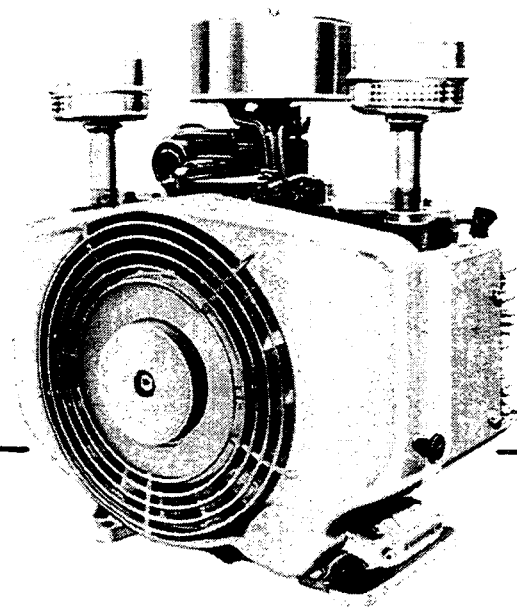


**Onan**

**Parts  
Manual**

**CCK/CCKA  
Industrial  
Engine**



**927-0253**  
**6-86 (SPEC A-J)**  
Replaces 6-81 (Spec A-J)  
Printed in U.S.A.

## MODEL IDENTIFICATION

To avoid errors or delay in filling your parts order, always give the MODEL, SPEC NO. and SERIAL NO. from the Onan nameplate.

For handy reference, insert your nameplate information in the spaces below.

MODEL AND SPEC NO.

SERIAL NO.

DIGITAL CONTROL SOFTWARE VERSION  
AND DATE (IF APPLICABLE)

## SAFETY PRECAUTIONS

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

### DANGER

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

### WARNING

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

### CAUTION

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

## PRODUCT SAFETY PRECAUTIONS

### WARNING

***Service and repair of Onan equipment must be performed by trained, experienced personnel only. Improper service or repair may result in property damage, severe personal injury or death. Do not use this catalog as a guide to servicing your equipment. Read and follow the IMPORTANT SAFETY INSTRUCTIONS in the Service Manual appropriate for the equipment you are working on.***

### WARNING

***Contact with USED ENGINE OILS has been identified by a United States federal agency and some USA state agencies as causing CANCER or REPRODUCTIVE TOXICITY. When checking or changing engine oils take all necessary precautions not to ingest, breathe the fumes or contact the used oil.***

### WARNING

***Contact with ASBESTOS has been identified by a United States federal agency and some USA state agencies as causing CANCER or REPRODUCTIVE TOXICITY. When handling engine gaskets take all necessary precautions not to ingest, breathe or contact the dust from the gaskets! Use adequate ventilation and wear protective gloves, masks and clothing!***

### WARNING

***Contact with BENZINE and LEAD, found in gasoline, fuel additives and solvents has been identified by a United States federal agency and some USA state agencies as causing CANCER or REPRODUCTIVE TOXICITY. When checking, draining or adding gasoline and fuel additives or using solvents take all necessary precautions not to ingest, breathe the fumes or contact the liquids. Use adequate ventilation and wear protective gloves, masks and protective clothing!***

## 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 word "Onan" is printed in a large, bold, stylized font. Below it is a horizontal rectangular box labeled "MODEL AND SPEC NO.". Underneath that is another horizontal rectangular box labeled "SERIAL NO.". The bottom right corner of the nameplate is folded over, showing a second identical nameplate underneath. The reference code "M-1149" is located at the bottom right of the diagram.

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

### **▲WARNING**

TAKE ALL NECESSARY PRECAUTIONS WHEN CHECKING OR CHANGING ENGINE OIL NOT TO INGEST, BREATHE THE FUMES OR CONTACT THE OIL. USED ENGINE OILS HAVE BEEN IDENTIFIED BY FEDERAL AND SOME STATE AGENCIES AS CAUSING CANCER.

### **▲WARNING**

TAKE ALL NECESSARY PRECAUTIONS WHEN HANDLING ENINGE GASKETS. DO NOT INGEST, BREATHE, OR CONTACT DUST FROM GASKETS. USE ADEQUATE VENTILATION AND WEAR PROTECTIVE GLOVES, MASK AND CLOTHING. ASBESTOS HAS BEEN IDENTIFIED BY FEDERAL AND SOME STATE AGENCIES AS CAUSING CANCER.

## INDEX

- Adapter, Exhaust (Flange Type) 48  
Arm and Shaft, Governor 6  
Arm, Extension - Governor 48  
Armature, Starter 16, 17, 28, 29  
Baffle, Breather Tube 4  
Base, Air Cleaner 4, 48  
Base, Oil 3  
Bearing, Camshaft 4  
Bearing, Crankshaft 4  
Block, Cylinder 4  
Box, Breaker 13, 14, 15, 20, 21  
Bracket, Governor Control 15, 38  
Bracker, Ignition Coil 14, 48  
Brush, Ground-Starter 16, 17, 28, 29  
Cable, Spark Plug 13, 14, 48  
Camshaft 6, 48  
Cap, Breather 4, 48  
Cap, Fuel Tank 35  
Carburetor, Gasoline 12, 30, 32, 34  
Clamp, Coil 14, 48  
Clamp, Muffler 48  
Coil, Ignition 13, 14  
Cover, Air-Cleaner 10  
Cover, Breaker Box 15, 20, 21  
Cover, Valve 4  
Crankshaft 7  
Element, Air Cleaner 10  
Filter, Fuel 37  
Filter, Oil (Spin-On) 43  
Filter, Oil (Cartridge Type) 43  
Flywheel 7, 22, 23, 24  
Gasket, Breaker Box 13, 14, 15, 20, 21  
Gasket, Cylinder Head 4  
Gasket, Oil Base 3  
Gasket, Valve Cover 4  
Gear, Cam Shaft 6, 48  
Gear, Crankshaft 7  
Gear, Ring 7, 22, 23, 24, 44  
Gearcase 6, 23, 48  
Governor 38  
Guard, Flywheel 48  
Guide, Valve 48  
Head, Cylinder 4  
Heater, Oil Base 48  
Holder, Brush 16  
Hose, Breather 10, 48  
Hose, Fuel 30, 31, 47  
Housing, Blower 18, 44  
Housing, Cylinder 18  
Line, Fuel—Gasoline 11, 30, 31, 35, 36  
Line, Oil 3, 39, 43, 48  
Manifold, Exhaust 48  
Manifold, Intake 10  
Muffler, Exhaust 10, 48  
Piston 8, 48  
Plate, Bearing—Rear 4  
Plug, Spark 13, 14  
Pump, Fuel—Manual 9, 10  
Pump, Fuel—Vacuum Pulse 47  
Pump, Oil 3  
Regulator, Voltage 22, 24, 25, 26, 27  
Ring, Piston 8  
Rod, Connecting 8  
Rod, Control 15  
Seal, Air 43  
Seal, Oil 4, 6, 48  
Seat, Valve 4, 48  
Solenoid, Start 28, 29, 48  
Starter, Electric 16, 17, 28, 29  
Starter, Redi-Pull 45  
Stator 22, 23, 24  
Strap, Fuel Tank 35  
Switch, Ignition 14, 48  
Switch, Pressure—Oil 48  
Switch, Stop 13, 39, 48  
Tank, Fuel 35  
Tappet, Valve 4  
Tube, Breather 4, 10, 37, 48  
Tube, Oil 4, 43  
Valve, Exhaust 4  
Valve, Intake 4, 48  
Valve, Shut-Off 35  
Wrapper, Air Cleaner Element 48

# INTRODUCTION

This catalog applies to the industrial CCK and CCKA Engines listed below 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 engine nameplate, select the Parts Key No. (1, 2, etc., in the last column) that applies to your Engine Model and Spec No. This Parts Key No. represents parts that differ between models. Unless otherwise mentioned in the description, parts are interchangeable between models. Right and left engine sides are determined by *facing* the blower end (front) of the engine.

## DATA TABLE

MODEL AND SPEC NUMBER	FEATURES	PARTS KEY NUMBER
CCK-S/*	Manual Start with Stub Shaft	1
CCK-F/*	Manual Start with Optional Clutch Drive	1
CCK-3G/*	Manual Start with Optional 3.3 to 1 Gear Reduction	1
CCK-4G/*	Manual Start with Optional 4 to 1 Gear Reduction	1
CCK-MS/*	Electric Start with Stub Shaft	2
CCK-MF/*	Electric Start with Optional Clutch Drive	2
CCK-3MG/*	Electric Start with Optional 3.3 to 1 Gear Reduction	2
CCK-4MG/*	Electric Start with Optional 4 to 1 Gear Reduction	2
CCKA-S/*	Manual Start with Stub Shaft	3
CCKA-F/*	Manual Start with Optional Clutch Drive	3
CCKA-MS/*	Electric Start with Stub Shaft	4
CCKA-MF/*	Electric Start with Optional Clutch Drive	4
CCKA-3MG/*	Electric Start with Optional 3.3 to 1 Gear Reduction	4
CCKA-4MG/*	Electric Start with Optional 4 to 1 Gear Reduction	4

\* - The Specification Letter advances (A to B, B to C, etc.) with manufacturing changes.

**NOTE:** New model designations shown, begin during 1969. Previously a V was used in the model to designate Vacu-Flo (suction type) cooling.

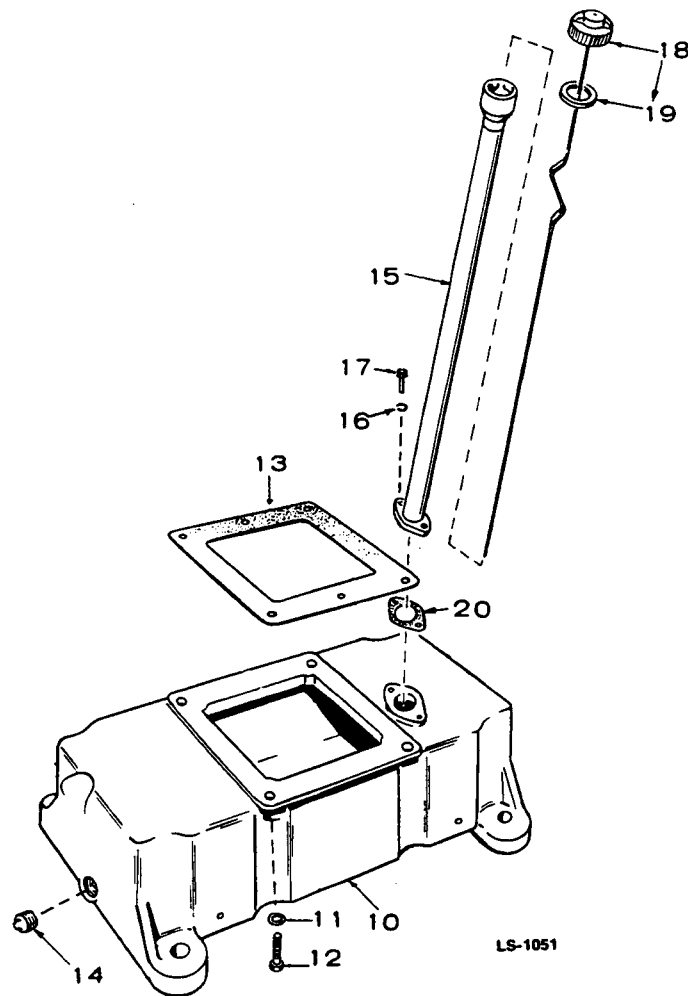
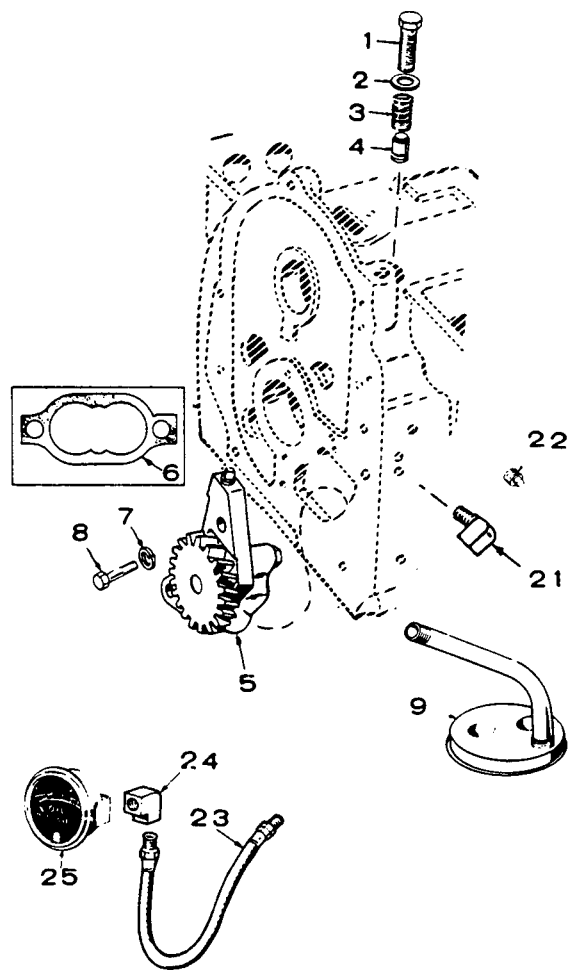
## NOTICE!

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 ENGINE PARTS SECTION

This section contains the engine parts used on standard engines listed in the Engine Data table.

