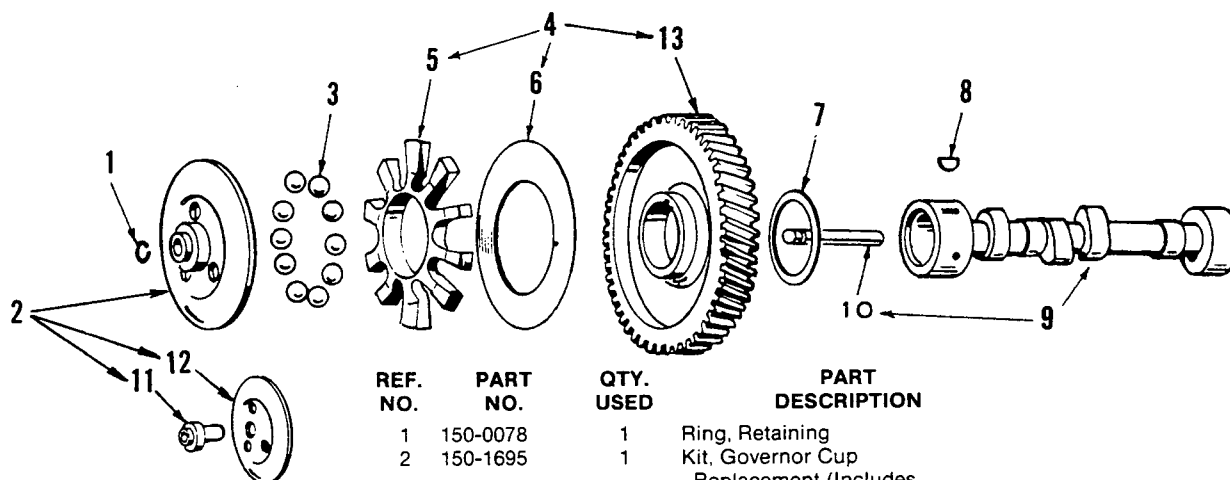
Oil System



Oil System

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	801-0050	1	Screw, Cap - Hex Head (3/8-24 x 1")	17	122-0645	1	Filter, Oil
2	526-0066	1	Washer, Flat - Copper (25/64" ID x 9/16" OD x 1/16" Thk)	18	122-0321	1	Gasket, Oil Filter Adapter
3	120-0140	1	Spring, Oil Bypass Valve	19	526-0065	2	Washer, Flat - Copper (21/64" ID x 9/16" OD x 1/16" Thk)
4	120-0398	1	Valve, Oil Bypass	20	800-0028	2	Screw, Cap - Hex Head (5/16-18 x 1")
5	120-0491	1	Pump, Oil	21	122-0320	1	Adapter, Oil Filter
6	120-0161	1	Gasket Kit, Oil Pump	22	122-0360	1	Drain, Oil Filter
7	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")	23	815-0194	2	Screw, Cap - Hex Head W/ET (#10-32 x 3/8")
8	850-0040	2	Washer, Lock - Spring (1/4")	24	309-0322	1	Switch, Oil Pressure
9	CUP, OIL PUMP INTAKE			25	122-0347	1	Seal, Air - Oil Filter
	120-0413	1	Begin Spec B	26	336-3377	1	Lead, Oil Pressure Switch to Control
	120-0648	1	Spec A	27	502-0053	1	Elbow (45°)
10	CAP AND INDICATOR, OIL FILL			28	505-0019	1	Bushing, Reducer - Spec A
	123-1400	1	Begin Spec B	29	505-0056	1	Plug, Pipe - Spec A
	123-0489	1	Spec A	30	102-1275	1	Gasket, Oil Pan Mounting - Begin Spec B
11	123-0191	1	Gasket, Oil Fill Cap	31	102-0889	1	Pan, Oil - Begin Spec B
12	SCREW, CAP - HEX HEAD			32	815-0337	20	Screw, Self Tapping - Hex Head (1/4-20 x 3/4")
	800-0064	4	Begin Spec B (3/8-16 x 4-1/2")	33	WASHER, FLAT		
	800-0051	4	Spec A (3/8-16 x 1-1/4")		526-0013	4	Spec A, B (25/64" ID x 1" OD x 1/16" Thk)
13	850-0050	4	Washer, Lock - Spring (1/4")		526-0030	4	Begin Spec C (13/32" ID x 7/8" OD x 1/8" Thk)
14	BASE, OIL						
	102-0944	1	Spec A				
	102-0957	1	Begin Spec B (Incl. Mtg. Gskt.)				
15	504-0092	1	Valve, Oil Drain - Begin Spec B				
16	102-1200	1	Gasket, Oil Base				

Camshaft

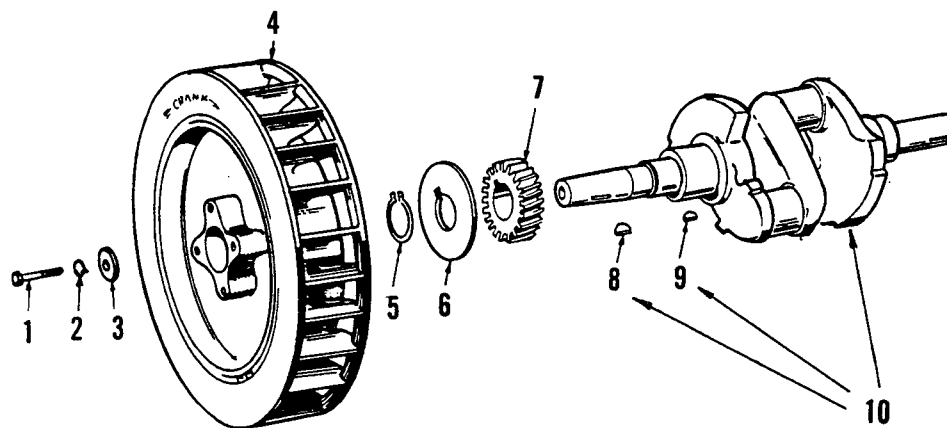


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	150-0078	1	Ring, Retaining
2	150-1695	1	Kit, Governor Cup Replacement (Includes Parts Marked *)
3	510-0015	10	Ball, Governor
4	105-0332	1	Gear Assembly, Camshaft (Includes Parts Marked †)
5	150-1510	1	†Spacer, Flyballs
6	150-0077	1	†Plate, Flyball
7	105-0541	1	Washer, Thrust (Special)
8	515-0001	1	Key, Woodruff
9	105-0376	1	Camshaft (Includes Center Pin)
10	150-0075	1	Pin, Center - Camshaft
11	150-1519	1	*Hub, Governor Cup
12	150-1520	1	*Cup and Bushing, Governor
13	105-0030	1	†Gear, Camshaft

* - Parts Included in 150-1695 Governor Cup Kit.

† - Parts Included in 105-0332 Camshaft Gear Assembly

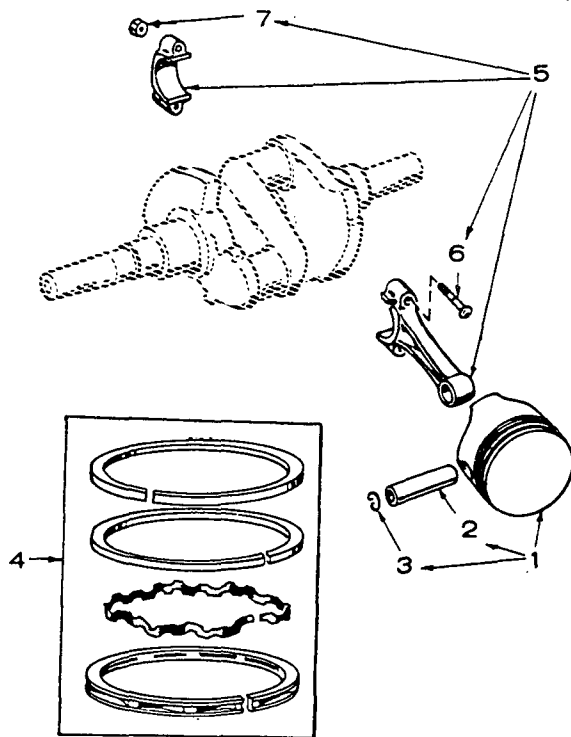
Crankshaft and Flywheel



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	104-0170	1	Screw, Cap - Hex Head Heat Treated (Special)
2	850-0055	1	Washer, Lock - Spring (7/16)
3	526-0017	1	Washer, Flat (15/32" ID x 1-1/4" OD x 1/4" Thk)
4	134-3871	1	Flywheel
5	518-0014	1	Ring, Retaining
6	104-0043	1	Washer, Gear (Special)
7	104-0032	1	Gear, Crankshaft
8	515-0227	1	*Kit, Key
9	515-0001	1	*Key, Woodruff
10	104-1331	1	Crankshaft (Kit) (Includes Parts Marked *)

* - Parts Included in 104-1331 Crankshaft Kit.

Piston and Rod

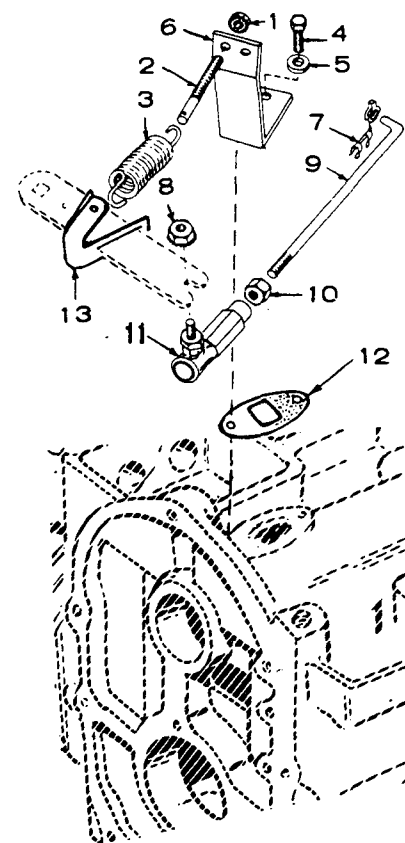


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	PISTON AND PIN ASSEMBLY (Includes Retaining Rings)		
	112-0186	2	Standard
	112-0186-05	2	.005" Oversize
	112-0186-10	2	.010" Oversize
	112-0186-20	2	.020" Oversize
	112-0186-30	2	.030" Oversize
	112-0186-40	2	.040" Oversize
2	112-0229	2	Pin, Piston
3	518-0311	4	Ring, Retaining
4	RING SET, PISTON		
	113-0189	2	Standard
	113-0189-05	2	.005" Oversize
	113-0189-10	2	.010" Oversize
	113-0189-20	2	.020" Oversize
	113-0189-30	2	.030" Oversize
	113-0189-40	2	.040" Oversize
5	ROD, CONNECTING (Includes Bolt and Nut)		
	114-0300	2	Standard
	114-0300-10	2	.010" Undersize
	114-0300-20	2	.020" Undersize
	114-0300-30	2	.030" Undersize
6	114-0240	4	Bolt, Special - Connecting Rod
7	870-0137	4	Nut, Self-Locking (5/16-24)