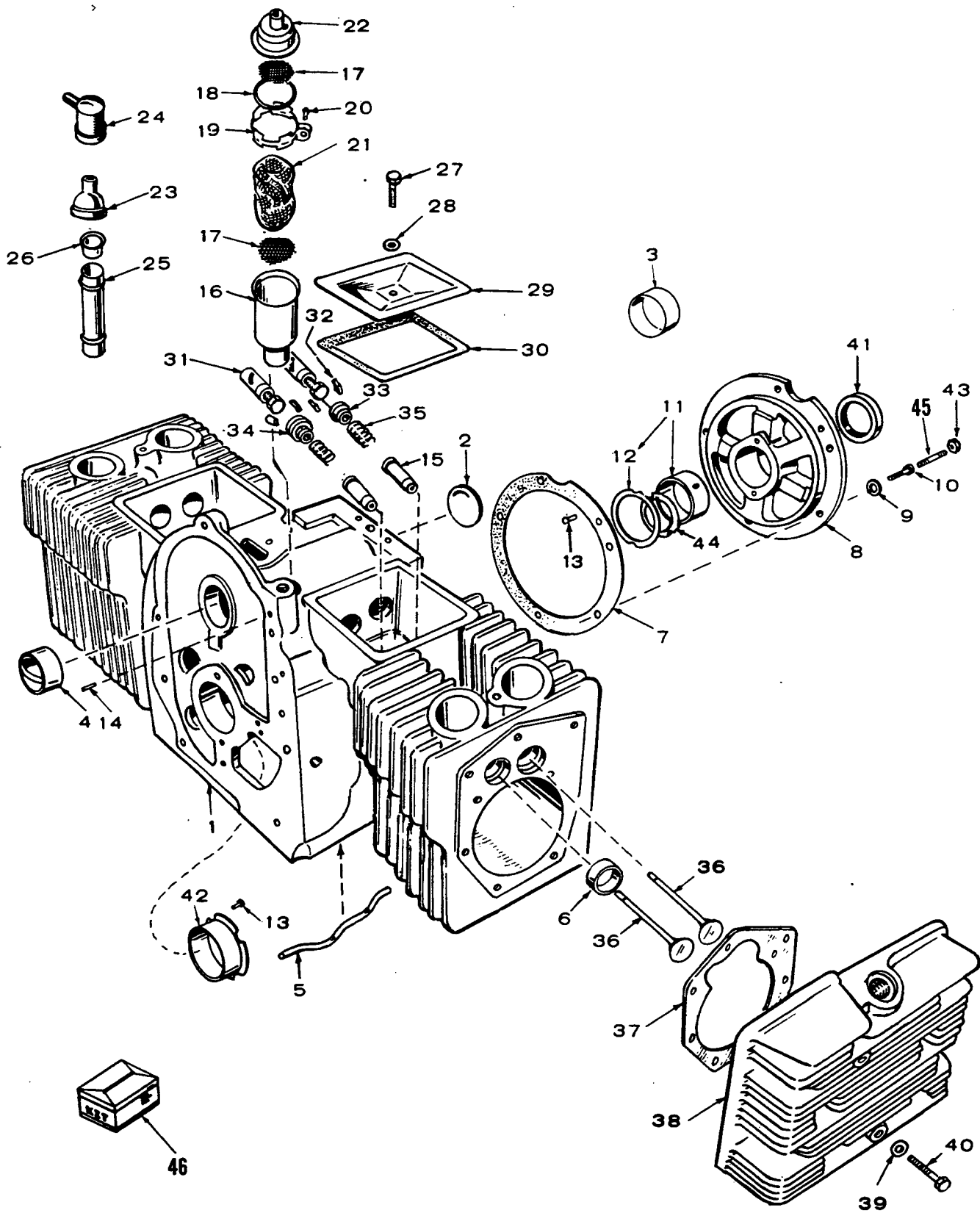
# OIL SYSTEM



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	801-0048	1	Screw, Oil By-Pass Valve
2	526-0066	1	Washer, Flat - Copper (25/64" ID x 9/16" OD x 1/16" Thk)
3	120-0140	1	Spring, Oil By-Pass Valve
4	120-0398	1	Valve, Oil By-Pass
5	120-0491	1	Pump, Oil (Internal Parts not Sold Separately)
6	120-0161	1	Gasket Kit, Oil Pump
7	850-0040	2	Washer, Lock - Spring (1/4")
8	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
9	CUP, OIL PUMP INTAKE		
	120-0413	1	Key 1 and 3 Key 2 and 4
	120-0648	1	Begin Spec G
	120-0400	1	Spec A Through F
10	BASE, OIL		
			Key 1 and 3
	102-0468	1	Begin Spec J
	102-0301	1	Spec A Through H
			Key 2 and 4
	102-0861	1	Begin Spec J
	102-0339	1	Spec C Through H
	102-0301	1	Spec A Through B
11	850-0050	4	Washer, Lock - Spring (3/8")
12	102-0455	4	Screw, Cap - Hex Head (Special)
13	102-0158	1	Gasket, Oil Base

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
14	PLUG, OIL DRAIN		
	505-0110	1	3/8" Pipe (Used on Early Models)
	505-0056	1	1/2" Pipe (Used on Late Models)
15	TUBE, OIL FILL		
	123-0674	1	Begin Spec J
	123-0508	1	Spec A Through H
16	850-0040	2	Washer, Lock - Spring (1/4")
17	821-0018	2	Screw, Cap - Hex Head Locking (1/4-20 x 5/8")
18	CAP AND INDICATOR, OIL FILL		
			Key 1 and 3
	123-0762	1	Begin Spec J
	123-0506	1	Spec A Through H
			Key 2 and 4
	123-0694	1	Begin Spec J
	123-0527	1	Spec A Through H
19	123-0191	1	Gasket, Oil Fill Cap
20	141-0078	1	Gasket, Oil Fill Tube
21	502-0020	1	Elbow, Street - Oil Line Spec A Through H
22	505-0057	1	Plug, Oil Outlet in Block Begin Spec J
23	501-0004	1	Line, Oil - Spec A Through H
24	502-0005	1	Elbow, Oil Line to Gauge Spec A Through H
25	193-0005	1	Gauge, Oil Pressure - Spec A Through H

# CYLINDER BLOCK



C-1054

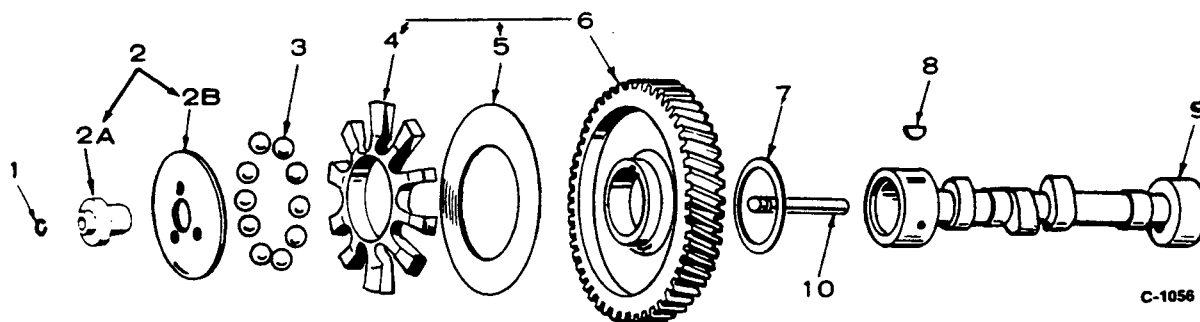
## CYLINDER BLOCK

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	<b>BLOCK ASSEMBLY, CYLINDER</b>			22	123-0954	1	Cap. Breather Tube - Begin Spec J
	110-0915	1	Engines with Stub Shaft (Includes Parts Marked *)	23	123-0073	1	Cap. Breather Tube - Spec D Through H
	110-0915	1	Engines with Clutch Drive (Includes Parts Marked *)	24	123-0293	1	Cap. Breather Tube - Spec A Through C
	110-1707	1	Engines with Gear Reduction (Includes Parts Marked Δ)	25	TUBE, BREATHER		
2	517-0048	1	Δ*Plug, Expansion - Camshaft Opening in Block - Engines Without Spark Advance		123-0129	1	Spec D Through H (1 x 4-11/16")
3	110-1283	1	Δ*Cover, Camshaft Opening in Block - Engines With Spark Advance		123-0521	1	Spec A Through C (1 x 5-11/16")
4	101-0367	2	Δ* Bearing, Camshaft (Precision)	26	123-0104	1	Valve, Breather - Spec A Through H
5	120-0386	1	Δ* Tube, Crankcase Oil	27	800-0012	2	Screw, Cap - Hex Head (1/4-20 x 2-1/4")
6	INSERT, EXHAUST VALVE SEAT			28	526-0063	2	Washer, Flat - Copper (17/64" ID x 7/16" OD x 1/32" Thk)
	110-0872	2	Δ* Standard	29	110-0666	2	Cover, Valve Compartment
	110-0872-02	2	.002" Oversize	30	110-0667	2	Gasket, Valve Compartment Cover
	110-0872-05	2	.005" Oversize	31	TAPPET, VALVE		
	110-0872-10	2	.010" Oversize		115-0006	4	Standard
	110-0872-25	2	.025" Oversize		115-0006-05	4	.005" Oversize
7	101-0115	1	Δ* Gasket Kit, Bearing Plate	32	110-0639	8	Lock, Valve Spring Retainer
8	PLATE, BEARING (EXCLUDES BEARING)			33	110-0893	2	Washer, Intake Valve Spring Retainer
	101-0316	1	*Engines with Stub Shaft Begin Spec F	34	110-0904	2	Rotocap, Exhaust Valve Spring Retainer
	101-0258	1	Engines with Stub Shaft Spec A Through E	35	110-0539	4	Spring, Valve
	101-0316	1	*Engines with Clutch Drive Begin Spec F	36	VALVE		
	101-0258	1	Engines with Clutch Drive Spec A Through E		110-0881	2	Intake
	101-0390	1	ΔEngines with Gear Reduction Begin Spec F		110-0880	2	Exhaust
	101-0232	1	Engines with Gear Reduction Spec A Through E	37	110-0892	2	Gasket, Cylinder Head
9	850-0045	5	Δ* Washer, Lock - Spring (5/16")	38	HEAD, CYLINDER		
10	800-0512	5	Δ* Screw, Cap - Hex Head (Special)		110-0890	1	Right Side (#2 Cylinder) - Key 1 and 2 (Low Compression)
11	BEARING, CRANKSHAFT - BEGIN SPEC F (Includes Thrust Washer)				110-0884	1	•Right Side (#2 Cylinder) - Key 3 and 4 (High Compression)
	101-0450	2	Δ Standard		110-0891	1	Left Side (#1 Cylinder) - Key 1 and 2 (Low Compression)
	101-0450-02	2	.002" Undersize		110-0883	1	•Left Side (#1 Cylinder) - Key 3 and 4 (High Compression)
	101-0450-10	2	.010" Undersize	39	526-0122	18	Washer, Flat (11/21" ID x 23/21" OD x 10 Ga.)
	101-0450-20	2	.020" Undersize	40	SCREW, HEX HEAD CAP (Hardened)		
	101-0450-30	2	.030" Undersize		110-0879	8	Special
12	104-0575	2	Δ* Washer, Crankshaft Bearing Thrust Begin Spec F		114-0022	10	Special
13	516-0072	4	Δ* Pin, Crankshaft Bearing Stop (2 only Spec A Through E)	41	509-0041	1	Seal, Oil (in Gasket Kit 168-0103) (Not used on Engines with 4 to 1 Reduction Gear Box)
14	516-0141	2	Δ* Pin, Gearcover Align	42	BEARING, CRANKSHAFT - SPEC A THROUGH E		
15	110-0902	4	Δ* Guide, Valve		101-0181	2	Standard
16	123-0953	1	Tube, Breather - Begin Spec J		101-0181-02	2	.002" Undersize
17	123-0958	2	Screen, Breather Tube - Begin Spec J		101-0181-10	2	.010" Undersize
18	509-0117	1	Seal, "O" Ring - Breather Tube Begin Spec J		101-0181-20	2	.020" Undersize
19	123-0951	1	Clamp, Breather Tube - Begin Spec J		101-0181-30	2	.030" Undersize
20	809-0035	1	Screw, Tapping - Pan Head (#8 x 3/4") Begin Spec J	43	110-0445	5	Nut, Hex (Bearing Plate Mounting - on Some Early Models) (Special)
21	123-0865	1	Baffle, Breather Tube - Begin Spec J	44	104-0776	1	Shim, Crankshaft Thrust Bearing
				45	520-0114	5	Stud, Rear Bearing Plate Mounting (On some early models)
				46	123-1600	1	Kit, Breather Icing (Optional)

- \* - Parts Included in 110-0915 Cylinder Block Assembly.
- Δ - Parts Included in 110-1707 Cylinder Block Assembly.
- - Hi Compression head can be identified by a 3/32" radius boss on the underside of head on corner nearest the spark plug hole.