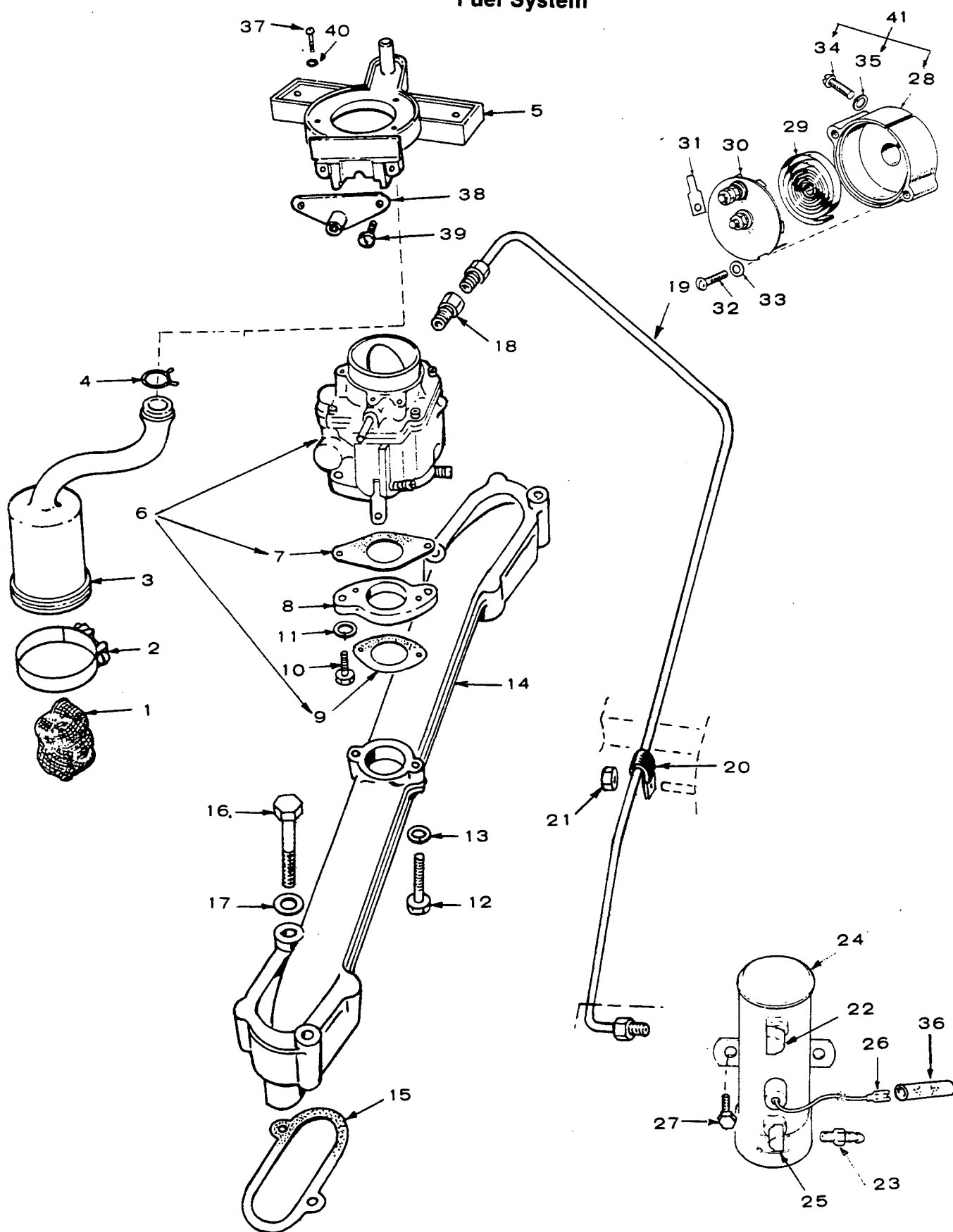
Governor

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	870-0131	1	Nut, Hex - Self Locking (1/4-20)
2	150-0096	1	Stud, Speed Adjustment
3	150-1612	1	Spring, Governor
4	800-0004	2	Screw, Cap - Hex Head (1/4-20 x 5/8")
5	526-0063	2	Washer, Flat - Copper (17/64" ID x 7/16" OD x 1/32" Thk)
6	150-1577	1	Bracket, Governor
7	518-0004	1	Clip, Retaining
8	870-0131	1	*Nut, Hex - Self Locking (1/4-20)
9	150-0629	1	*Rod, Governor Arm to Carburetor
10	870-0053	1	*Nut, Hex (#10-32)
11	150-0639	1	*Joint, Ball
12	149-0003	1	Gasket, Governor Bracket
13	150-0678	1	Clip, Sensitivity Adjustment
14	150-0630	1	Linkage, Governor (Includes Parts Marked *)

* - Parts Included in 150-0630 Governor Linkage.



Fuel System



Fuel System

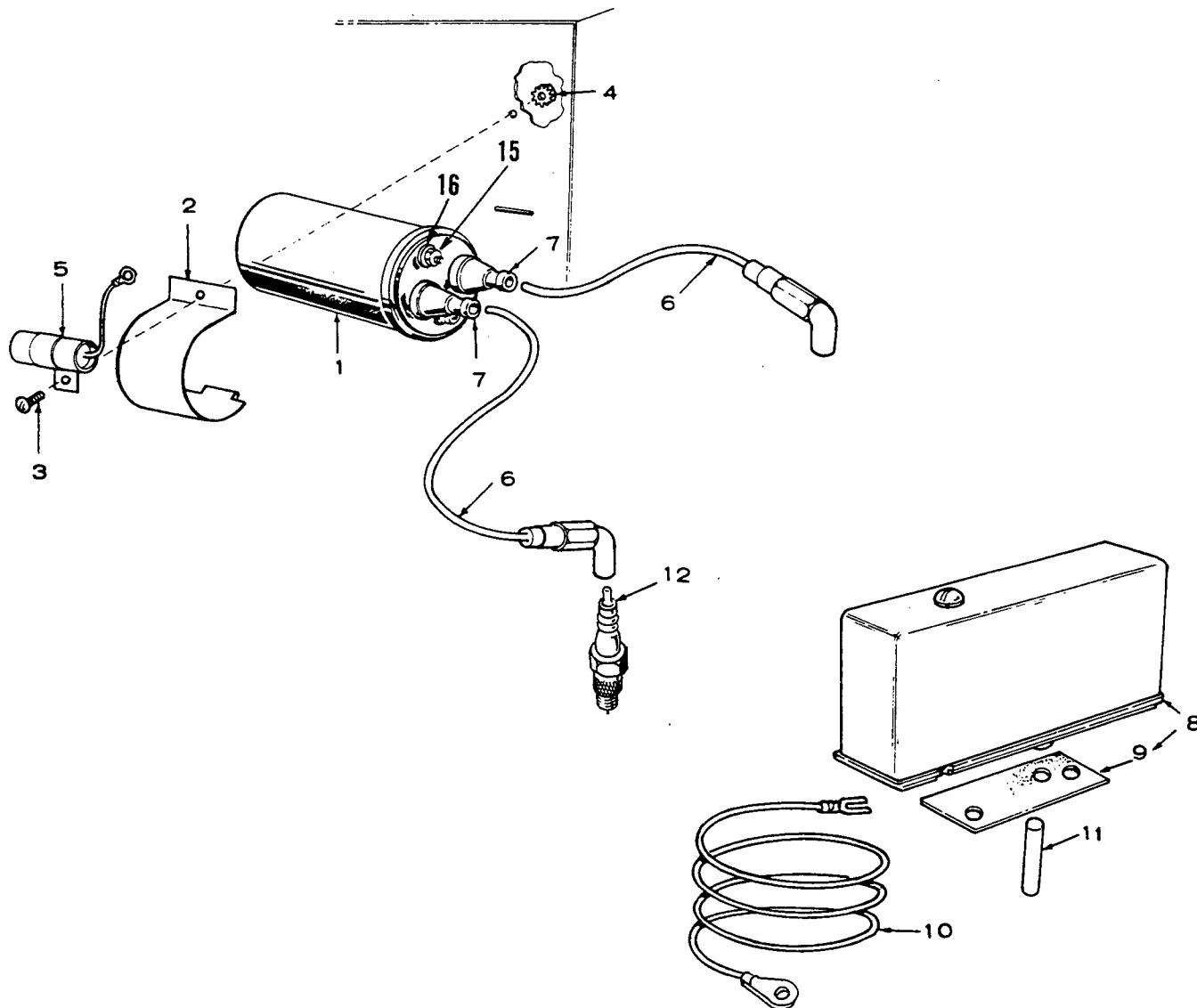
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	123-1417	1	Filter, Breather Tube
2	503-0280	1	Clamp, Hose
3	123-1277	1	Tube, Breather
4	503-0769	1	Clamp, Hose
5	140-1492	1	Adapter, Air Duct
6	CARBURETOR, GASOLINE (Includes Mtg. Gskt.) (See Separate Page for Components)		
	146-0308	1	Walbro
	146-0419	1	Nikki
7	154-0733	1	Gasket, Carburetor to Adapter
8	154-1977	1	Adapter, Carburetor
9	145-0438	1	Gasket, Manifold to Carburetor Adapter
10	800-0028	2	Screw, Cap - Hex Head (5/16-18 x 1")
11	850-0045	2	Washer, Lock - Spring (5/16")
12	800-0023	2	Screw, Cap - Hex head (1/4-20 x 1-3/8")
13	850-0040	2	Washer, Lock - Spring (1/4")
14	154-2206	1	Manifold, Intake
15	154-1446	2	Gasket, Intake Manifold
16	800-0033	4	Screw, Cap - Hex head (5/16-18 x 2")
17	850-0045	4	Washer, Lock - Spring (5/16")
18	502-0003	1	Connector, Inverted Male
19	149-1531	1	Line, Fuel
20	518-0350	1	Clamp, Loop - Insulated
21	862-0015	1	Nut, Hex (5/16-18)
22	502-0002	1	Elbow, Inverted Male
23	502-0395	1	Connector, Hose

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
24	149-1828	1	Pump, Fuel (Electric) (Includes Parts Marked †)
25	ELBOW (90°)		
	502-0196	1	Spec A
	502-0313	1	Begin Spec B
26	332-0529	2	† Terminal, Fuel Pump Lead
27	821-0008	2	Screw, Cap - Self Locking (1/4-20 x 5/16" lg)
28	153-0058	1	* Housing, Choke
29	153-0017	1	Bi-Metal, Choke
30	153-0114	1	Element & Cover Choke
31	332-0527	1	Terminal, Lug
32	815-0285	2	Screw, Machine - Round Head W/ET (#8-32 x 5/16")
33	526-0062	2	Washer, Flat - Brass (Special)
34	815-0110	1	* Screw, Machine - Fillister Head (#10-32 x 7/8")
35	850-0030	1	* Washer, Lock - Spring (#10)
36	332-0556	1	† Connector, Fuel Pump Lead
37	804-0017	3	Screw, Socket Head (#10-32 x 1/2" lg)
38	153-0499	1	Adapter, Choke
39	815-0359	2	Screw, Self Tapping - Hex Head (#10-32 x 7/8" lg)
40	509-0145	1	Seal, "O" Ring
41	153-0440	1	Housing, Choke (Includes Parts Marked *)

* - Parts Included in 153-0440 Choke Housing & Screw.

† - Parts Included in 149-1830 Electric Fuel Pump.

Ignition System



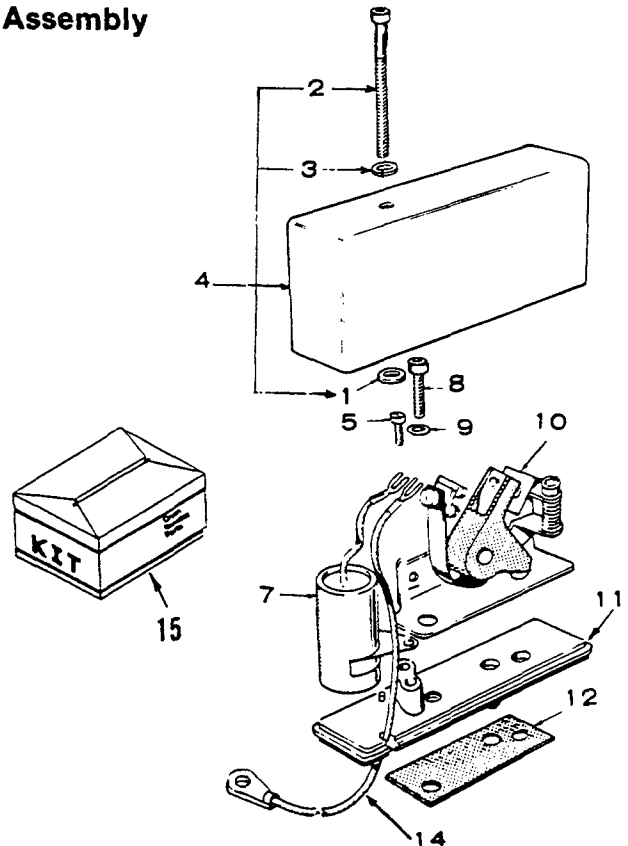
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	166-0643	1	Coil, Ignition
2	166-0588	1	Clamp, Coil
3	815-0350	1	Screw, Cap - Hex Head (#10-32 x 1/2")
4	870-0131	1	Nut, Hex - W/ET (#10-32)
5	312-0017	1	Capacitor
6	167-1602	2	Cable, Spark Plug
7	160-0558	2	Nipple, Spark Plug Cable
8	160-1303	1	Box Assembly, Breaker (See Separate Group for Components) Includes Mounting Gasket
9	160-1150	1	Gasket, Breaker Box Mounting
10	336-2378	1	Lead, Coil to Breaker Points
11	160-1151	1	Plunger, Breaker Points
12	PLUG, SPARK		
	167-0237	2	Spec A
	167-0298	2	Begin Spec B
13	166-0554	1	Nut, Hex (Special)
14	850-2005	1	Washer, Lock - Spring (Metric)
15	166-0554	2	Nut, Hex (Special)
16	850-2005	2	Washer, Lock (Metric)

Breaker Box Assembly

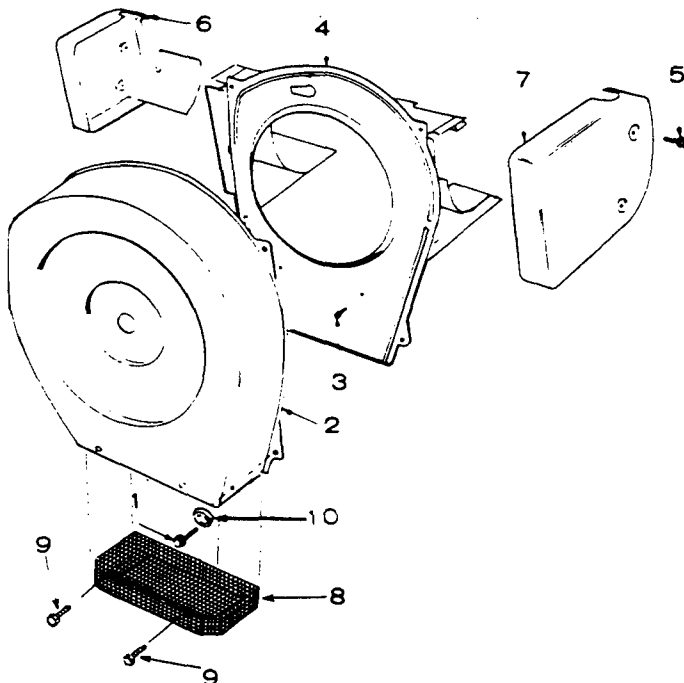
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	160-1303	1	Box Assembly, Breaker - Complete (Includes Parts Marked *)
1	509-0065	1	*Retainer, Breaker Box Cover Screw
2	802-0022	1	*Screw, Cap - Socket Head (#10-24 x 1-1/2")
3	526-0008	1	*Washer, Flat (13/64" ID x 7/16" OD x 1/32" Thk)
4	160-1285	1	*Cover, Breaker Box (Includes Screw, Washer and Retainer)
5	815-0358	1	*Screw, Cap - Hex Head (#8-32 x 5/16")
7	312-0246	1	†*Capacitor, Ignition
8	802-0034	2	*Screw, Cap - Socket Head (1/4-20 x 3/4")
9	850-0040	2	*Washer, Lock - Spring (1/4")
10	160-1183	1	†*Point Assembly, Breaker
11	160-1219	1	*Base, Breaker Box
12	160-1150	1	*Gasket, Breaker Box
14	336-2378	1	Lead, Breaker Box to Coil
15	160-1311	1	Kit, Ignition Tune-Up (Includes Parts Marked †)

* - Parts Included in 160-1303 Breaker Box Assembly.

† - Parts Included in 160-1311 Ignition Tune-Up Kit.

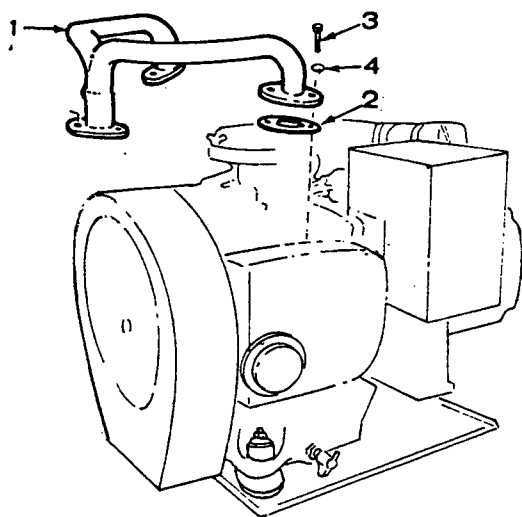


Air Housing



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	821-0008	4	Screw, Cap - Hex Head (1/4-20 x 5/16")
2	SCROLL ASSEMBLY		
	134-3149	1	Includes Guard (Prior to 6/83)
	134-3151	1	Without Guard (Begin 6/83)
3	821-0010	2	Screw, Cap - HWH (1/4-20 x 1/2" lg)
4	BACKPLATE, SCROLL		
	134-3688	1	Begin Spec B
	134-3257	1	Spec A
5	815-0261	4	Screw, Cap - Hex Head (1/4-20 x 1/2" lg)
6	HOUSING, CYLINDER AIR - LEFT SIDE		
	134-3701	1	Begin Spec B
	134-3137	1	Spec A
7	HOUSING, CYLINDER AIR - RIGHT SIDE		
	134-3700	1	Begin Spec B
	134-3480	1	Spec A
8	GUARD, SCROLL		
	134-3418	1	Screen (Prior to 6/83)
	134-4316	1	Wire (Begin 6/83)
9	815-0421	4	Screw, Self Tapping - Hex Head W/ET (10-16 x 1/2")
10	850-0040	4	Washer, Lock - Spec B (1/4")

Exhaust System

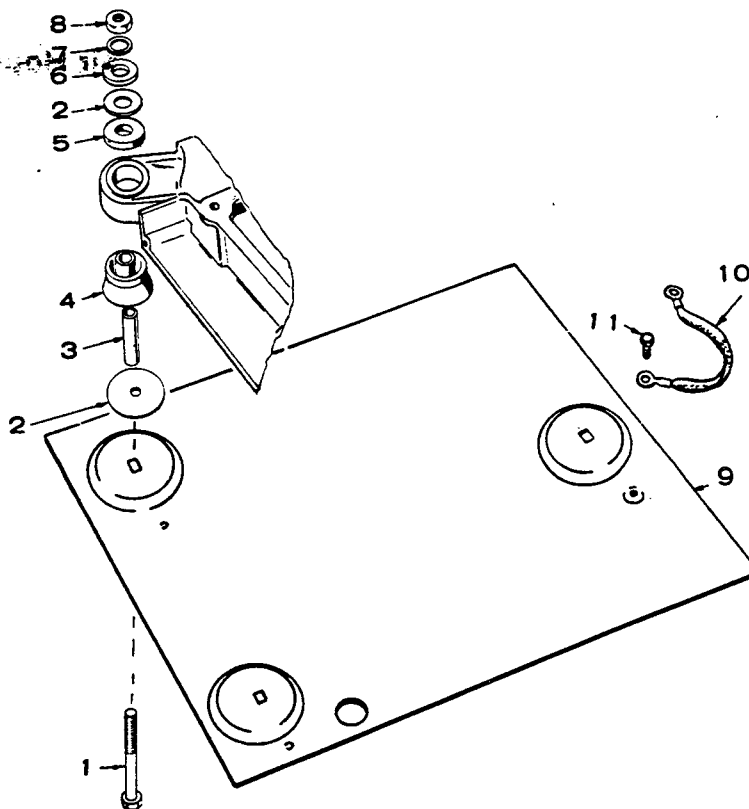


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	154-1947	1	Manifold, Exhaust
2	154-1725	2	Gasket, Exhaust Manifold
3	800-0026	4	Screw, Cap - Hex Head (5/16-18 x 3/4" lg)
4	850-0045	4	Washer, Lock - Spring (5/16")

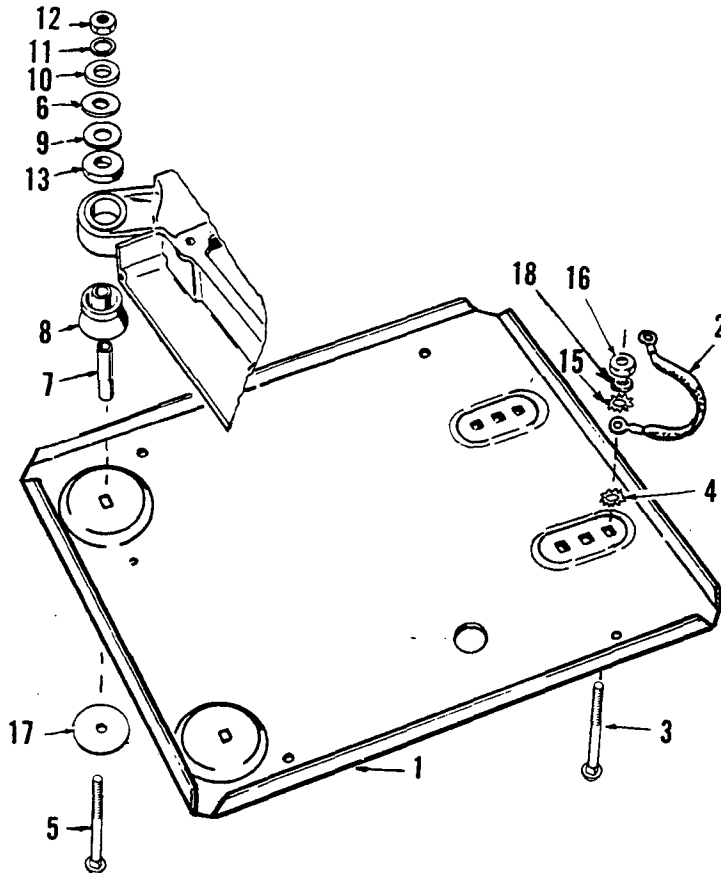
Mounting Begin Spec A

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	402-0435	1	Hardware Package - Mounting (Includes Parts Marked *)
1	816-0206	3	*Bolt, Carriage (7/16-14 x 3-1/2")
2	526-0198	6	*Washer, Flat (29/64" ID x 1-1/2" OD x 1/16" Thk)
3	402-0290	3	*Bushing, Spacer
4	CUSHION, VIBRATION	2	*Engine End
	402-0283	1	*Generator End
5	402-0282	3	*Snubber
6	526-0014	3	*Washer, Flat (29/64" ID x 1-1/2" OD x 1/8" Thk)
7	850-0055	3	*Washer, Lock - Spring (7/16")
8	862-0004	3	*Nut, Hex (7/16-14)
9	403-1219	1	Plate, Mounting
10	337-0049	1	Strap, Ground
11	815-0350	1	Screw, Cap - Hex Head W/ET (#10-32 x 3/8")