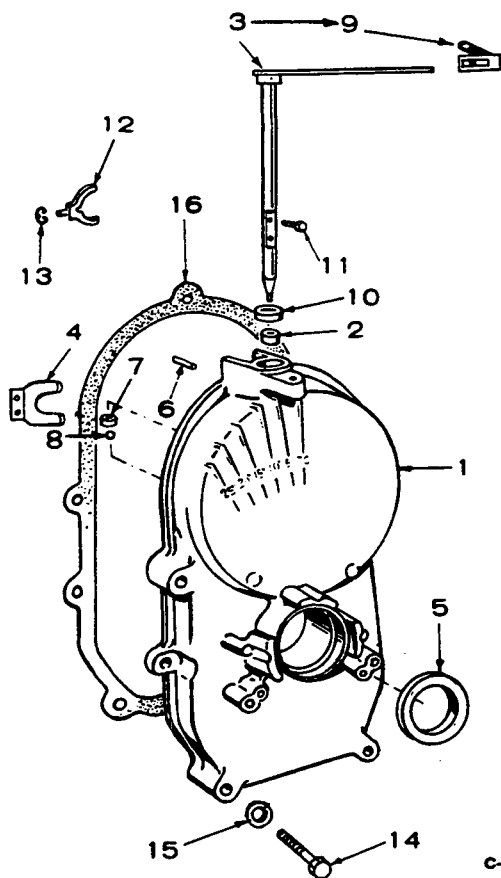


## CAMSHAFT



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	150-0078	1	Ring, Retaining	9	CAMSHAFT	1	Key 1 and 2 (Includes Center Pin)
2	150-1695	1	Kit, Governor Cup (Includes Hub and Cup)	105-0140		1	Key 3 and 4 - Begin Spec J (Includes Center Pin and Spark Advance Mechanism Pins) (3/16" Pins)
2A	150-1519	1	Hub, Governor Cup	105-0295		1	Key 3 and 4, Spec A Through H (Includes Center Pin and Spark Advance Mechanism Pins) (1/8" Pins)
2B	150-1520	1	Cup, Governor	105-0234		1	Pin, Camshaft Center
3	BALL, FLY - GOVERNOR						
	510-0015	10	Key 1 and 2				
	510-0015	5	Key 3 and 4				
4	150-1257	1	Spacer, Governor Flyball				
5	150-0077	1	Plate, Governor Flyball				
6	105-0332	1	Gear, Timing (Includes Spacer and Plate)				
7	105-0541	1	Washer, Thrust	10	150-0075	1	
8	515-0001	1	Key, Camshaft Gear Mounting				

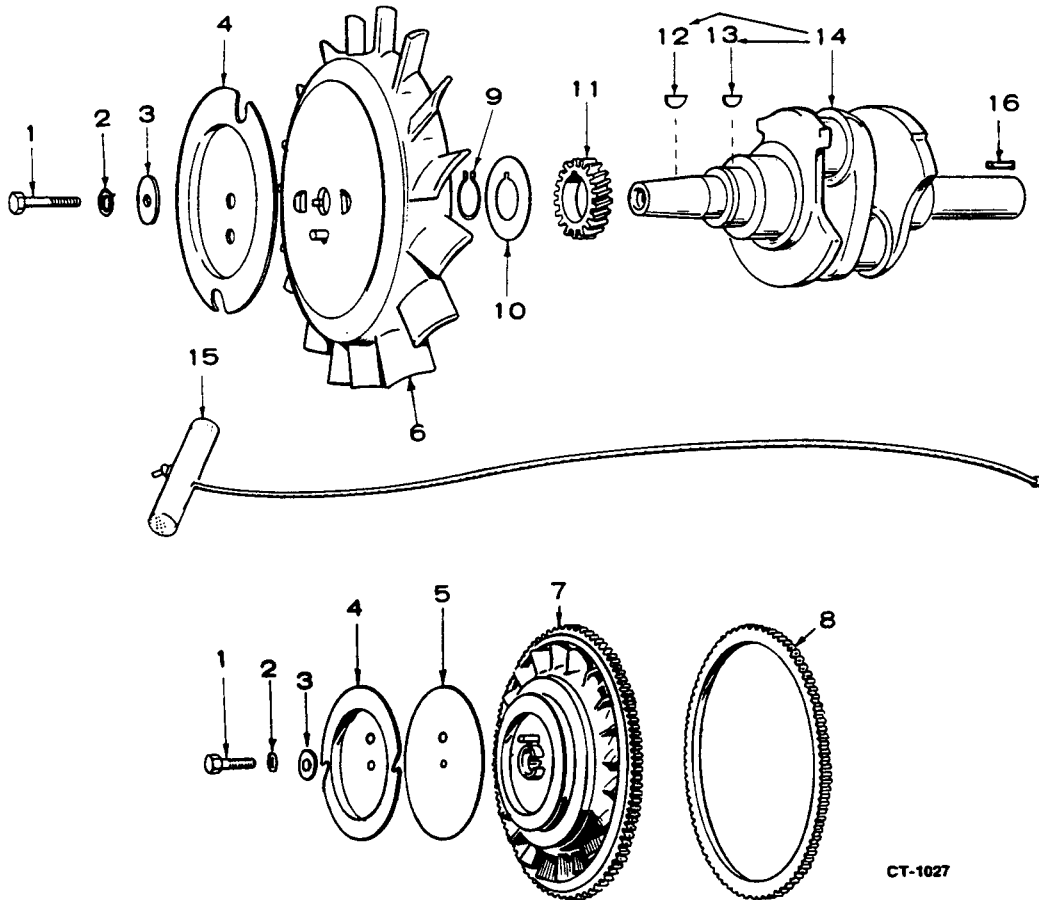
## GEARCASE



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	GEARCASE ASSEMBLY		
	103-0667	1	Begin Spec J (Includes Parts Marked †)
	103-0648	1	Specs A through H (Includes Parts Marked *)
2	510-0013	1	† Bearing, Needle - Upper
3	SHAFT AND ARM ASSEMBLY, GOVERNOR		
	150-1542	1	† Begin Spec J
	150-0710	1	* Spec A through H
4	150-1187	1	† Yoke, Governor Shaft - Begin Spec J
5	509-0040	1	† Seal, Oil - Crankshaft
6	516-0130	1	† Pin, Cup Stop
7	BEARING NEEDLE - LOWER		
	510-0013	1	† Begin Spec J
	510-0008	1	* Spec A through H
8	510-0014	1	† Ball, Bearing
9	150-0678	1	† Clip, Sensitivity Adjustment
10	509-0008	1	† Seal, Oil
11	815-0046	2	† Screw, Machine - Pan Head (#8-32 x 3/8") - Begin Spec J
12	150-0620	1	* Yoke, Governor Shaft - Spec A through H
13	518-0129	1	* Ring, Governor Yoke Retaining - Spec A through H
14	SCREW, CAP - HEX HEAD		
	800-0032	4	5/16-18 x 1-3/4"
	800-0034	1	5/16-18 x 2-1/4"
15	850-0045	5	Washer, Lock - Spring (5/16")
16	103-0011	1	Gasket, Gearcase

† - Parts Included in 103-0667 Gearcase Assembly.  
 \* - Parts Included in 103-0648 Gearcase Assembly.

## CRANKSHAFT AND FLYWHEEL

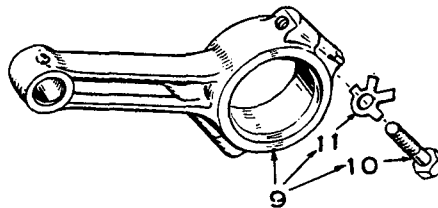
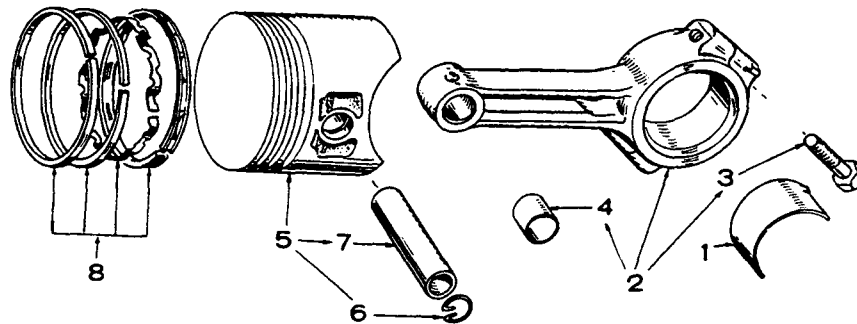


CT-1027

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	104-0170	1	Screw, Cap - Hex Head (Special)	8	134-0673	1	Gear, Ring - Flywheel - Key 2 and 4
2	850-0055	1	Washer, Lock - Spring (7/16")	9	518-0014	1	Ring, Retaining
3	WASHER, FLAT 526-0017	1	Key 1 and 3 (15/32" ID x 1-1/4" OD x 1/4" Thk)	10	104-0043	1	Washer, Gear Retaining
	526-0128	1	Key 2 and 4 (15/32" ID x 1-1/2" OD x 1/4" Thk)	11	104-0032	1	Gear, Timing
4	SHEAVE, ROPE 192-0308	1	Key 1 and 2, Begin Spec E	12	515-0227	1	Key, Flywheel Mounting
	160-0222	1	Key 1, Spec A through D	13	515-0001	1	Key, Timing Gear Mounting
	192-0308	1	Key 2, Spec A through D	14	CRANKSHAFT (Includes Keys)		Begin Spec J
	192-0308	1	Key 3 (Optional Key 4)				Engines with Stub Shaft
5	192-0296	1	Backplate, Rope Sheave - Key 2 and 4 - Spec A through H				Engines with Clutch Drive
6	FLYWHEEL						Engines with 4 to 1 Gear Reduction (Includes Pinion Gear, Thrust Washer and Key)
	160-0937	1	Key 1 Begin Spec G (Includes Magnets)		104-0905	1	Engines with 3:3 to 1 Gear Reduction
	160-0650	1	Spec E through F (Includes Magnets)				Spec G through H
	160-0202	1	Spec A through D (Includes Magnets)		104-1316	1	Engines with Stub Shaft
	160-1072	1	Key 3 †Begin Spec J (Includes Magnets)		104-1316	1	Engines with Clutch Drive
	160-0761	1	†Spec A through H (Includes Magnets)		104-1279	1	Engines with Clutch Drive
					104-1296	1	Engines with Gear Reduction
7	FLYWHEEL (Includes Gear)						Spec A through F
	134-2728	1	Keys 2 and 4 - Begin Spec J		104-1316	1	Engines with Stub Shaft
	134-0675	1	Key 2 - Spec A through H		104-1316	1	Engines with Clutch Drive
	134-1192	1	Key 4 - Specs A through H		104-1296	1	Engines with Gear Reduction
					104-1323	1	Taper Shaft (Welders Only)
				15	192-0083	1	Rope, Starting - Key 1 and 3
				16	515-0202	1	Key, Stub Shaft

† - NOTE: If screws protrude through Magnets use 526-0049 Brass Washer to Shim.

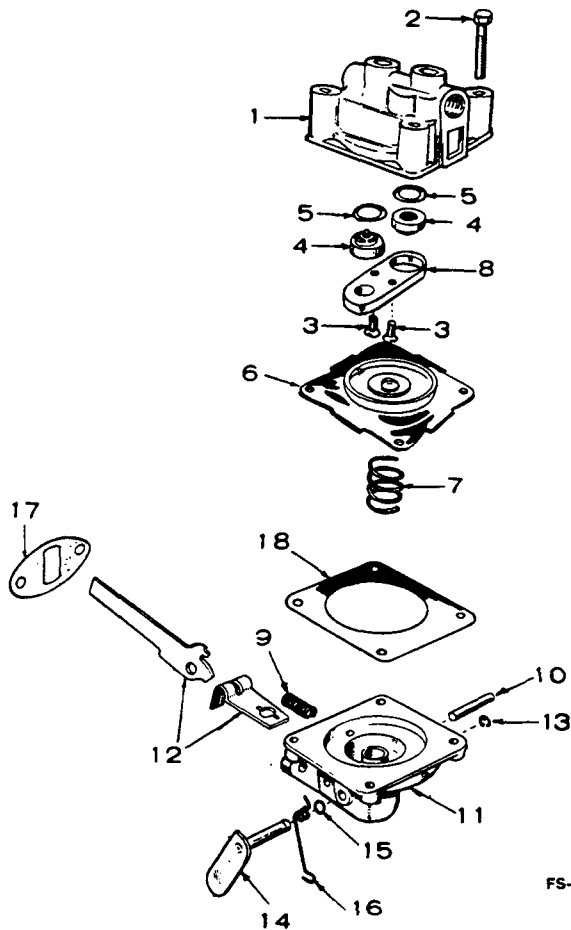
# PISTON AND ROD



CT-1028

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	BEARING, CONNECTING ROD - BEGIN SPEC D (HALF)			8	RING SET, PISTON		
	114-0145	4	Standard		Key 1 and 2		
	114-0145-02	4	.002" Undersize	113-0152	2	Standard	
	114-0145-10	4	.010" Undersize	113-0152-05	2	.005" Oversize	
	114-0145-20	4	.020" Undersize	113-0152-10	2	.010" Oversize	
	114-0145-30	4	.030" Undersize	113-0152-20	2	.020" Oversize	
2	114-0203	2	Rod Assembly, Connecting (Includes Bushing and Place Bolts) - Begin Spec D	113-0152-30	2	.030" Oversize	
				113-0152-40	2	.040" Oversize	
3	805-0010	4	Bolt, Place (5/16-24 x 1-1/4") Begin Spec D		Key 3 and 4 (Chrome Plated Top Compression Ring)		
4	114-0036	2	Bushing, Connecting Rod - Begin Spec D	113-0153	2	Standard	
5	PISTON AND PIN (Includes Retaining Rings)			113-0153-05	2	.005" Oversize	
	112-0179	2	Standard	113-0153-10	2	.010" Oversize	
	112-0179-05	2	.005" Oversize	113-0153-20	2	.020" Oversize	
	112-0179-10	2	.010" Oversize	113-0153-30	2	.030" Oversize	
	112-0179-20	2	.020" Oversize	113-0153-40	2	.040" Oversize	
	112-0179-30	2	.030" Oversize	9	ROD, CONNECTING - SPEC A THROUGH C (Aluminum)		
	112-0179-40	2	.040" Oversize		114-0098	2	Standard
6	112-0003	4	Ring, Retaining		114-0098-10	2	.010" Undersize
7	112-0069	2	Pin, Piston		114-0098-20	2	.020" Undersize
					114-0098-30	2	.030" Undersize
				10	110-0284	4	Screw, Cap - Hex Head (Hardened) Spec A Through C
				11	114-0059	4	Washer, Lock Tab - Spec A Through C

## FUEL PUMP PARTS

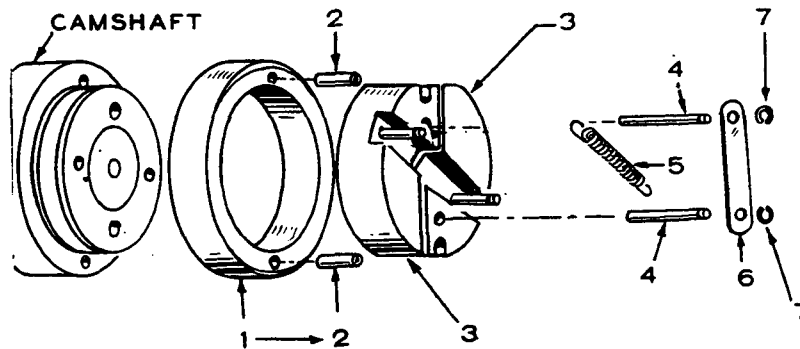


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	149-0693	1	Pump, Fuel (Complete)
	149-0526	1	Kit, Repair (Includes Parts Marked *)
1		1	Body, Upper (Not Sold Separately)
2	815-0148	4	Screw, Cap - Slotted Hex Head (#8-32 x 7/8")
3	815-0147	2	Screw, Machine - Oval Head Phillips (#6-32 x 5/8")
4	149-0096	2	*Valve and Cage
5	149-0095	2	*Gasket, Valve
6	149-0582	1	*Diaphragm Assembly
7	149-0672	1	*Spring
8	149-0539	1	Retainer, Valve Cage
9	149-0675	1	*Spring
10	516-0113	1	Pin, Rocker Arm
11		1	Body, (Not Sold Separately)
12	149-0710	1	Link and Arm Set, Rocker
13	518-0129	1	Ring, Retainer - Primer Lever
14	149-0551	1	Lever, Primer
15	509-0065	2	Seal, "O" Ring
16	149-0404	1	Spring, Primer Lever
17	149-0003	1	*Gasket, Pump Mounting
18	149-0858	1	*Gasket, Diaphragm (Air Lock Prevention)

\* - Parts Included in 149-0526 Repair Kit.

FS-1220

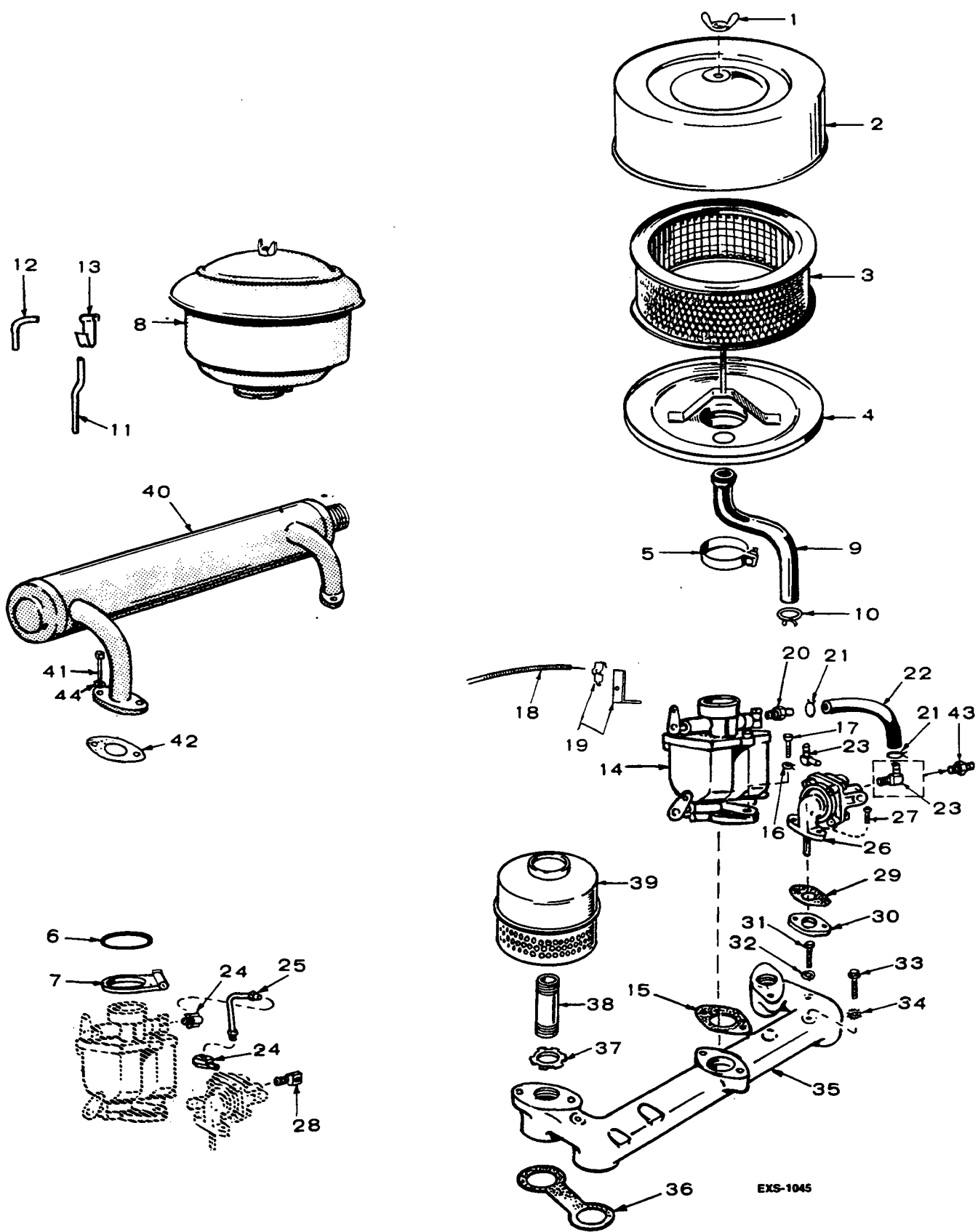
## SPARK ADVANCE MECHANISM - KEYS 3 AND 4



ES-1139

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	160-0791	1	Cam	4	PIN GROOVE		
2	516-0144	4	Pin, Roll (7/16")	516-0172	2	.1935" Dia x 1/16" Lg.	
3	WEIGHT ASSEMBLY (INCLUDES PINS)						
	160-1049	2	Key 3, Begin Spec J (Magneto Ignition)	516-0146	2	1/8" Dia x 1-1/4" Lg.	
	160-0789	2	Key 3, Specs A through H (Magneto Ignition)				
	160-1198	2	Key 4, Begin Spec J (Battery Ignition)	5	SPRING		
	160-0790	2	Key 4, Specs A through H (Battery Ignition)	160-1051	1	Begin Spec J	
				160-0727	1	Specs A through H	
				6	160-0726	1	Retainer, Specs A through H
				7	RING, RETAINING		
				518-0129	2	Begin Spec J	
				518-0185	2	Specs A through H	

# EXHAUST AND FUEL SYSTEM

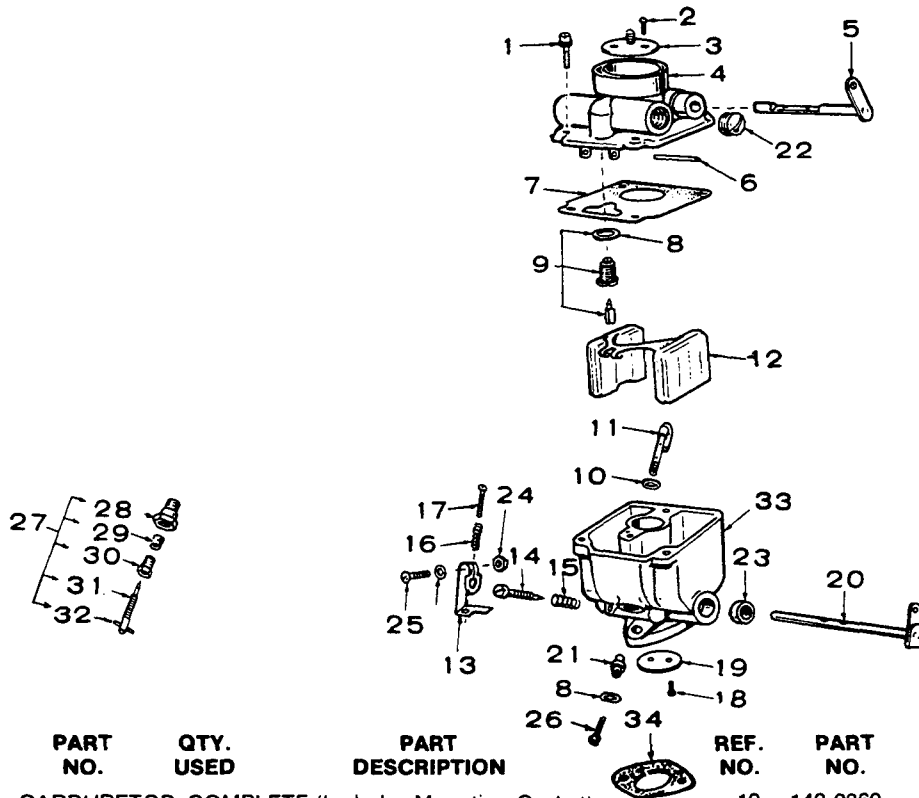


EXS-1045

## EXHAUST AND FUEL SYSTEM

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	865-0020	1	Nut, Wing (1/4-20) - Begin Spec J	22	LINE, FUEL PUMP TO CARBURETOR - BEGIN SPEC J		
2	140-1295	1	Cover, Air Cleaner - Begin Spec J	503-0644	1	Key 1 and 3	
3	140-1216	1	Element, Air Cleaner (Paper) - Begin Spec J	503-0694	1	Key 2 and 4	
4	BASE, AIR CLEANER			23	ELBOW, BARBED - BEGIN SPEC J		
	140-1344	1	Begin Serial Number 0975977797 During Spec J	502-0313	1	Fuel Pump Outlet - Key 1 and 3	
	140-1356	1	Spec J through Serial Number 0975977796 During Spec J (Includes 503-0189 Clamp)	502-0313	1	Fuel Pump Inlet	
5	CLAMP, AIR CLEANER			24	502-0002	2	Elbow, Fuel Line to Carburetor and Fuel Pump - Specs A through H
	503-0398	1	Begin Serial Number 0975977797 During Spec J	25	149-0611	1	Line, Fuel - Specs A through H
	503-0019	1	Specs A through H	26	149-0693	1	Pump, Fuel (See Separate Group for Components)
6	509-0124	1	Seal, "O" Ring - Spec J through Serial Number 0975977796 During Spec J	27	806-0009	2	Screw, Cap - Counterbore Head Hardened (1/4-20 x 1-1/4")
7	140-1058	1	Clamp, Air Cleaner - Spec J through Serial Number 0975977796 During Spec J	28	502-0020	1	Elbow, Fuel Pump Inlet - Specs A through H
8	CLEANER, AIR (OIL BATH)			29	149-0003	2	Gasket, Fuel Pump
	140-0283	1	Specs D through H	30	149-0045	1	Spacer, Fuel Pump
	140-0494	1	Specs A through C	31	800-0054	2	Screw, Cap - Hex Head (3/8-16 x 2")
9	HOSE, BREATHER			32	850-0050	2	Washer, Lock - Spring (3/8")
	123-1264	1	Begin Serial Number 0975977797 During Spec J	33	SCREW, INTAKE - MANIFOLD		
	123-1263	1	Spec J through Serial Number 0975977796 During Spec J	821-0004	1	Hex Head Self Locking (#10-32 x 5/8") - Begin Spec J	
10	503-0769	1	Clamp, Hose - Begin Spec J	813-0098	1	Round Head Machine (#10-32 x 3/8") - Spec A through H	
11	140-0471	1	Tube, Breather Cap to Air Cleaner - Specs D through H	34	853-0008	1	Washer, Lock - ET (#10) - Specs A through H
12	123-0522	1	Tube, Breather Cap to Air Cleaner - Specs A through C	35	154-0356	1	Manifold, Intake
13	140-0459	1	Bracket, Breather Tube - Specs D through H	36	154-0013	2	Gasket, Intake Manifold
14	CARBURETOR, GASOLINE (See Separate Group for Components) (Includes Mounting Gasket)			37	331-0053	2	Nut, Locking (1") - Begin Spec J
	142-0426	1	Key 1 and 2 (Fixed Main Jet With 21/32" Venturi)	38	505-0331	2	Nipple, Pipe (1 x 4") Spec J
	142-0431	1	Key 3 and 4 (Fixed Main Jet With 3/4" Venturi)	39	155-0916	2	Muffler, Exhaust - Begin Spec J
15	141-0078	1	Gasket, Carburetor Mounting	40	MUFFLER, EXHAUST - SPECS A THROUGH H		
16	850-0040	2	Washer, Lock - Spring (1/4")	155-0480	1	Key 1 and 2	
17	800-0009	2	Screw, Cap - Hex Head (1/4-20 x 1-1/2")	155-0860	1	Key 3 and 4	
18	153-0097	1	Rod, Choke	41	800-0028	4	Screw, Cap - Hex Head (5/16-18 x 1") - Specs A through H
19	153-0263	1	Bracket and Clamp, Choke Rod (Includes 518-0176 Clip)	42	154-0360	2	Gasket, Muffler - Specs A through H
20	502-0395	1	Connector, Fuel Line to Carburetor - Begin Spec J	43	502-0395	1	Connector, Fuel Pump Outlet - Keys 2 and 4 - Begin Spec J
21	503-0301	2	Clamp, Fuel Line - Begin Spec J	140-1427	1	Kit, Conversion, Oil Bath to Dry Type Air Cleaner - Specs A through H	
				44	850-0045	4	Washer, Lock (5/16")