* - Parts Included in 402-0435 Mounting Hardware Package



Mounting Begin Spec B



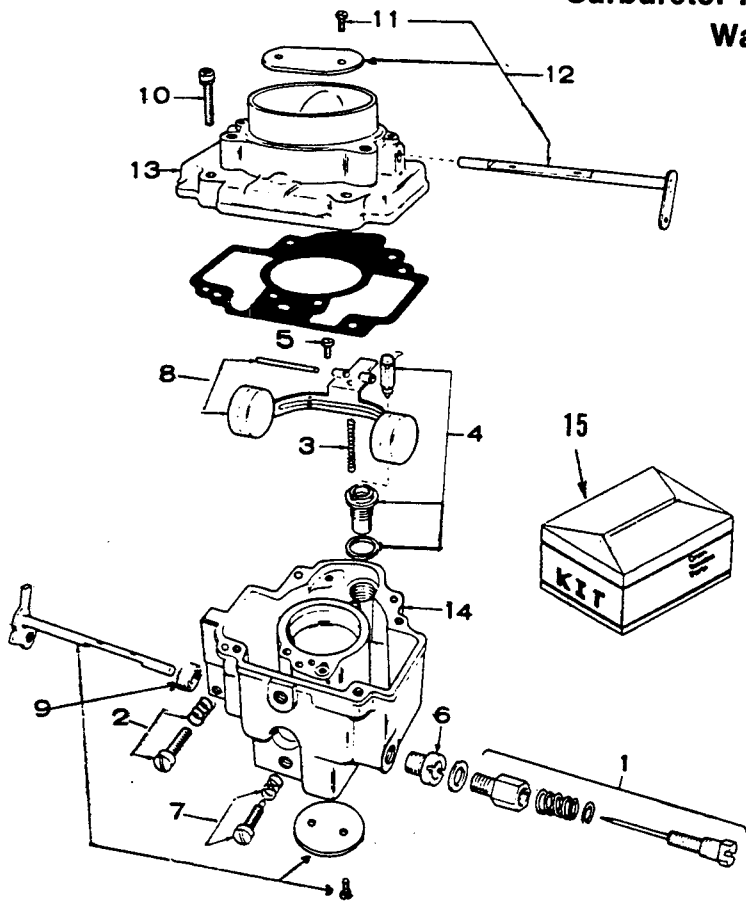
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	402-0477	1	Hardware Package - Mounting (Includes Parts Marked *) - Engine End
	402-0478	1	Hardware Package - Mounting (Includes Parts Marked †) - Generator End - Right Hand
	402-0480	2	Hardware Package - Mounting (Includes Parts Marked £) - Generator End
1	403-1484	1	Plate, Mounting
2	337-2055	1	Strap, Ground
3	816-0197	1	Bolt, Carriage (7/16-14 x 1-1/4)
4	856-0016	1	†Washer, Lock - Internal/ External (5/8")
5	BOLT, CARRIAGE (7/16-14 x 3-1/2")		
	816-0206	1	†£
	816-0206	2	*
6	WASHER, FLAT (5/8" ID x 1-1/2" OD x 1/16" Thk)		
	526-0198	4	*
	526-0198	1	†£
7	BUSHING, SPACER		
	402-0290	1	†£
	402-0290	2	*
8	CUSHION, VIBRATION		
	402-0283	1	†£
	402-0283	2	*
9	SNUBBER		
	402-0282	1	†£
	402-0282	2	*
10	WASHER, FLAT (29/64 ID x 1-1/2 OD x 1/8" Thk)		
	526-0014	1	†£
	526-0014	2	*
11	WASHER, LOCK (7/16")		
	850-0055	1	£Spring
	850-0055	2	*Spring
	856-0012	1	†Internal/External
12	NUT, HEX (7/16-14)		
	862-0004	1	†£
	862-0004	2	*
13	526-0286	1	†£Washer, Flat (1.12" ID x 1.75" OD x .166" Thk)
15	856-0012	1	Washer, Lock - Eit (7/16")
16	862-0004	1	Nut, Hex (7/16-14)
17	WASHER, FLAT (41/64 ID x 1-1/4" OD x 1/8" Thk)		
	526-0038	1	£Generator End, R.H.
	526-0038	2	*Engine End
18	850-0055	1	Washer, Lock (7/16")

* - Parts Included in 402-0477 Hardware Package.

£ - Parts Included in 402-0480 Hardware Package.

† - Parts Included in 402-0478 Hardware Package.

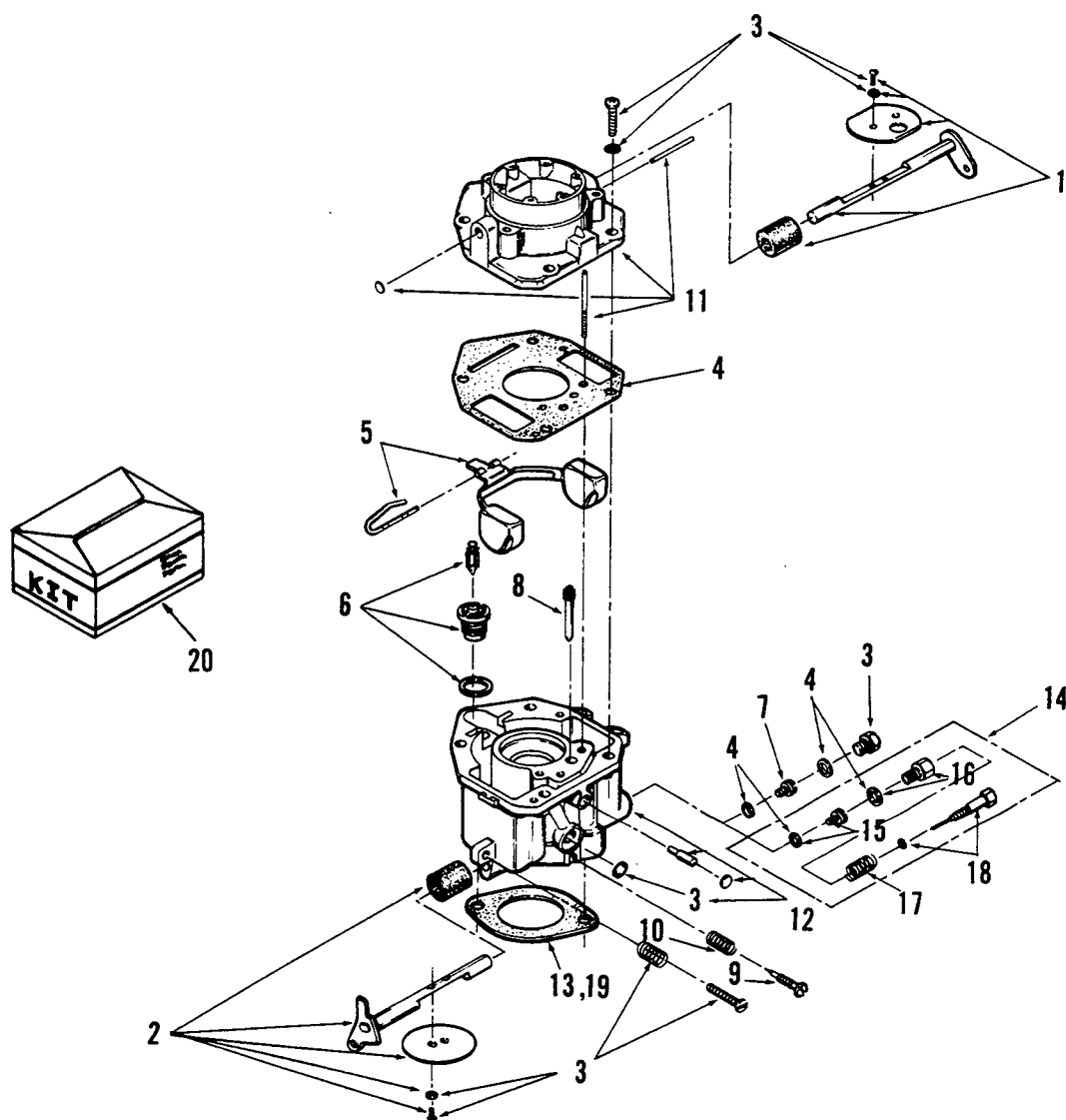
Carburetor Parts (Gasoline) Walbro



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	146-0308	1	Carburetor - Complete (Includes Mounting Gasket)
1	146-0248	1	*Power Needle Package
2	146-0209	1	*Idle Needle Package
3	146-0208	1	*Spring Buoyancy
4	146-0227	1	*Valve and Seat Package
5	146-0222	1	*Screw, Lever Pin
6	146-0243	1	Jet, Power
7	146-0261	1	Idle Speed Adjusting Screw Package
8	146-0262	1	Float Package
9	146-0267	1	Throttle Shaft Package
10	146-0247	4	Screw, Body to Intake
11	146-0142	4	Screw, Valve Mounting
12	146-0265	1	Choke Shaft Package
13		1	Intake, Air (Not Sold Separately)
14		1	Body (Not Sold Separately)
15	KIT		
	146-0220	1	*Gasket
	146-0290	1	Repair (Includes Parts Marked *)

* - Parts Included in 146-0290 Repair Kit.

Carburetor Parts (Gasoline) Nikki



FS-1440

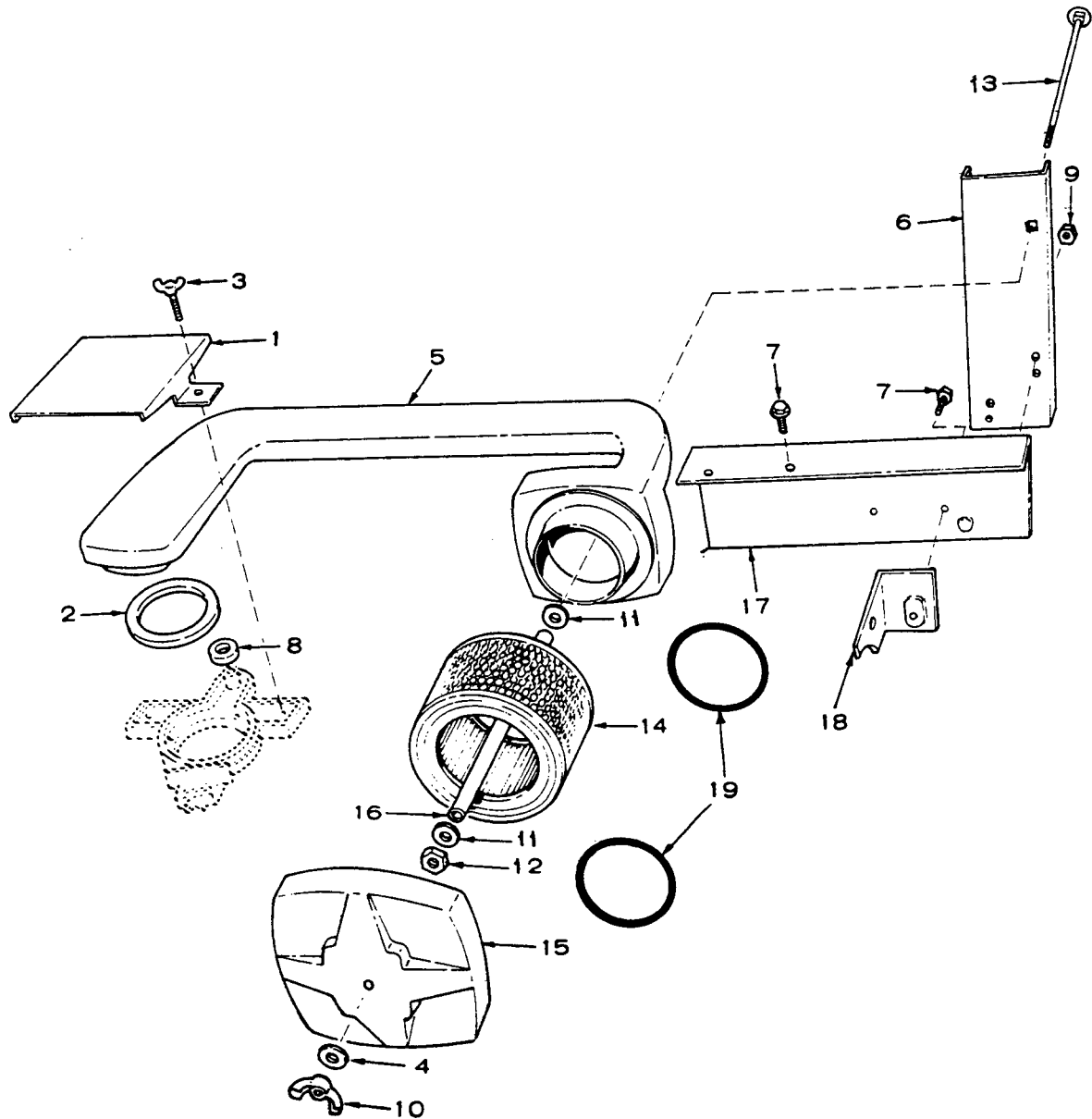
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	146-0419	1	CARBURETOR, COMPLETE (Includes Mounting Gasket)
1	146-0417	1	Choke, Shaft Kit
2	146-0418	1	SHAFT, THROTTLE (Kit)
3	146-0322	1	*Screw and Plug Kit
4	146-0326	1	*Gasket, Kit
5	146-0325	1	Float, Kit
6	146-0329	1	*Valve and Seat Kit
7	146-0343	1	JET, POWER
8	146-0420	1	Jet, Idle
9	146-0335	1	*Needle, Idle Adjusting
10	146-0331	1	*Spring, Idle Adjusting Needle