# CARBURETOR PARTS

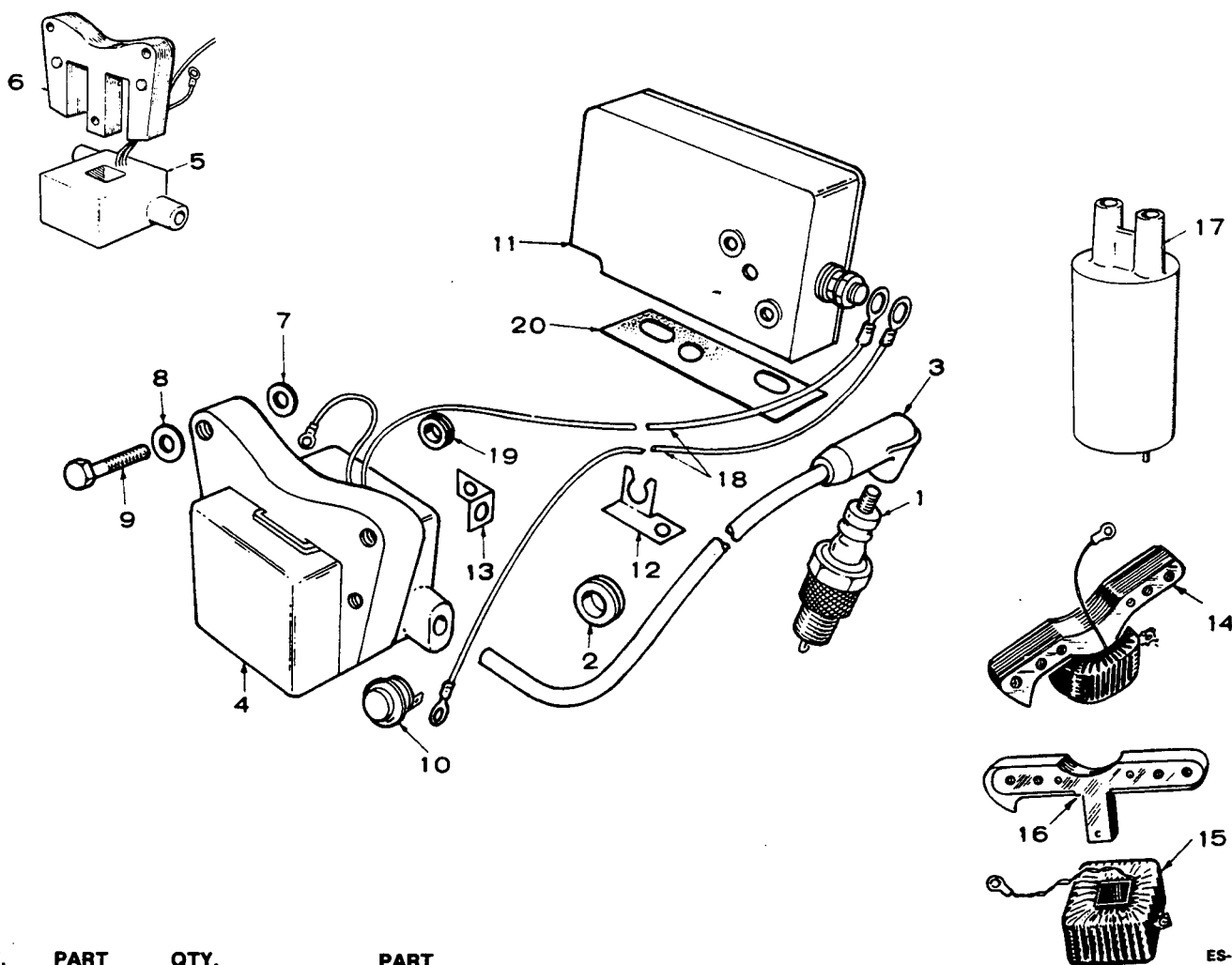


FS-1221

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	CARBURETOR, COMPLETE (Includes Mounting Gasket)			19	142-0369	1	Fly, Throttle
			Key 1 and 2	20	142-0368	1	†Shaft, Throttle
142-0426	1		Begin Spec G (Fixed Main Jet)	21	NUT AND JET NOZZLE		
142-0363	1		Specs A through F (Adjustable Main Jet) (For Replacement Order 142-0426)		142-0393	1	Key 1 and 2
					142-0370	1	†Begin Spec G
142-0431	1		Key 3 and 4 (Fixed Main Jet)		142-0474	1	Specs A through F
KIT, REPAIR (INCLUDES PARTS MARKED †)				22	505-0008	1	†Key 3 and 4
			Key 1 and 2	23	142-0343	2	†Bushing, Throttle Shaft
142-0428	1		Begin Spec G	24	870-0053	1	Nut, Hex (#10-32)
142-0371	1		Specs A through F	25	813-0103	1	Screw, Machine - Round Head (#10-32 x 3/4")
142-0475	1		Key 3 and 4	26	PLUG, NOZZLE		
142-0033	1		†Kit, Gasket (Includes Parts Marked *)		142-0015	1	Key 1 and 2 - Begin Spec G
1	SCREW, FILLISTER HEAD				142-0015	1	Key 3 and 4
	815-0103	1	Key 1 and 2 (#10-24 x 1/2")	27	142-0042	1	Needle Assembly, Key 1 and 2 - Specs A through F (Includes Parts Marked Δ)
	815-0109	2	Key 1 and 2 (#10-24 x 5/8")				
	815-0109	3	Key 3 and 4 (#10-24 x 5/8")	28	142-0046	1	ΔRetainer, Main Adjusting Needle - Key 1 and 2 - Specs A through F
2	815-0091	2	†Screw, Fillister Head with IT Washer (#4-40 x 3/16")	29	142-0206	1	Δ†Packing, Main Adjusting Needle - Key 1 and 2 - Specs A through F
3	142-0055	1	Fly, Choke	30	142-0045	1	ΔRetainer, Main Adjusting Needle Packing - Key 1 and 2 - Specs A through F
4	142-0205	1	Sleeve, Choke (Cover)	31	142-0041	1	Δ†Needle, Main Adjusting - Key 1 and 2 - Specs A through F
5	SHAFT, CHOKE			32	516-0027	1	ΔPin, Main Adjusting Needle - Key 1 and 2 - Specs A through F
	142-0217	1	Key 1 and 2	33		1	Body Assembly, Lower (Not Sold Separately)
	142-0420	1	Key 3 and 4	34	141-0078	1	*Gasket, Carburetor Mounting
6	142-0039	1	†Shaft, Float				
7	142-0606	1	*Gasket, Body				
8	GASKET						
	148-0017	1	*Float Valve Seat				
	148-0017	1	*Nozzle Plug - Begin Spec G				
9	142-0049	1	†Valve and Seat Assembly				
10	142-0032	1	*Gasket, Nozzle				
11	142-0285	1	Nozzle Assembly				
12	142-0361	1	Float and Lever Assembly				
13	145-0008	1	Lever, Idle Stop				
14	142-0040	1	†Needle, Idle Adjusting				
15	142-0282	1	Spring, Idle Needle				
16	142-0035	1	Spring, Throttle Stop				
17	812-0063	1	Screw, Machine - Round Head (#6-32 x 1/2")				
18	815-0072	2	†Screw, Oval - Head Machine (#4-40 x 1/4")				

† - Parts Included in Repair Kit. Parts With Δ symbol are included in 142-0371 Kit only.  
 \* - Parts Included in 142-0033 Gasket Kit.  
 Δ - Parts Included in 142-0042 Needle Assembly.

# IGNITION SYSTEM (MAGNETO) - KEYS 1 AND 3

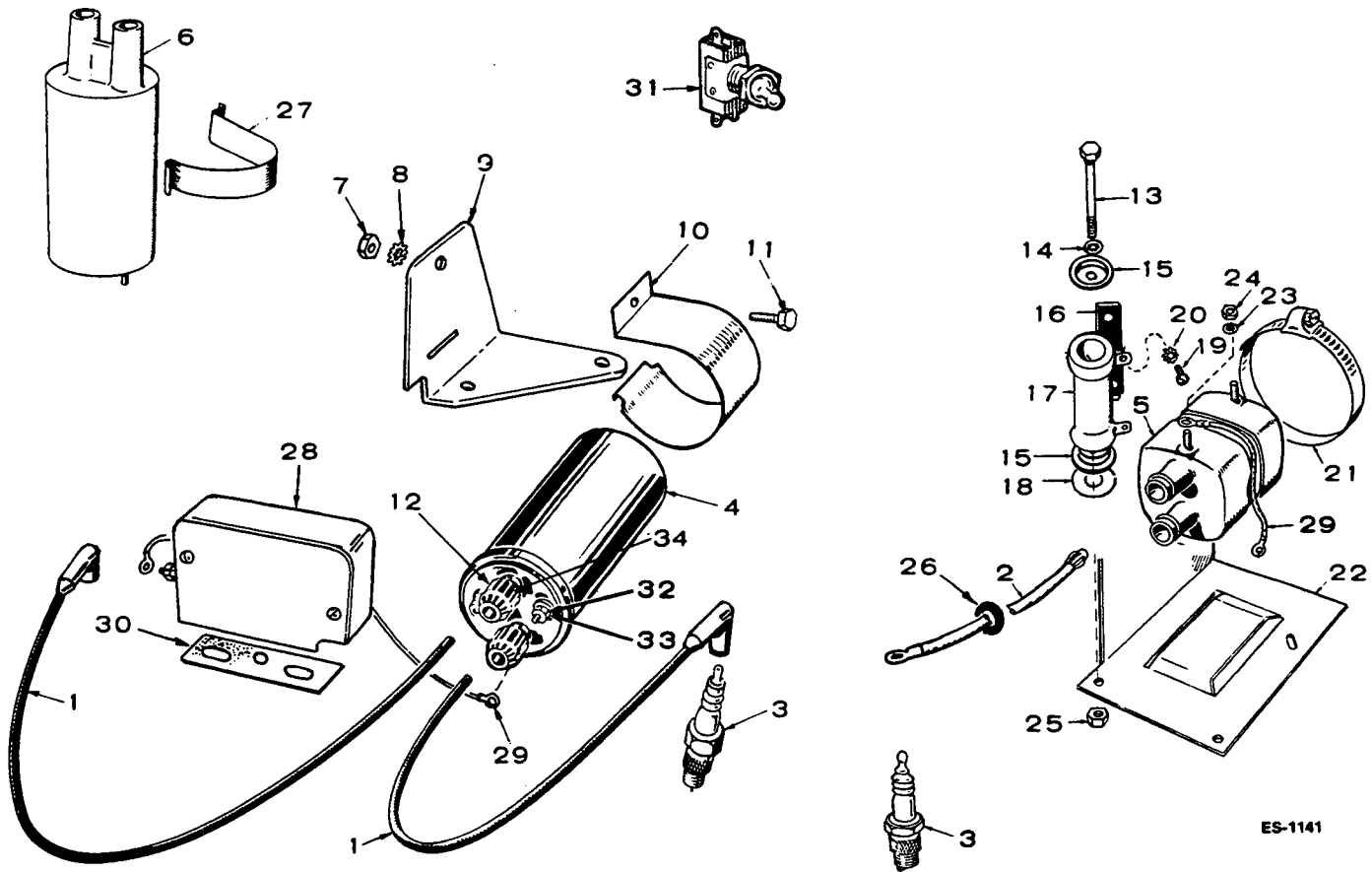


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	PLUG, SPARK						
	167-0241	2	Non-Resistor Type				
	167-0237	2	Resistor Type				
2	508-0095	2	Grommet, Spark Plug Cables - Begin Spec G	8	526-0184	2	Washer, Flat (17/64" ID x 5/8" OD x 10 Gauge Thk) - Begin Spec G
3	CABLE, SPARK PLUG			9	815-0259	2	Screw, Cap - Hex Head (1/4-20 x 1-1/4") - Begin Spec G
			Right Side				
			Begin Spec G (Rubber End Cap)				
	167-1593	1	Non-Resistor Type	10	313-0018	1	Switch, Stop
	167-1595	1	Resistor Type	11	160-0257	1	Box Assembly, Breaker (See Separate Group for Components)
	167-1308	1	Specs A through F (Eye Type End)	12	167-0188	4	Clip, Spark Plug Cable - Begin Spec G
			Left Side	13	332-0273	1	Clip, Magneto Lead
			Begin Spec G (Rubber End Cap)	14	160-0722	1	Stator Assembly, Magneto - Specs A through F (Includes Coil and Pole Shoe)
	167-1593	1	Non-Resistor Type	15	160-0282	1	Coil, Magneto Stator - Specs A through F
	167-1595	1	Resistor Type	16	160-0281	1	Pole Shoe, Magneto Stator - Specs A through F
	167-1309	1	Specs A through F (Eye Type End)	17	160-0792	1	Coil, Ignition - Specs A through F
4	160-0752	1	Stator Assembly, Magneto - Begin Spec G (includes Coil and Pole Shoe)	18	334-0028	1	Lead ( 4 foot piece of wire)
5	160-0750	1	Coil, Magneto Stator - Begin Spec G	19	508-0002	1	Grommet, Magneto Lead
6	160-0749	1	Pole Shoe, Magneto Stator - Begin Spec G	20	160-0043	1	Gasket, Breaker Box Mounting
7	526-0015	2	Washer, Flat (9/32" ID x 9/16" OD x 1/16" Thk) - Begin Spec G				