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
11		1	Intake, Air (Not Sold Separately)
12		1	Body, (Not Sold Separately)
13	154-0733	2	*Gasket, Carburetor Mounting
14	146-0327	1	Variable Jet Kit - Optional (High Altitude Application) (Includes Parts Marked +)
15	146-0343	1	+Power Jet, Variable (Includes Gasket)
16	146-0340	1	+Retainer, Power Needle (Includes Gasket)
17	146-0341	1	+Spring, Power Needle
18	146-0342	1	+Needle Complete, Power
19	145-0438	1	*Gasket, Carburetor Mounting
20	146-0356	1	Kit, Repair (Includes Parts Marked *)

* - Parts Included in 146-0356 Repair Kit

+ - Parts Included in 146-0327 Variable Jet Kit

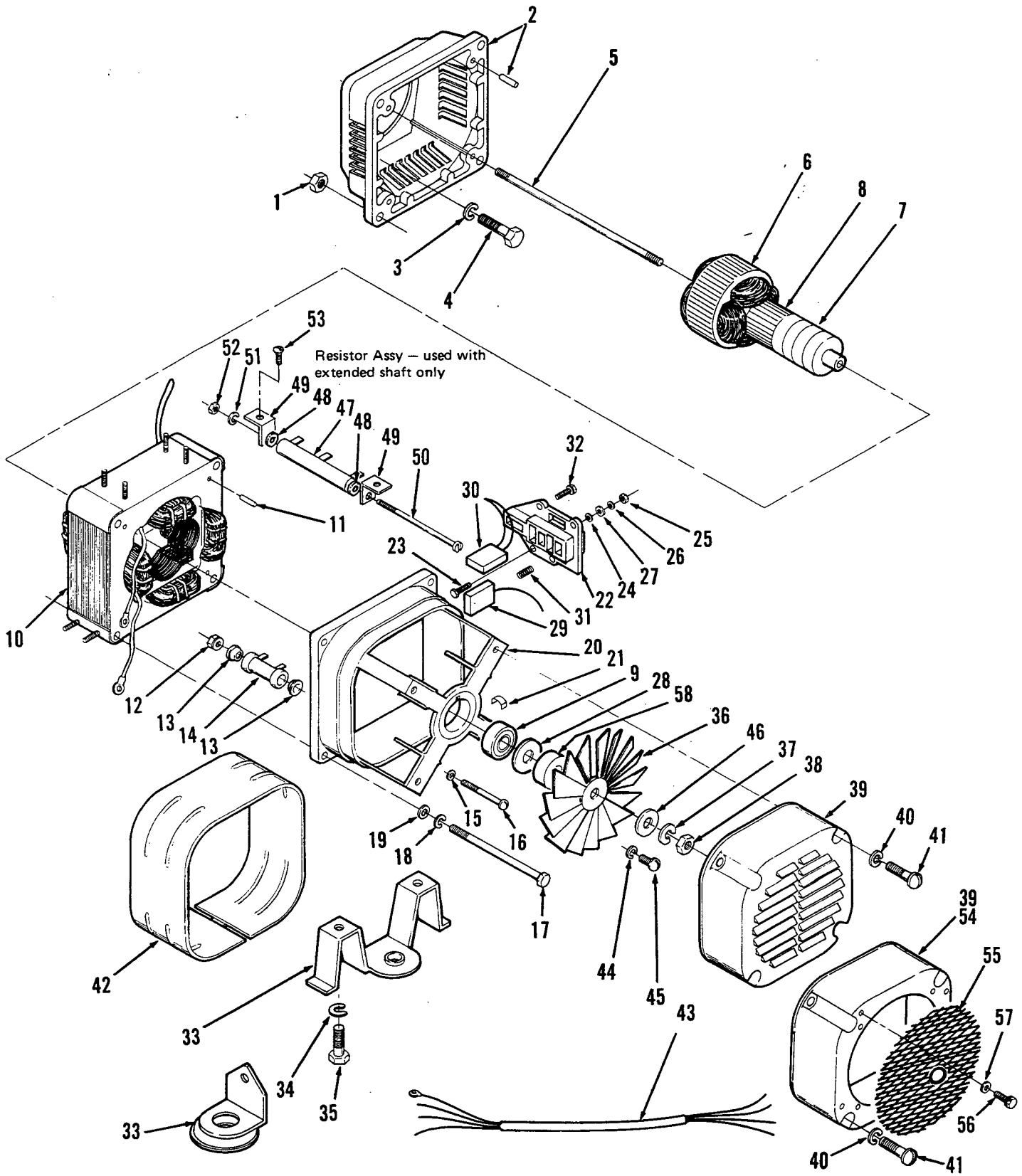
Air Cleaner



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	140-1520	1	Clamp, Air Duct
2	140-1502	1	Seal, Air Duct to Adapter
3	518-0390	2	Screw, Wing (1/4-20 x 3/4")
4	526-0021	1	Washer, Flat (17/64" ID x 3/4" OD x 1/16" Thk)
5	140-1503	1	Duct, Air Cleaner
6	140-1531	1	Bracket, Air Duct Support
7	821-0009	3	Screw, Cap - Hex Head Locking (1/4-20 x 3/8")
8	140-1521	1	Seal, Air Duct to Breather Port
9	870-0212	2	Nut, Hex - Locking (1/4-20)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
10	865-0020	1	Nut, Wing (1/4-20)
11	526-0158	2	Washer, Flat (.261" ID x 1" OD x 1/8 Thk)
12	870-0212	1	Nut, Hex - Locking (1/4-20)
13	816-0070	1	Bolt, Carriage (1/4-20 x 6-1/2")
14	140-0495	1	Element, Air Cleaner
15	140-1504	1	Cover, Air Cleaner
16	140-1522	1	Spacer, Air Intake
17	140-1529	1	Bracket, Air Intake Duct
18	140-1528	1	Brace, Air Intake Duct
19	140-1533	2	Seal

Generator



Generator

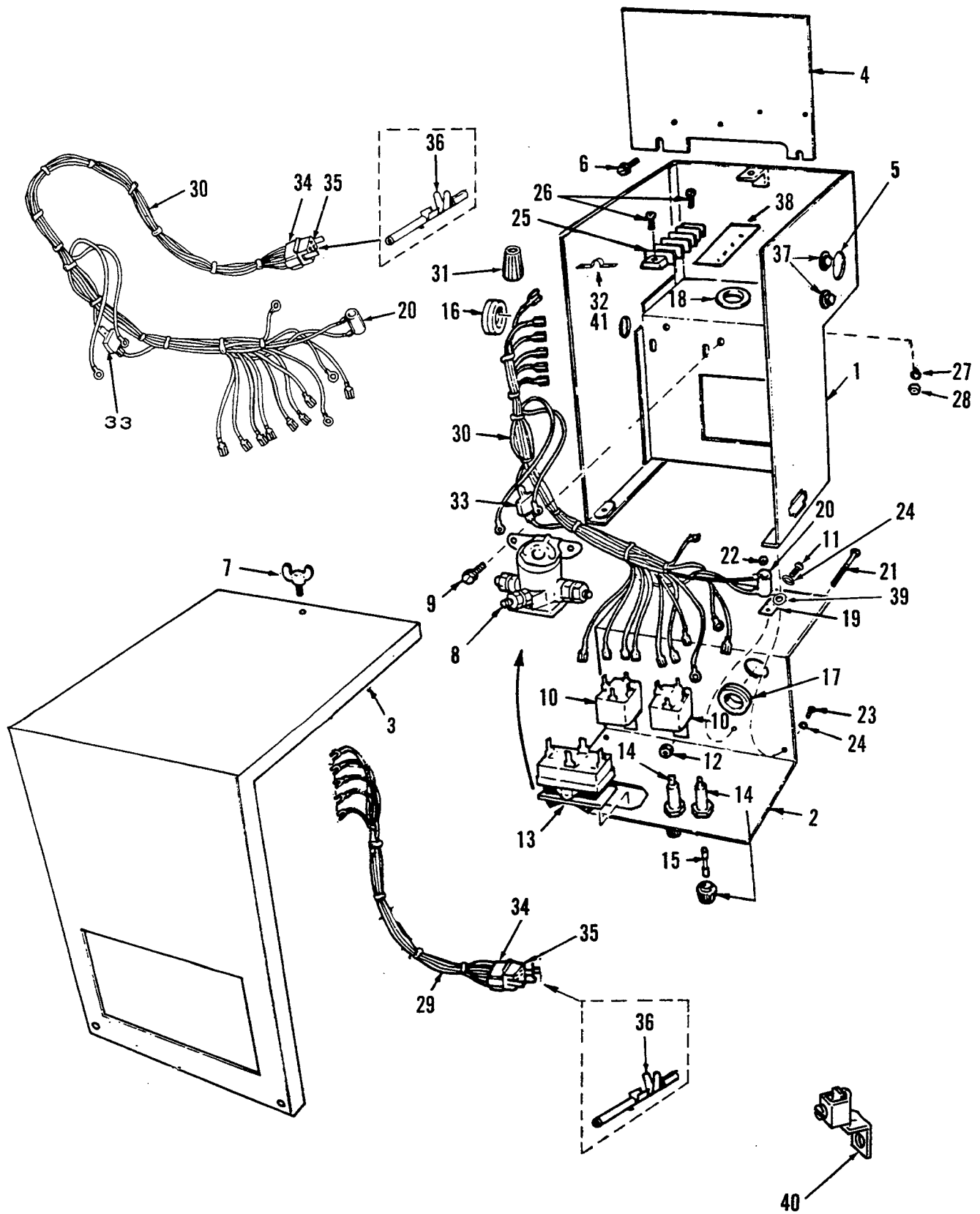
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	862-0015	4	Nut, Hex (5/16-18)	25	871-0010	8	†Nut, Hex - Brass (#10-32)
2	231-0164	1	Adapter, Generator to Engine (Includes 4-516-0196 Alignment Pins)	26	853-0008	8	†Washer, Lock - ET (#10)
3	850-0050	4	Washer, Lock - Spring (3/8")	27	526-0049	8	†Washer, Flat - Brass (.200" ID x 7/16" OD x 1/32" Thk)
4	800-0050	4	Screw, Cap - Hex Head (3/8-16 x 1-1/4")	28	526-0044	2	Washer, Flat-Extended Shaft Sets (1-1/64" ID x 1-1/4" OD x 1/16" Thk)
5	STUD, ARMATURE THROUGH 60 HERTZ 520-0732	1	2 Wire, 120 Volt	29	214-0095	4	†Brush, Commutator (DC)
	520-0781	1	4 Wire, 120/240 Volt Extended Shaft	30	†BRUSH, COLLECTOR RING (AC) 214-0096	4	60 HZ
	50 HERTZ 520-0732	1	2 Wire, 4 Wire		214-0096	8	50 HZ, 4 Wire - 120/240 Volt
6	ARMATURE ASSEMBLY (Includes Parts Marked *) 60 HERTZ 201-2524	1	4 Wire, 120/240 Volt Extended Shaft	31	†SPRING, BRUSH 212-1232	8	60HZ
	201-2571	1	2 Wire, 120 Volt		212-1232	12	50 HZ, 4 Wire - 120/240 Volt
	50 HERTZ 201-2505	1	4 Wire, 120/240 Volt	32	815-0359	12	Screw, Cap - Hex Head - Locking (#10-32 x 7/8")
	201-2572	1	2 Wire, 120 Volt	33	SUPPORT, GENERATOR 402-0475	2	Begin Spec B
	201-2406	1	4 Wire, 120/240 Volt		232-2619	1	Spec A
7	*RING, COLLECTOR 204-0110	1	4 Wire, 120/240 Volt	34	850-0050	2	Washer, Lock - Spring (3/8")
	204-0125	1	2 Wire, 120 Volt	35	800-0051	2	Screw, Cap - Hex Head (3/8-16 x 1-1/4")
8	203-0153	1	*Commutator	36	FAN, COOLING 205-0090	1	50, 60 HZ
9	510-0047	1	*Bearing, Ball		205-0116	1	60 HZ, Extended Shaft Sets
10	STATOR ASSEMBLY, WOUND 220-1818	1	4 Wire, 120/240 Volt - 50 HZ	37	850-0055	1	Washer, Lock - Spring (7/16")
	220-1820	1	4 Wire, 120/240 Volt - 60 HZ Extended Shaft	38	870-0203	1	Nut, Hex (7/16-20)
	220-1823	1	2 Wire, 120 Volt	39	COVER, GENERATOR 232-2107	1	50-60 HZ
11	516-0196	8	Pin, Alignment		232-2827	1	Assembly, 60 HZ - Extended Shaft Sets (Includes Parts Marked £)
12	870-0221	1	Nut, Hex W/ET (#8-32)	40	850-0040	4	Washer, Lock - Spring (1/4")
13	304-0014	2	Washer, Centering - Resistor	41	812-0156	4	Screw, Machine - Round Head (1/4-20 x 1-1/2")
14	353-0057	1	Resistor (3.4 Ohm, 25 Watt)	42	234-0362	1	Wrapper, Generator
15	853-0005	1	Washer, Lock - ET (#8)	43	HARNESS, WIRING 338-1099	1	4-Wire, 50 HZ - Begin Spec B
16	812-0091	1	Screw, Machine - Round - head (#8-32 x 2-1/2")		338-0948	1	2 Wire, 50-60 HZ
17	800-0043	4	Screw, Cap - Hex Head (5/16-18 x 5")		338-0946	1	4 Wire, 60 HZ
18	850-0045	4	Washer, Lock - Spring (5/16")	44	850-0030	4	Washer, Lock (#10) Extended Shaft Sets
19	526-0115	4	Washer, Flat (11/32" ID x 11/16" OD x 1/16" Thk)	45	813-0098	4	Screw RHM (10-32 x 3/8") Extended Shaft Sets
20	BELL, END (Includes 4-516-0196 Alignment Pins) 211-0364	1	All (Except Sets w/Extended Shaft)	46	526-0032	1	Washer, Flat (29/64 ID x 7/8 OD x 1/16" Thk) Extended Shaft
	211-0365	1	Sets w/Extended Shaft 60 HZ, 120/240 Volt	47	353-0084	1	Resistor, Fixed — Extended Shaft Sets Only 5.7 Ohms at 25 Watts 1.6 Ohms at 50 Watts
21	232-0596	1	Clip, Bearing Retainer	48	304-0015	2	Washer, Centering - Resistor Extended Shaft Sets
22	BLOCK, GENERATOR BRUSH (Includes Parts Marked †) TOP 212-1258	1	60 HZ	49	304-0706	2	Bracket, Resistor Mounting Extended Shaft Sets
	212-0361	1	50 HZ, 4 Wire - 60 HZ, Extended Shaft 120/240 Volt	50	812-0118	1	Screw, Pan Head (#10 x 5" Lg) Extended Shaft Sets
	RIGHT SIDE 212-1255	1	60 HZ	51	850-0030	1	Washer, Lock (#10) Extended Shaft Sets
	212-0345	1	50 HZ, 4 Wire - 60 HZ, Extended Shaft 120/240 Volt	52	860-0011	1	Nut, Hex (#10-24) Extended Shaft Sets
	BOTTOM 212-1254	1	60 HZ	53	815-0333	2	Screw, Round Head (10-32 x 1/2") Extended Shaft Sets
	212-0352	1	50 HZ, 4 Wire - 60 HZ, Extended Shaft 120/240 Volt	54	232-2587	1	£Cover, Fan
	LEFT SIDE 212-1259	1	60 HZ	55	234-0530	1	£Screen, Fan
	212-0353	1	50 HZ, 4 Wire - 60 HZ Extended Shaft 120/240 Volt	56	815-0350	4	£Screw, HWH - Slotted (10-32 x 3/8")
23	815-0341	4	†Screw, Cap - Hex Head - Brass (#10-32 x 1")	57	526-0009	4	£Washer, Flat (7/32 ID x 1/2 OD x 1/16" Thk)
24	853-0008	8	†Washer, Lock - ET (#10)	58	232-2586	1	Hub, Fan Extended Shaft Sets Only

* - Parts Included in Armature Assembly.

† - Parts Included in Generator Brush Blocks.

£ - Parts Included in 232-2827 Fan Cover Assembly.

Control



Control

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	301-4446	1	Box, Control
2	301-4442	1	Panel, Control
3	COVER, CONTROL (Includes AC Schematic)		
	301-4466	1	Prior to Serial #D783332233
			During Spec A
	301-4543	1	Begin Serial #D783332233
			During Spec A
	301-4894	1	Begin Spec B
	301-6107	1	3.0 BFA, 50 HZ
4	301-4441	1	Plate, Control
5	517-0132	1	Plug, Hole
6	815-0350	1	Screw, Tapping - Slotted HWH (#10-32 x 3/8")
7	518-0056	1	Screw, Wing (#10-32 x 1/2")
8	RELAY, START SOLENOID		
			Spec A
	307-1498	1	Sets Without Start-Disconnect
	307-1617	1	Sets With Start-Disconnect
	307-1617	1	Begin Spec B
9	821-0009	6	Screw, Cap - HWH (1/4-20 x 3/8")
10	307-1575	2	†£Relay, Ignition (Crank Ignition and Run Ignition)
11	815-0340	2	Screw, Machine - Round Head (#10-32 x 3/8")
12	870-0131	2	Nut, Hex with ET (#10-32)
13	308-0383	1	Switch, Start-Stop
14	321-0175	2	Holder, Fuse
15	321-0174	2	Fuse (5 Ampere)
16	508-0208	1	Bushing, Insulating - Nylon (3/4" Hole)
17	331-0088	1	Bushing, Insulating
18	508-0191	1	Bushing, Insulating - Nylon (7/8" Hole)
19	304-0580	1	Insulator, Resistor Mounting
20	RESISTOR		
	352-0160	1	*†120-Ohm, 5 Watt, Begin Serial #D783332233 during Spec A
	352-0161	1	£100-Ohm, 5 Watt - Begin Spec B
21	812-0087	1	Screw, Machine - Round Head (#8-32 x 1-1/2")
22	870-0221	2	Nut, Hex with ET (#8-32)
23	821-0004	5	Screw, Cap - Hex Head (#10-32 x 5/16")
24	856-0003	2	Washer, Lock - EIT (#10)
25	BLOCK, TERMINAL		
	332-0699	1	*6 Place - Prior to Serial #D783330433 During Spec A
	332-0254	1	4 Place
26	812-0066	2	Screw, Machine - Round Head (#6-32 x 3/4")
27	853-0003	2	Washer, Lock - ET (#6)
28	860-0005	2	Nut, Hex (#6-32)
29	338-1078	1	Harness, Wiring - Remote Includes Parts Marked #

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
30	HARNESS, WIRING - CONTROL		
			Prior to Serial #D783330946 -
			During Spec A (Includes Parts Marked *)
	338-1084	1	Sets Without Start-Disconnect
	338-1084	1	Sets With Start-Disconnect (Also Order Qty. 1 -352-0161 Resistor)
			Begin Serial #D783330946
			During Spec A
	338-1169	1	Sets Without Start-Disconnect (Includes Parts Marked †)
	338-1265	1	Sets With Start-Disconnect (Includes Parts Marked *)
	338-1265	1	Begin Spec B (Includes Parts Marked *)
31	323-1088	3	Nut, Wire
32	332-1043	1	*Jumper, Terminal Block (Prior to Serial #D783332233 during Spec A)
33	357-0030	1	£†Rectifier, Diode
34	323-0400	1	†Housing, Connector Pin
35	323-0440	1	#£†Housing, Socket Pin
36	323-0488	5	†£#Pin, Connector - Female
37	BREAKER, CIRCUIT		
	320-0544	1	30 Amp - Begin Ser. #783332233 During Spec A
	320-0750	1	15 Amp - 50 HZ, 4 Wire 120/240 Volt - Begin Spec B
	320-0692	1	20 Amp - Begin Ser. #D783332233 During Spec A
	320-0750	1	15 Amp - 50 HZ, 4 Wire 120/240 Volt - Begin Spec B
38	STRIP, MARKER		
	332-2099	1	Use w/Block 332-0254 Begin Ser. #D783332233 During Spec A
	332-2288	1	Use w/Block #332-0254 50 HZ, 120/240 Volts
39	508-0015	1	Washer, Fibre
40	332-0142	1	Terminal, Solderless
41	332-0592	1	*Jumper, Terminal Block (Prior to Serial #D783332233 during Spec A)

* - Parts Included in Wiring Harness 338-1084 Prior to Serial #D783332233 during Spec A.

† - Parts Included in Wiring Harness 338-1169 Begin Serial #D783332233 during Spec A.

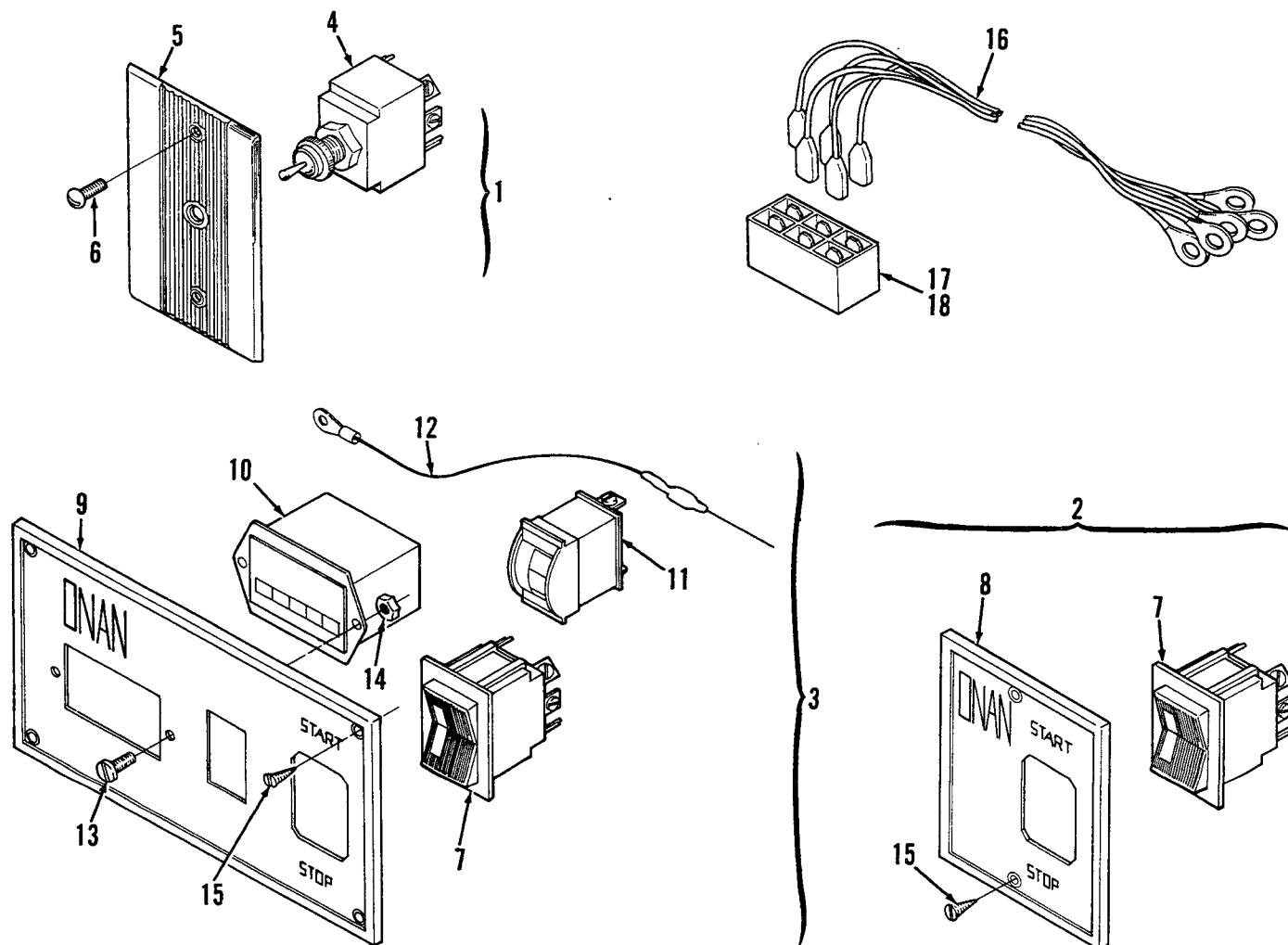
£ - Parts Included in Wiring Harness 338-1265 Begin Spec B.