ES-1140



## IGNITION SYSTEM (BATTERY) - KEYS 2 AND 4



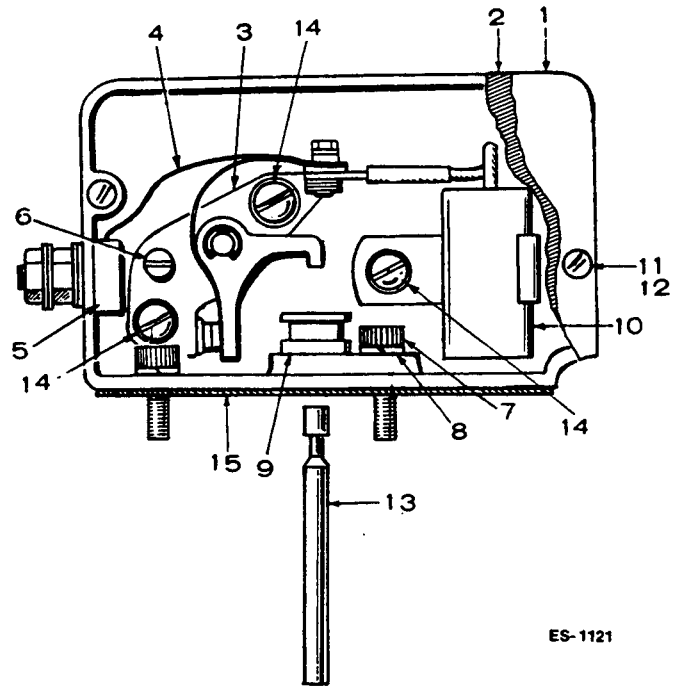
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	CABLE, SPARK PLUG (RUBBER END CAP) - BEGIN SPEC J			16	304-0610	1	Support, Resistor Terminal - Spec G
	167-1595	1	Right Side	17	RESISTOR		
	167-1596	1	Left Side		304-0060	1	12 Volt Engines, Spec A through G (1.72 Ohm - 25 Watt)
2	CABLE, SPARK PLUG (EYE TYPE END)				304-0397	1	6 Volt Engines, Spec G
			Right Side	18	526-0179	1	Washer, Flat (7/32" ID x 5/8" OD x 1/16" Thk) - Spec G
	167-1308	1	Specs C through G (8-1/4")	19	815-0201	2	Screw, Machine - Round Head W/ET (#8-32 x 3/8") - Specs A through G
	167-1097	1	Specs A and B (9")	20	853-0005	2	Washer, Lock - ET (#8) - Spec G
			Left Side	21	503-0514	1	Clamp, Coil - Spec G
	167-1072	1	Spec G (15-1/2")	22	166-0376	1	Bracket, Coil - Spec G
	167-1309	1	Specs A through F (23-1/2")	23	854-0010	2	Washer, Lock - IT (#10) - Spec G
3	PLUG, SPARK			24	870-0053	2	Nut, Hex (#10-32) - Spec G
	167-0241	2	Non-Resistor Type	25	870-0053	1	Nut, Hex (#10-32) - Spec G
	167-0237	2	Resistor Type	26	508-0005	2	Grommet, Spark Plug Cable - Specs A through F
4	166-0535	1	Coil, Ignition (12 Volt) - Begin Spec J (Includes Parts Marked +)	27	160-0488	1	Clamp, Coil - Specs A through F
5	166-0346	1	Coil, Ignition (6 Volt) - Spec G	28	160-0257	1	Box Assembly, Breaker (See Separate Group for Components)
6	160-0792	1	Coil, Ignition (6 Volt) - Specs A through F	29	166-0702	1	Lead (Kit) (Includes Parts Marked *)
7	862-0001	1	Nut, Hex (1/4-20) - Begin Spec J	30	160-0043	1	Gasket, Breaker Box Mounting
8	856-0006	1	Washer, Lock - EIT (1/4") - Begin Spec J	31	308-0002	1	Switch, Ignition - On-Off - Specs A through E
9	166-0590	1	Bracket, Coil Mounting - Begin Spec J	32	166-0554	2	+Nut, Hex (Special)
10	166-0588	1	Clamp, Coil - Begin Spec J	33	850-2005	2	+*Washer, Flat (Special)
11	800-0004	1	Screw, Cap - Hex Head (1/4-20 x 5/8") - Begin Spec J	34	166-0614	2	+Bushing, Rubber (Inside Cap #166-0604)
12	166-0604	2	+Nut, Coil - Begin Spec J				
13	813-0112	1	Screw, Machine - Round Head (#10-32 x 2-1/2") - Specs A through G				
14	854-0010	1	Washer, Lock - IT (#10) - Spec G				
15	304-0014	2	Washer, Resistor Centering - Specs A through G				

\* - Parts Included in Replacement Kit 166-0702.

+ - Parts Included in 166-0535 Ignition Coil.

## BREAKER BOX

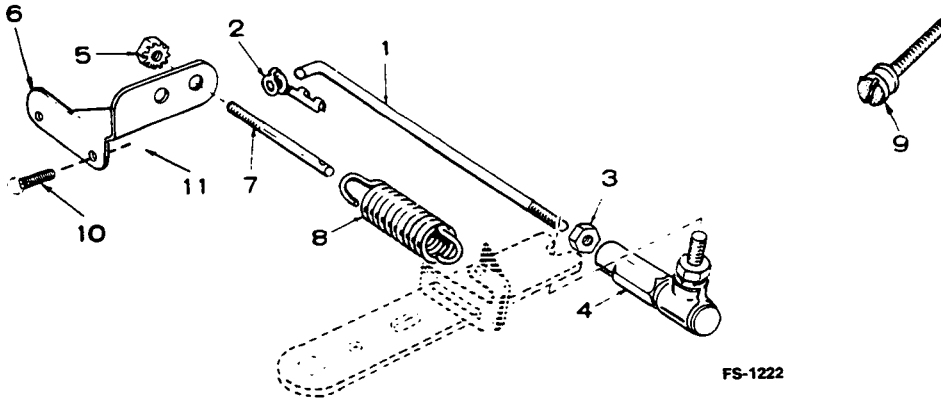
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	160-0257	1	Box Assembly, Breaker - Complete (Includes Parts Marked *)
1	160-0930	1	*Cover, Breaker Box
2	160-0150	1	*Gasket, Cover
3	160-0002	1	*Point Set
4	160-0428	1	*Strap, Point Set to Terminal
5	160-0349	1	*Terminal and Block Assembly
6	160-0075	1	*Cam Point Adjusting
7	802-0034	2	*Screw, Cap - Socket Head (1/4-20 x 3/4")
8	850-0040	2	*Washer, Lock - Spring (1/4")
9	160-0264	1	*Guide, Plunger
10	312-0069	1	*Condenser
11	850-0025	2	*Washer, Lock - Spring (#8)
12	812-0077	2	*Screw, Machine - Round Head (#8-32 x 3/8")
13	160-0265	1	*Plunger
14	518-0049	3	*Screw, Machine - Round Head W/ET Washer (#8-32 x 1/4")
15	160-0043 160-0836	1	Gasket, Breaker Box Mounting Ignition Tune-Up Kit (Includes Points and Condenser)



ES-1121

\* - Parts Included in 160-0257 Breaker Box Assembly.

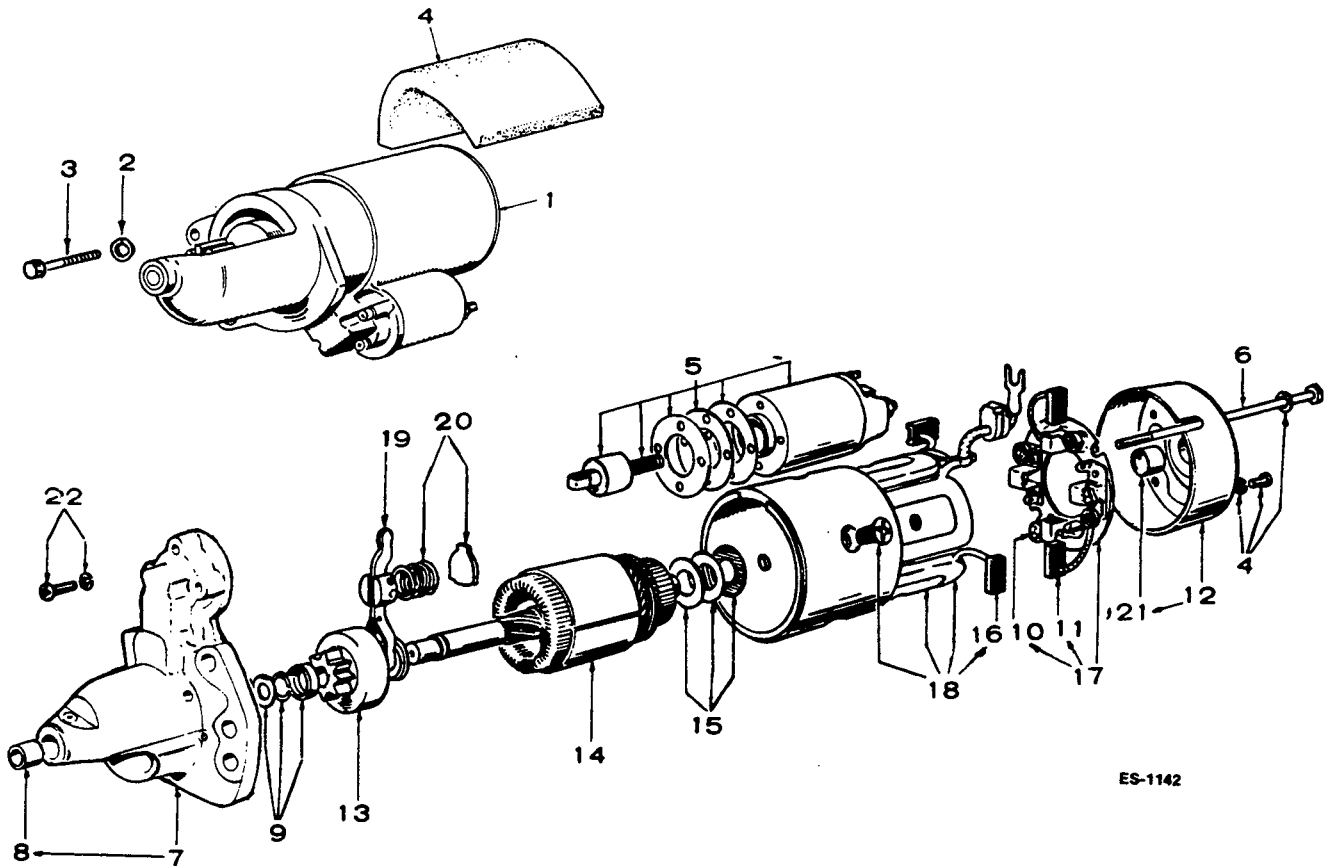
## GOVERNOR



FS-1222

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	150-0629	1	Rod, Control - Governor
2	518-0006	1	Clip, Link End
3	870-0053	1	Nut, Hex (#10-32)
4	150-0639	1	Joint, Ball
5	870-0131	2	Nut, Hex With ET Washer (#10-32)
6	150-0040	1	Bracket, Governor Speed Adjusting Stud
7	150-0096	1	Stud, Governor Speed Adjusting
8	150-0098	1	Spring, Governor Speed
9	150-0136	1	Screw, Governor Sensitivity - Spec A through D
10	815-0419	2	Screw, Machine - Hex Head Slotted (#8-32 x 1-1/4")
11	870-0221	2	Nut, Hex With ET (#8-32)

## STARTER - KEYS 2 AND 4 (BEGIN SPEC J)



ES-1142

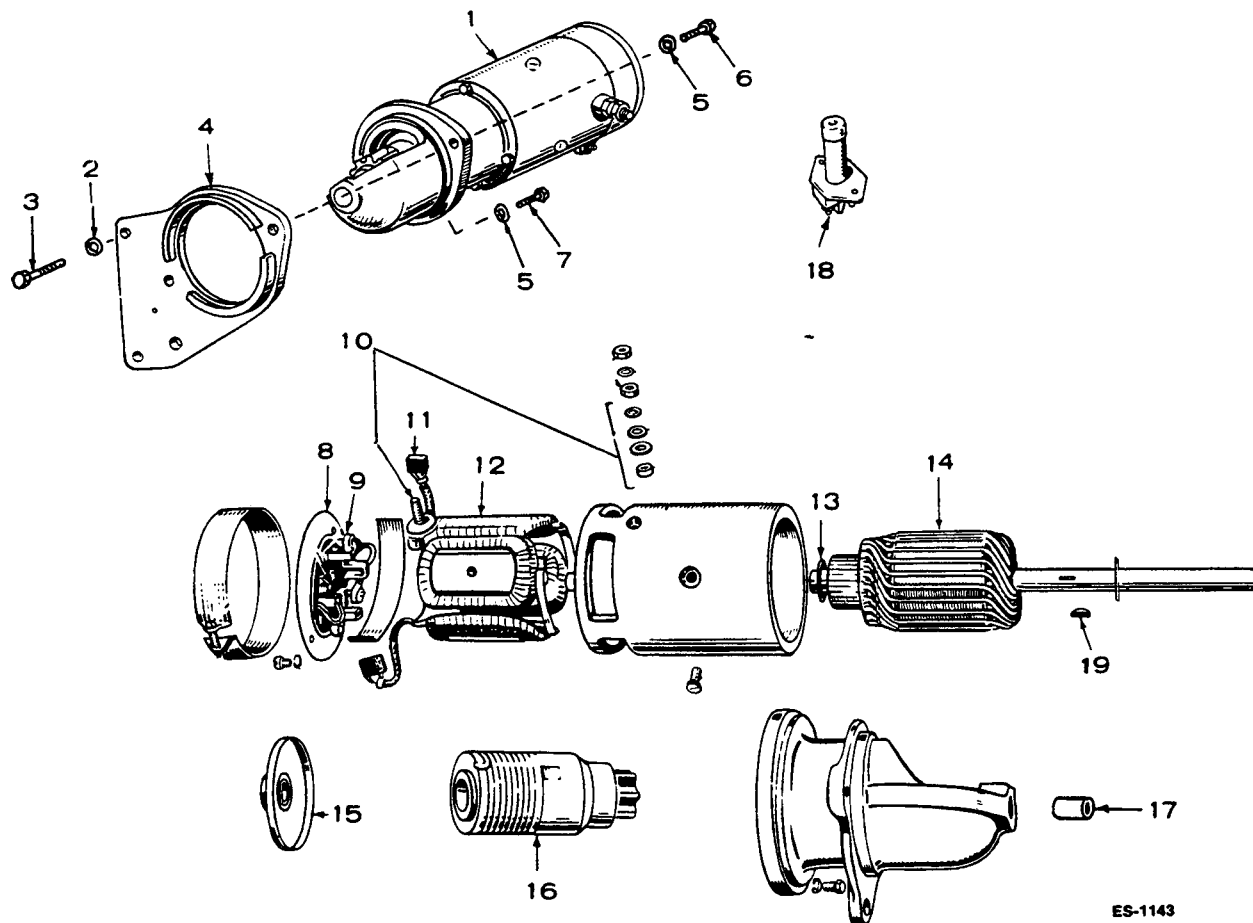
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	191-1052	1	Motor, Starter - 12 Volt Solenoid Shift (Includes Parts Marked *)
2	850-0050	2	Washer, Lock - Spring (3/8")
3	800-0050	2	Screw, Cap - Hex Head (3/8-16 x 1")
4	191-1076	1	Seal, Air
5	191-0987	1	*Switch Assembly
6	191-0988	2	*Bolt, Through
7	191-1086	1	*Bracket Assembly, Front (Includes Bearing)
8	191-0971	1	*Bearing, Front Bracket
9	191-0991	1	*Stopper Set, Pinion
10	191-1007	3	*Spring, Brush
11	191-1008	1	*Brush, Negative
12	191-1009	1	*Bracket Assembly, Rear (Includes Bearing)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
13	191-1087	1	*Clutch Assembly
14	191-1088	1	*Armature
15	191-0997	1	*Washer Set
16	191-1005	2	*Brush, Positive
17	191-1006	1	†*Holder Assembly, Brush (Includes Spring and Brush)
18	191-1089	1	*Yoke Assembly (Includes Frame, Pole Shoes, Field Coil and Positive Brushes)
19	191-0963	1	*Lever Assembly
20	191-0984	1	*Spring Set
21	191-1010	1	*Bearing, Rear Bracket Assembly
22	191-1011	1	*Screw Set

\* - Parts Included in 191-1052 Starter Motor.