- Parts Included in Wiring Harness 338-1078 Prior to Ser. #D783332233 During Spec A.

OPTIONAL EQUIPMENT PARTS SECTION

This section contains illustrated parts listing of factory installed options for these Generator Sets. 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.

Optional Remote Starting Control

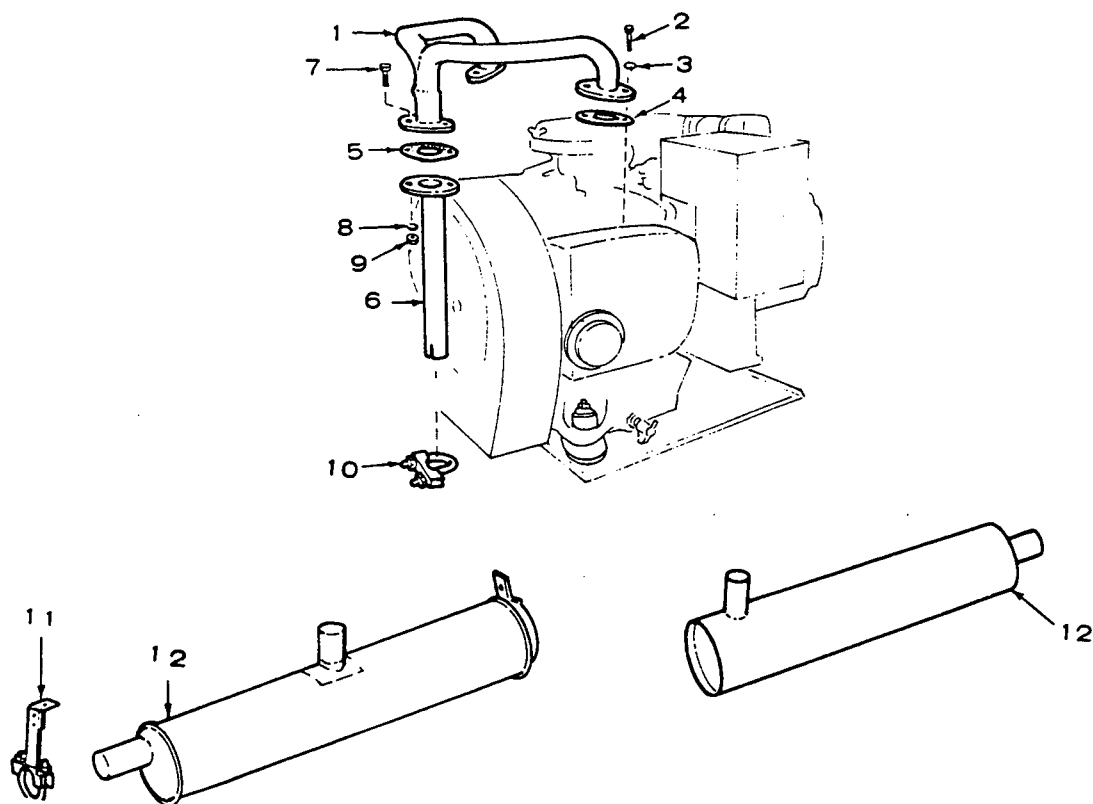


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
NOTE: This group consists of three types of Control Packages. Use applicable control package when ordering components.			
1	308-0165	1	Control Package, Remote Starting (Includes Parts Marked *)
2	300-0985	1	Control Package, Remote Starting (Includes Parts marked Δ)
3	300-0986	1	Control Package, Remote Starting Deluxe (Includes Parts Marked †)
4	308-0154	1	*Switch, Toggle (SPDT)
5	308-0168	1	*Plate, Mounting
6	815-0385	2	*Screw, Machine - Round Head (#6-32 x 1/2")
7	308-0341	1	Δ†Switch, Rocker with Light
8	301-3566	1	ΔPanel, Control
9	301-3606	1	†Panel, Control
10	302-0885	1	†Meter, Time Totalizing
11	302-0888	1	†Meter, Battery Condition
12	359-0034	1	†Diode and Lead
13	815-0385	2	†Screw, Machine - Round Head (#6-32 x 1/2")

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
14	860-0005	2	†Nut, Hex (#6-32)
15	815-0380	2	Screw, Tapping (#5-x 1/2")
16	HARNESS, WIRING - REMOTE (Includes Parts Marked %)		
	338-1082	1	6 Inches Long
	338-1080	1	10 Ft.
	338-1081	1	30 Ft.
17	HOUSING, CONNECTOR PIN		
	323-0400	1	%
	323-0440	1	#
18	PIN, CONNECTOR		
	323-0500	5	%
	323-0488	5	#

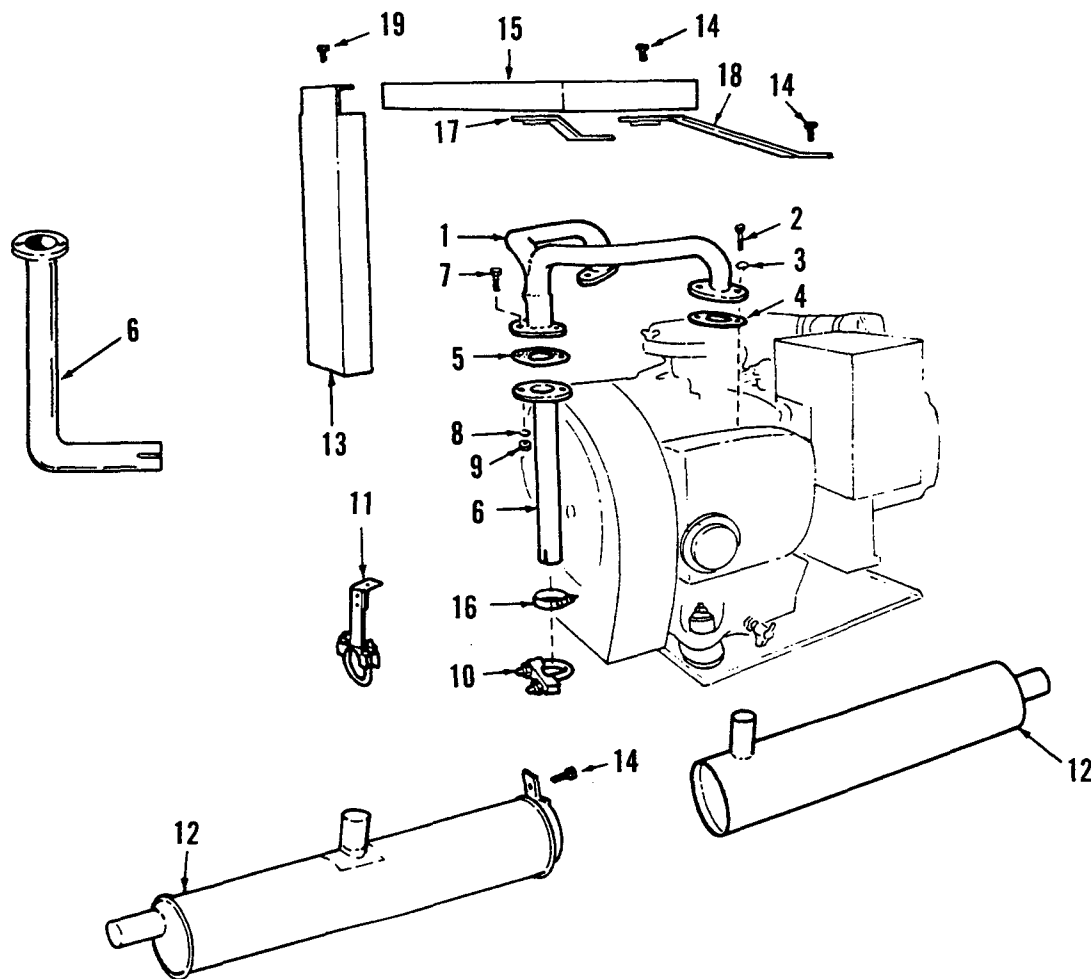
* - Parts Included in 308-0165 Control Package.
 Δ - Parts Included in 300-0985 Control Package.
 † - Parts Included in 300-0986 Deluxe Control Package.
 # - Parts Included in Wiring Harness 338-1078 Prior to Ser. #D783332233 During Spec A.
 %- Parts Included in Wiring Harness 338-1080, 338-1081, 338-1082.

**Optional
Exhaust System
(Non-UL Listed and CSA Certified)**



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	154-1947	1	Manifold, Exhaust
2	800-0026	4	Screw, Cap - Hex Head (5/16-18 x 3/4")
3	850-0045	4	Washer, Lock - Spring (5/16")
4	154-1725	2	Gasket, Exhaust Manifold
5	154-2061	1	Gasket, Exhaust
6	TUBE, EXHAUST		
	154-2167	1	Begin Spec B 15-1/2" long
	154-2143	1	12-1/2" long
	154-1917	1	Spec A 17" long
	154-2017	1	14" long
7	800-0030	2	Screw, Cap - Hex Head (5/16-18 x 1-1/4" lg)
8	850-0045	2	Washer, Lock - Spring (5/16")
9	862-0015	2	Nut, Hex (5/16-18)
10	155-1239	1	Clamp, Muffler
11	155-1234	1	Bracket and Clamp, Muffler
12	MUFFLER, EXHAUST		
	155-1258	1	End Inlet
	155-1520	1	Center Inlet