† - Early brush holder was equipped with two (2) negative brushes and four (4) brush springs. Completely interchangeable with current brush holder. When replacing negative brushes on early models only one (1) required, however two (2) may be used.

## STARTER - KEYS 2 AND 4 (SPECS A THROUGH H)

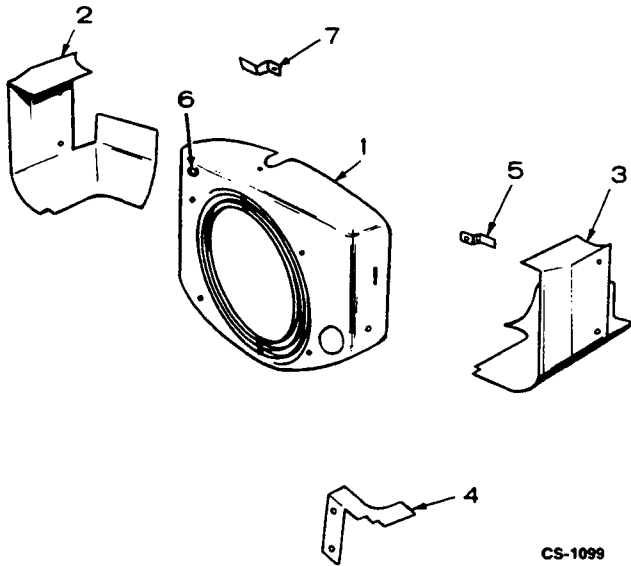


ES-1143

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	MOTOR, STARTER (12 VOLT) (INCLUDES PARTS MARKED *)			8	191-1018	1	*Head Assembly, Commutator End
	191-0511	1	Spec G and H	9	191-1020	1	*Spring, Brush (Set of 4)
	191-0150	1	Spec A Through F	10	191-1022	1	*Stud, Terminal (Package)
2	850-0050	3	Washer, Lock Spring (3/8")	11	191-0513	1	*Brush Set, Service
3	102-0455	3	Screw, Cap - Hex Head (3/8-16 x 1-1/4") (Special)	12	191-1017	1	*Coil Assembly, Package, Field
4	FLANGE, MOUNTING			13	191-1021	1	*Washer, Armature Thrust (Package)
	191-0508	1	Spec G and H	14	191-0517	1	*Armature
	191-0129	1	Spec A Through F	15	191-1019	1	*Bearing Assembly, Intermediate
5	850-0050	2	Washer, Lock - Spring (3/8")	16	191-0271	1	*Drive Assembly
6	800-0050	1	Screw, Cap - Hex Head (3/8-16 x 1")	17	191-0735	1	*Bearing, Drive End
7	800-0049	1	Screw, Cap - Hex Head (3/8-16 x 7/8")	18	308-0028	1	Switch, Start - Spec A Through F
				19	515-0094	1	*Key, Woodruff (#6)

\* - Included in 191-0511 and 191-0150 Starter Motors.

## AIR HOUSING



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	HOUSING, BLOWER		
	134-2830	1	Key 1 and 3 Begin Spec J
	134-1579	1	Specs G and H
	134-0569	1	Specs A through F
	134-2798	1	Key 2 and 4 Begin Spec J
	134-1574	1	Specs G and H
	134-0705	1	Specs A through F
	134-3907	1	Spec J - Sets with Pulse Pump
2	134-0589	1	Housing, Cylinder Air (Left)
3	HOUSING, CYLINDER AIR (Right)		
	134-2237	1	Sets with Spin-on Oil Filter
	134-0588	1	Key 1 and 3 Key 2 and 4
	134-2791	1	Begin Spec J
	134-0674	1	Specs A through H
4	134-0670	1	Baffle, Air - Key 2 and 4 - Specs A through H
5	134-0599	1	Clip, Cylinder Air Housing - Right Side - Specs A through H
6	508-0005	1	Grommet, Rubber - Use with Housing #134-3907 (7/16" ID x 3/4" OD)
7	134-2108	1	Clip, Cylinder Air Housing - Left Side - Specs A through H

## SERVICE KITS AND MISCELLANEOUS

PART NO.	QTY. USED	PART DESCRIPTION
----------	-----------	------------------

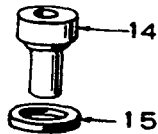
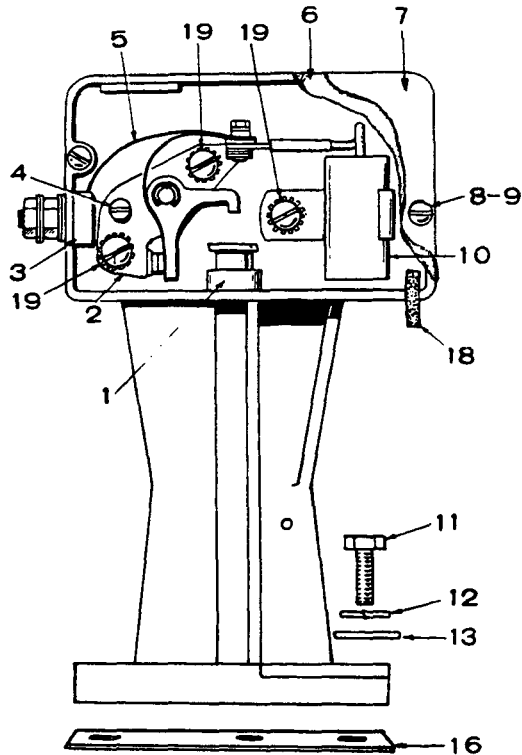
**NOTE:** For other kits, refer to the group for the part in question.

98-1100	1	Kit, Decal
168-0095	1	Kit, Gasket - Carbon Removal
168-0103	1	Kit, Gasket - Engine
PAINT, TOUCH-UP (Pressurized Can)		
525-0305	1	Non-Metallic Green (13 oz.)
525-0137	1	Metallic Green (13 oz.)
420-0169	1	Wrench, Carburetor Adjusting

## **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. Some parts listed in the standard engine parts section for parts keys 3 and 4 are also applicable as optional parts for parts keys 1 and 2. Optional parts listed in this section are in addition or in place of those shown in the standard engine parts section.**

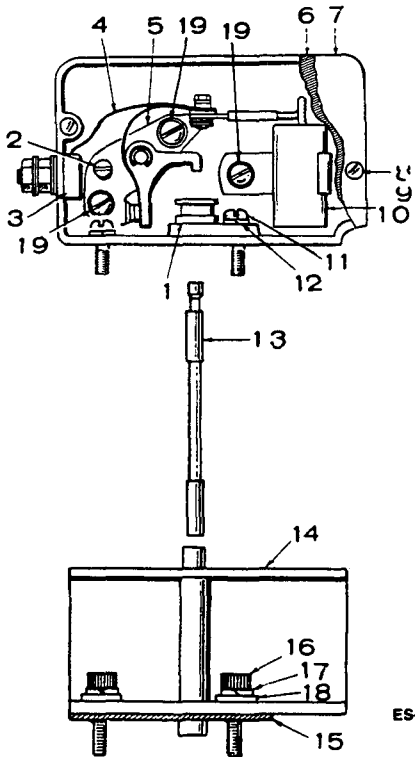
## OPTIONAL NUMBER 1 BREAKER BOX (HIGH PROFILE)



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	160-1135	1	Box Assembly. (Includes Parts Marked *)
1	160-0931	1	*Guide, Plunger
2	160-0002	1	*Point Set
3	160-0349	1	*Terminal and Block Assembly
4	160-0075	1	*Cam, Point Adjusting
5	160-0428	1	*Strap, Point Set to Terminal
6	160-0150	1	*Gasket, Cover
7	160-0930	1	*Cover, Breaker Box
8	850-0025	2	*Washer, Lock - Spring (#8)
9	812-0077	2	*Screw, Machine - Round Head (#8-32 x 3/8")
10	312-0069	1	*Condenser (.3 Mfd)
11	802-0035	2	*Screw, Socket Head (1/4-20 x 7/8")
12	850-0040	2	*Washer, Lock - Spring (1/4")
13	526-0214	2	*Washer, Flat (17/64" ID x 1/2" OD x 1/16" Thk)
14	BUSHING, GUIDE		
	160-1041	1	*Begin Spec J
	160-0929	1	Spec A through H
15	160-1040	1	*Gasket, Mounting - Begin Spec J
16	160-0043	1	Gasket, Spec A through H
17	160-0723	1	*Plunger, Breaker
18	160-0261	1	*Wick
19	815-0285	3	*Screw, Machine - Round Head W/ET Washer (#8-32 x 5/16")
	160-0836	1	Ignition Tune-Up Kit (Includes Points and Condenser)

\* - Parts Included in 160-1135 Breaker Box Assembly.

## OPTIONAL NUMBER 2 BREAKER BOX (1-3/4" SPACER)

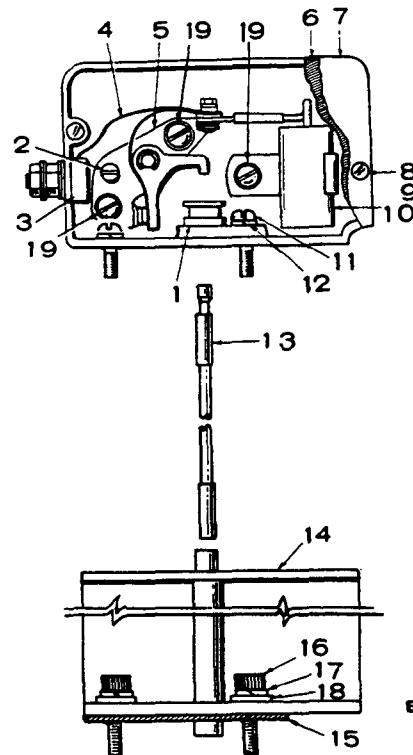


ES-1144

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	160-0258	1	Box and Spacer Assembly - Complete (For replacement order 160-1135 Breaker Box Assembly)
1	160-0267	1	Guide, Plunger
2	160-0075	1	Cam, Point Adjusting
3	160-0349	1	Terminal and Block Assembly
4	160-0428	1	Strap, Point Set to Terminal
5	160-0002	1	Point Set
6	160-0150	1	Gasket, Cover
7	160-0930	1	Cover
8	850-0025	2	Washer, Lock - Spring (#8)
9	812-0077	2	Screw, Machine - Round Head (#8-32 x 3/8")
10	312-0069	1	Condenser (.3 Mfd.)
11	813-0148	2	Screw, Machine - Round Head (1/4-28 x 1/2")
12	854-0014	2	Washer, Lock - IT (1/4")
13	160-0266	1	Plunger, Breaker Points
14	160-0246	1	Spacer, Breaker Box Mounting
15	160-0043	1	Gasket, Breaker Box and Spacer Mounting
16	802-0035	2	Screw, Cap - Socket Head (1/4-20 x 7/8")
17	850-0040	2	Washer, Lock - Spring (1/4")
18	526-0214	2	Washer, Flat (17/64" ID x 1/2" OD x 1/16" Thk)
19	518-0049	3	Screw, Machine - Round Head W/ET Washer (#8-32 x 1/4")
	160-0836	1	Ignition Tune-Up Kit (Includes Points and Condenser)