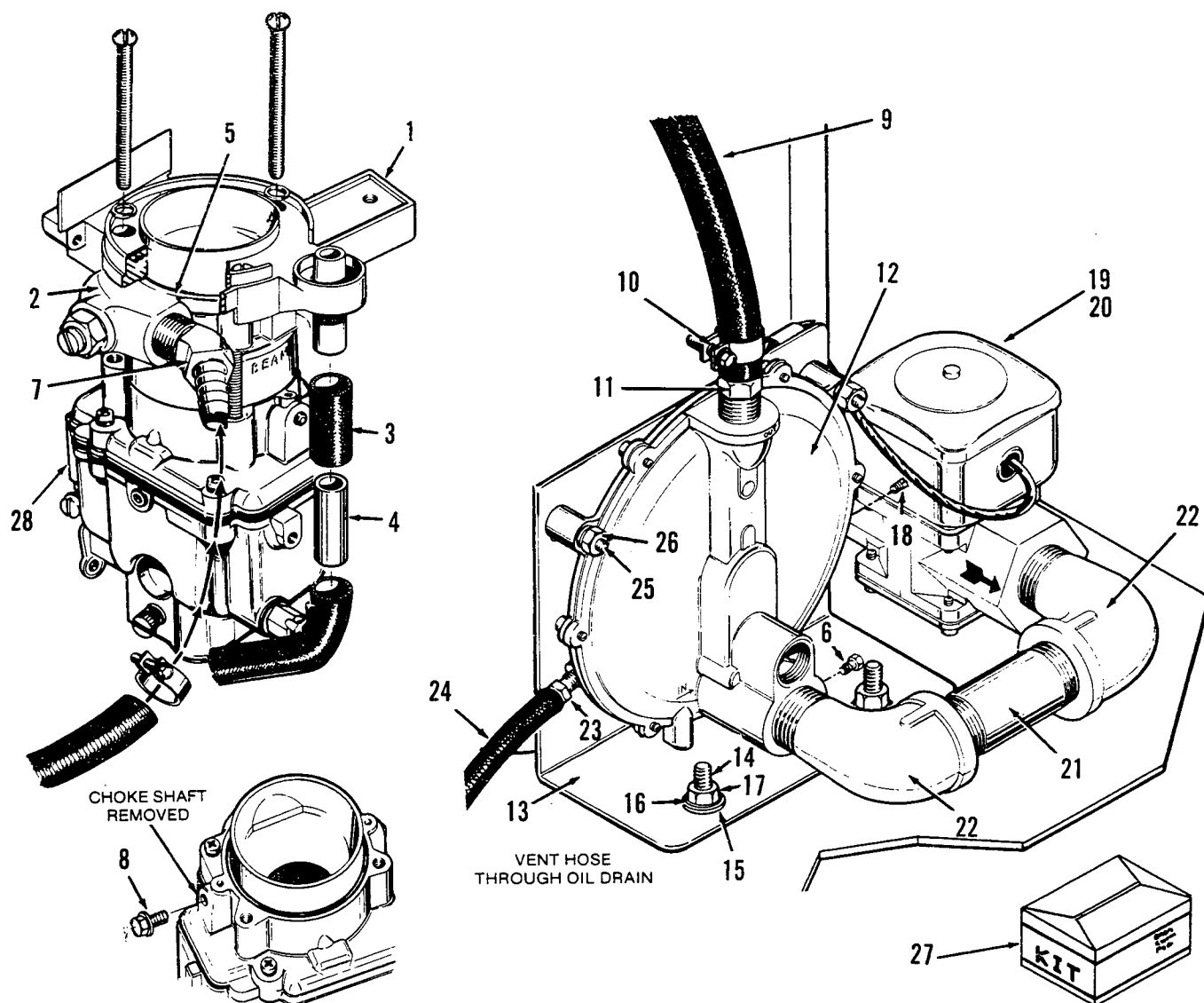
**Optional
Exhaust System
(UL Listed and CSA Certified)**



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	MANIFOLD, EXHAUST		
	154-1947	1	Prior to 6/83
	154-2425	1	Includes Heat Shield (Begin in 6/83)
2	800-0026	4	Screw, Cap - Hex head (5/16-18 x 3/4")
3	850-0045	4	Washer, Lock - Spring (5/16")
4	154-1725	2	Gasket, Exhaust Manifold
5	154-2061	1	Gasket, Exhaust Tube
6	TUBE, EXHAUST		
			Spec A
	154-1917	1	17" Long
	154-2017	1	14" Long
			Begin Spec B
	154-2167	1	15-1/2" Long (Straight)
	154-2143	1	12-1/2" Long (Straight)
	154-2226	1	90° Bend-With Attached Clamp (4" Long)
	154-2554	1	90° Bend-With Attached Clamp (18" Long)
7	800-0030	2	Screw, Cap-Hex head (5/16-18 x 1-1/4" Long)
8	850-0045	2	Washer, Lock-Spring (5/16")
9	862-0015	2	Nut, Hex (5/16-18")

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
10	CLAMP, MUFFLER		
	155-1015	1	1-1/2" Diameter
	155-1239	1	1-5/8" Diameter
11	155-1234	1	Hanger, Muffler
12	MUFFLER, EXHAUST		
	155-1258	1	End Inlet
	155-1520	1	Center Inlet (Used with Straight Exhaust Tube)
	155-1910	1	Center Inlet (Used with 90° Bend Exhaust Tube)
13	SHIELD, HEAT		
	154-1980	1	Spec A
	154-2146	1	Begin Spec B
14	821-0010	4	Screw, Cap-Hex Head Locking (1/4-20 x 1/2")
15	154-1972	1	Shield, Heat (Prior to 6/83)
16	503-0107	1	Clamp, Shield To Exhaust Tube
17	154-1883	1	Bracket, Heat Shield-Left Side (Prior to 6/83)
18	154-1886	1	Bracket, Heat Shield-Right Side (Prior to 6/83)
19	821-0010	1	Screw, Cap-Locking Head (1/4-20 x 1/2")

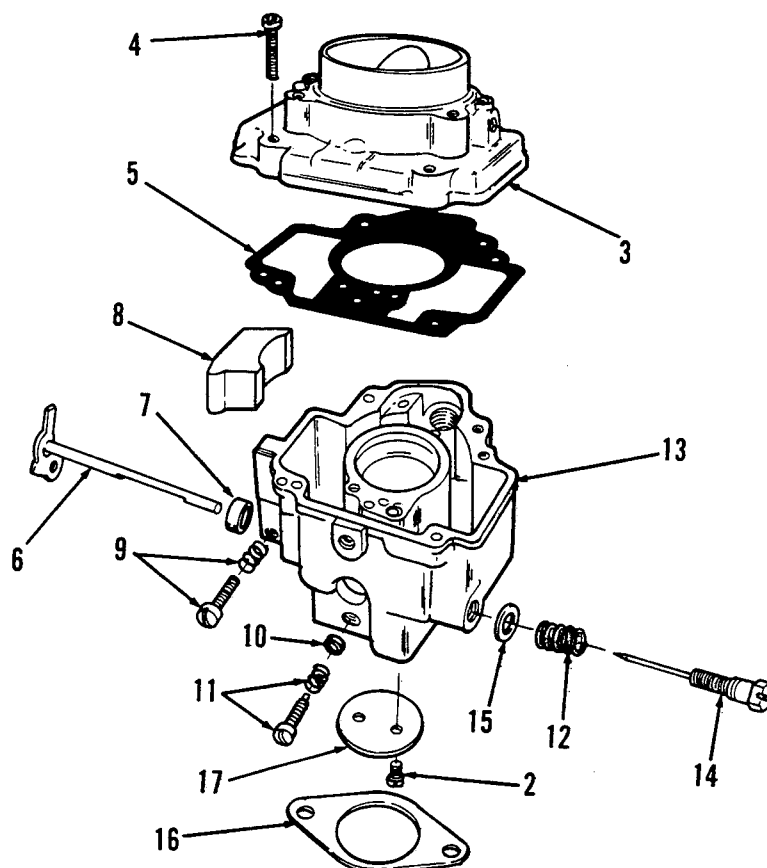
Optional LP Fuel System 4.0 BFA



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	140-1719	1	Adapter, Air Duct
2	148-0840	1	Adapter, Carburetor (Includes Gaskets, Screws, 3-#10 Lock Washers)
3	503-1039	1	Hose, Breather (7/16 x 1-1/2")
4	123-1484	1	Tube, Breather (Copper)
5	509-0145	1	Seal, O-Ring
6	502-0028	1	Plug, Pipe - Hex Head (1/8")
7	502-0575	1	Elbow, Hose - 45°
8	815-0389	1	Screw, Thd. Form Choke Shaft Hole (1/4-20 x 5/8")
9	503-1048	1	Hose, Fuel (1/2" ID x 30" Lg)
10	503-0032	2	Clamp, Hose
11	502-0238	1	Connector, Hose (1/2")
12	148-0311	1	Regulator, Gas
13	148-0852	1	Bracket

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
14	800-0008	2	Screw, HHC (1/4-20 x 1-1/4")
15	526-0018	2	Washer, Flat (17/64 ID x 5/8 OD x 1/16" Thk)
16	850-0040	2	Washer, Lock (1/4")
17	862-0001	2	Nut, Hex (1/4-20)
18	505-0057	1	Plug, Square Hd (1/8")
19	307-1881	1	Solenoid Assembly
20	307-0312	1	Valve, Magnetic
21	505-0332	1	Nipple, Pipe (3/4 x 3" Lg)
22	505-0051	2	Elbow, Street (90° x 3/4")
23	502-0395	1	Connector, Vent Hose (1/4")
24	503-1016	1	Hose, Oil (1/2" ID x 12")
25	800-0028	2	Screw, HHC (5/16-18 x 1")
26	870-0257	2	Nut, Hex (5/16-18)
27	148-0841	1	Kit, Conversion - LP 4.0 BFA Only
28	146-0362	1	Carburetor, LP (Includes Mounting Gasket) (See Separate Group for Components)

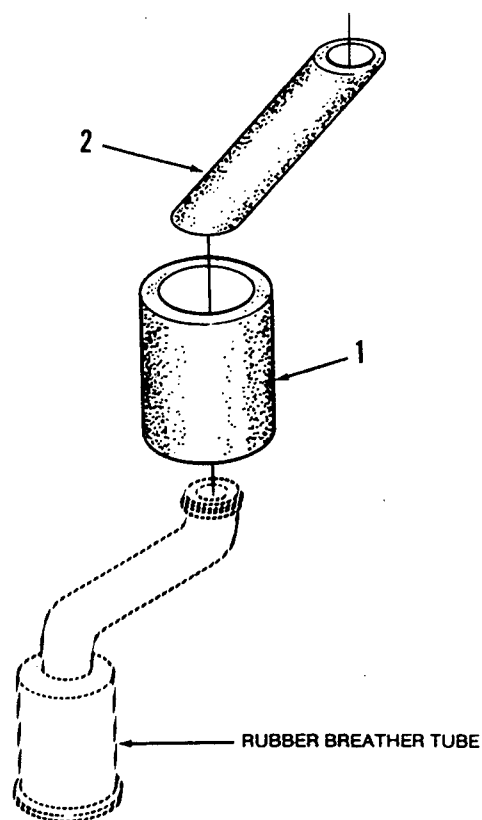
Optional Carburetor Parts (Walbro) LP



FS 1497

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	146-0362	1	Carburetor, Complete (Includes Mounting Gasket)	9	146-0261	1	Throttle Stop Package
2	146-0142	2	Screw, Throttle Valve	10	146-0358	1	Seal, Idle Screw
3		1	Intake, Air (Not Sold Separately)	11	146-0357	1	Screw, Idle
4	146-0247	1	Screw, Body to Intake	12	146-0363	1	Spring, Power Adjusting Screw
5	146-0365	1	Gasket, Fuel Bowl	13		1	Body (Not Sold Separately)
6	146-0270		Shaft, Throttle (Package)	14	146-0364	1	Screw, Power Adjusting
7	146-0178	1	Seal, Throttle Shaft	15	146-0359	1	Seal, Power Adjusting Screw
8		2	Block, Filler (Not Sold Separately)	16	154-0733	1	Gasket, Carburetor Mounting
				17	146-0244	1	Valve, Throttle (Package)

Optional Breather Icing



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	123-1599	1	Kit, Breather Icing
1	503-1213	1	Insulation, Breather Hose (1.5 ID x 2.38" Lg)
2	503-1214	1	Insulation, Breather Hose (3/4 ID x 4.38" Lg)

Paint

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	525-0137	1	Touch-up Paint (Metallic Green) Pressurized Can (13 oz.)
	525-0305	1	Touch-up Paint (Non-Metallic Green) Pressurized Can (13 oz.)