## OPTIONAL NUMBER 3 BREAKER BOX (4" SPACER)

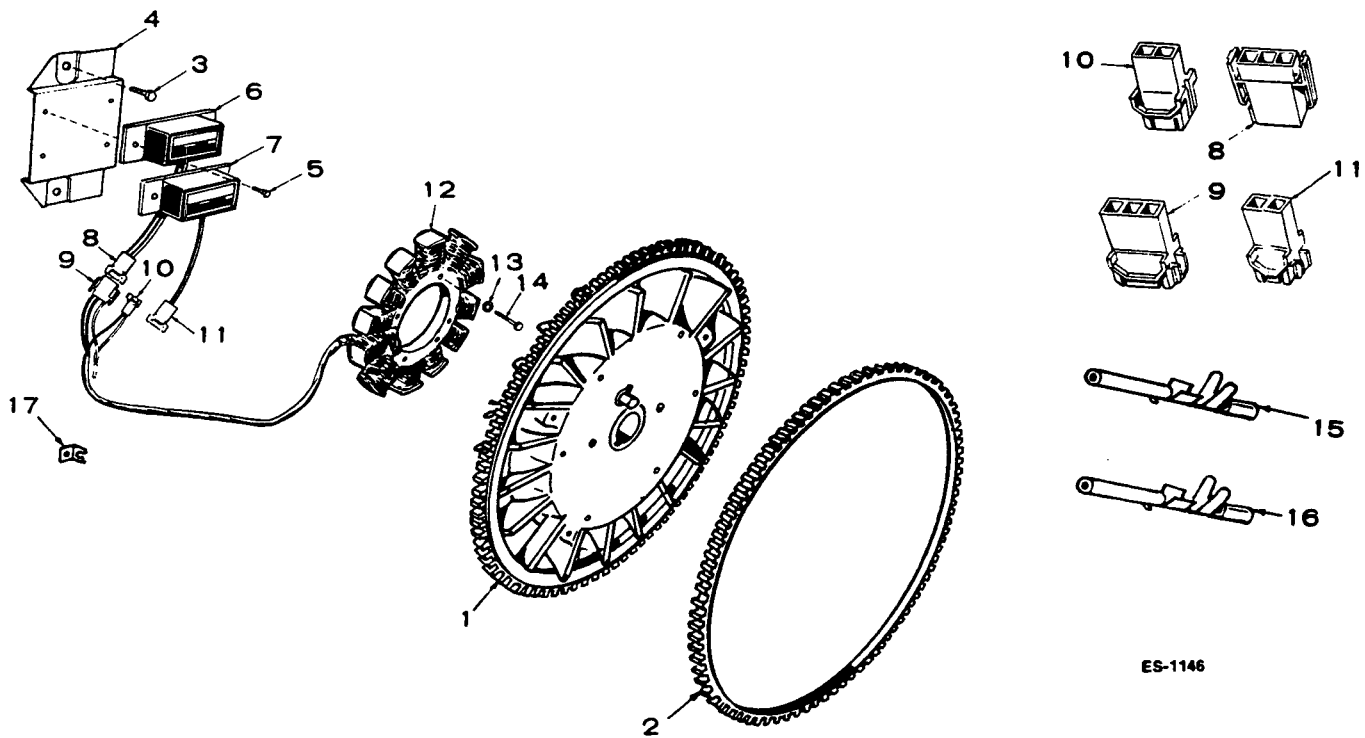
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	160-0642	1	Box and Spacer Assembly - Complete (For replacement order 160-1135 Breaker Box Assembly)
1	160-0267	1	Guide, Plunger
2	160-0075	1	Cam, Point Adjusting
3	160-0349	1	Terminal and Block Assembly
4	160-0428	1	Strap, Point Set to Terminal
5	160-0002	1	Point Set
6	160-0150	1	Gasket, Cover
7	160-0930	1	Cover
8	850-0025	2	Washer, Lock - Spring (#8)
9	812-0077	2	Screw, Machine - Round Head (#8-32 x 3/8")
10	312-0069	1	Condenser (.3 Mfd.)
11	813-0148	2	Screw, Machine - Round Head (1/4-28 x 1/2")
12	854-0014	2	Washer, Lock - IT (1/4")
13	160-0723	1	Plunger, Breaker Points
14	160-0633	1	Spacer, Breaker Box Mounting
15	160-0043	1	Gasket, Breaker Box and Spacer Mounting
16	802-0035	2	Screw, Cap - Socket Head (1/4-20 x 7/8")
17	850-0040	2	Washer, Lock - Spring (1/4")
18	526-0214	2	Washer, Flat (17/64" ID x 1/2" OD x 1/16" Thk)
19	518-0049	3	Screw, Machine - Round Head W/ET Washer (#6-32 x 1/4")
	160-0836	1	Ignition Tune-Up Kit (Includes Points and Condenser)



ES-1145



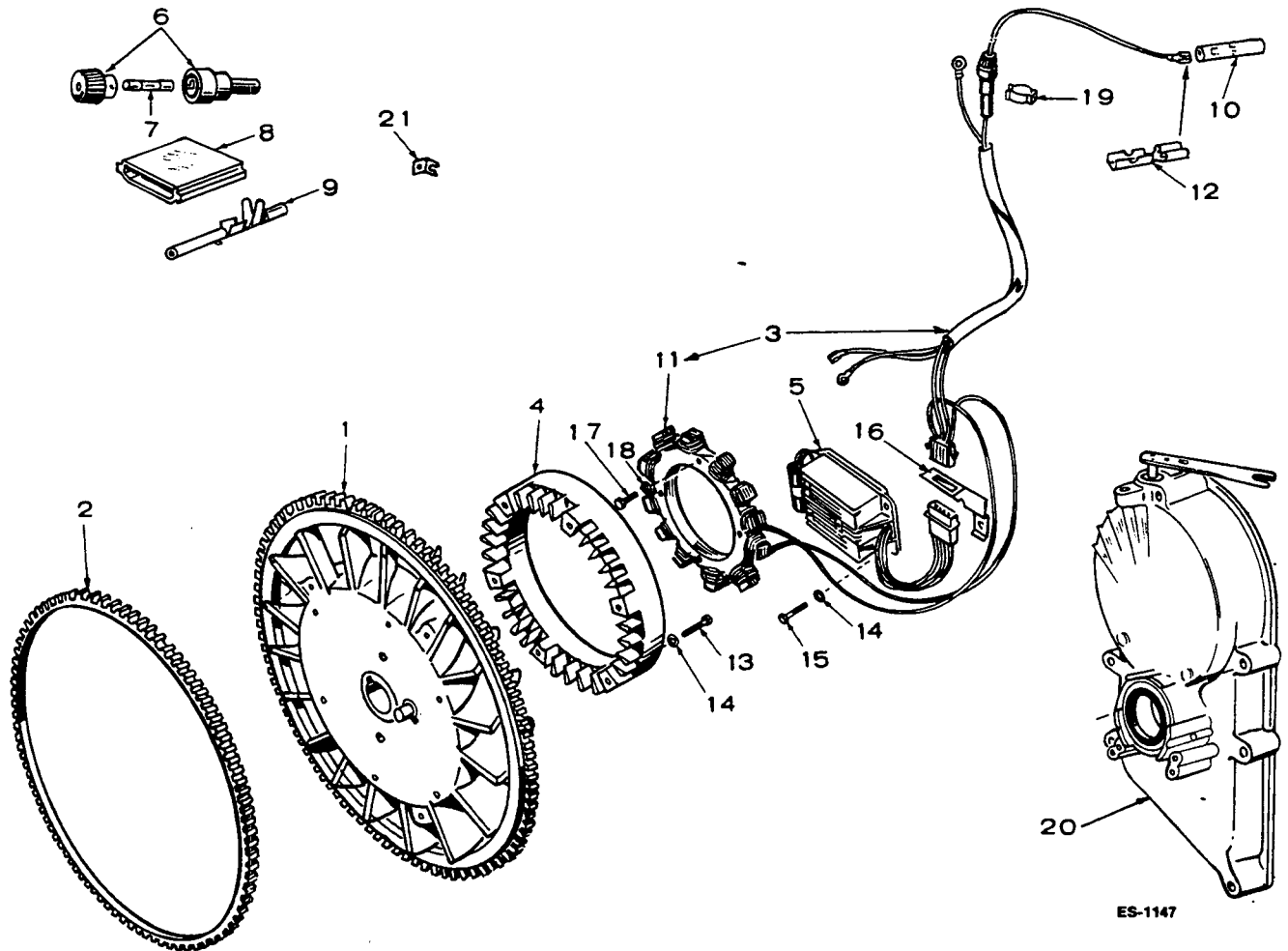
**OPTIONAL NUMBER 4**  
**ALTERNATOR, FLYWHEEL - 20 AMPERE (SYNCRO) - KEYS 2 AND 4 -**  
**BEGIN SPEC J**



ES-1146

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	134-2642	1	Flywheel (Includes Ring Gear)	11	323-0880	1	Plug, Connector (2 Female Contacts)
2	134-0673	1	Gear, Ring - Flywheel	12	191-0937	1	Stator, Alternator
3	821-0010	2	Screw, Cap - Hex Head Locking (1/4-20 x 1/2")	13	850-0030	3	Washer, Lock - Spring (#10)
4	191-1107	1	Bracket, Regulator and Rectifier Mounting	14	813-0108	3	Screw, Machine - Round Head Cross Recessed (#10-32 x 1-1/4")
5	815-0181	4	Screw, Cap - Hex Head W/ET Lockwasher (#10-32 x 5/16")	15	323-0488	5	Contact, Connecting - Female
6	191-0938	1	Rectifier, Current	16	323-0496	5	Contact, Connecting - Male
7	191-0939	1	Regulator, Voltage	17	167-0188	2	Clip, Stator Leads
8	323-0882	1	Plug, Connector (3 Female Contacts)				
9	323-0881	1	Cap, Connector (3 Male Contacts)				
10	323-0879	1	Cap, Connector (2 Male Contacts)				

## OPTIONAL NUMBER 5 ALTERNATOR, FLYWHEEL (WICO) - KEYS 2 AND 4 (SPECS A THROUGH H)

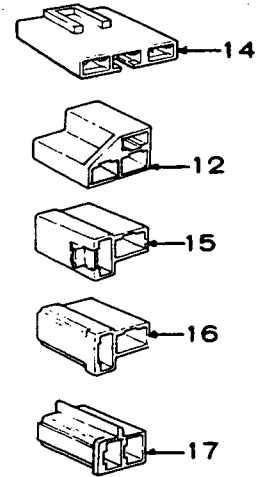
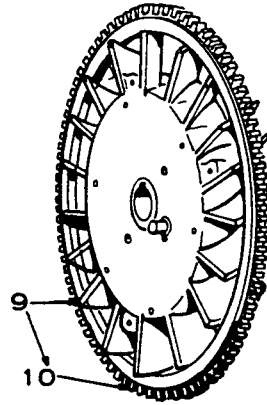
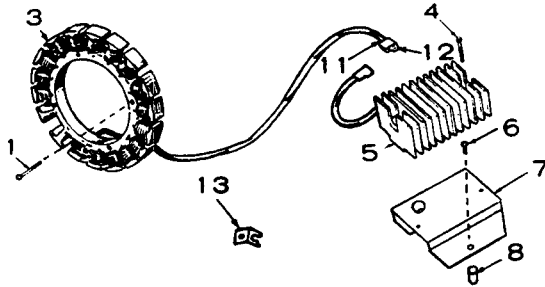


ES-1147

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	134-1895	1	Flywheel (Includes Ring Gear)	11	191-0724	1	*Stator Only
2	134-0673	1	Gear, Ring - Flywheel	12	332-0529	1	*Terminal, Faston - Male
3	191-0740	1	Stator Assembly - Includes Parts Marked *)	13	812-0156	6	Screw, Machine - Round Head (1/4-20 x 1-1/2")
4	191-0400	1	Rotor	14	850-0040	9	Washer, Lock - Spring (1/4")
5	305-0478	1	Regulator - Rectifier Assembly	15	800-0006	3	Screw, Cap - Hex Head (1/4-20 x 7/8")
6	321-0165	1	*Holder Assembly, Fuse	16	332-1358	1	Bracket, Connector Mounting
7	321-0162	1	*Fuse - 30 Amp.	17	813-0108	3	Screw, Machine - Round Head (#10-32 x 1/2")
8	323-0759	1	*Connector, Socket Housing	18	850-0030	3	Washer, Lock - Spring (#10)
9	323-0488	4	*Socket, Connector	19	321-0169	1	Clip, Fuse Holder
10	332-0556	1	*Connector, Faston	20	103-0332	1	Case Assembly, Gear - Drilled and Tapped for Stator (See standard gear case group for components)
				21	167-0188	1	Clip, Stator Leads

\* - Parts Included in 191-0740 Stator Assembly.

**OPTIONAL NUMBER 6  
ALTERNATOR, FLYWHEEL - 15 AMPERE (PHELON) - KEYS 2 AND 4 -  
BEGIN SPEC J**



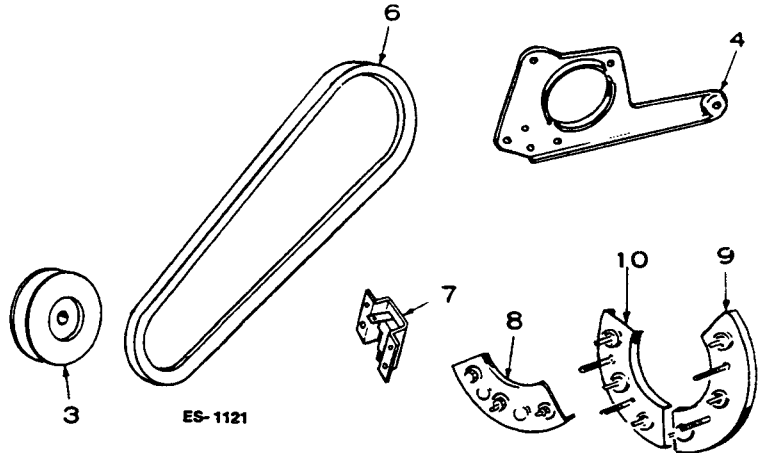
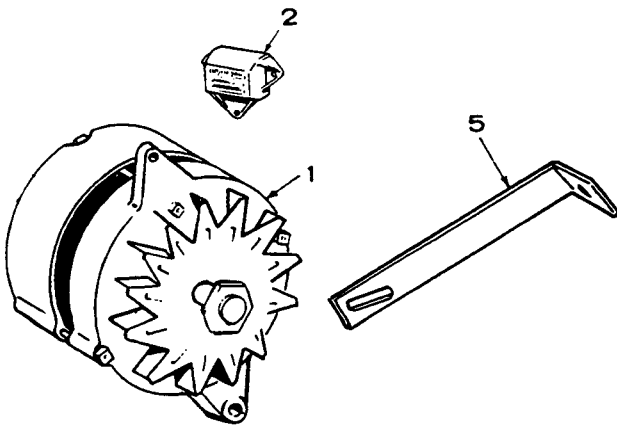
ES-1148

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	815-0593	3	Screw, Machine - Hex Head (#10-32 x 1-3/8")
3	191-1256	1	Stator Assembly, Alternator (Includes Parts Marked *)
	191-1254	1	*Stator, Alternator
4	821-0018	2	Screw, Cap - Hex Head - Self Locking (1/4-20 x 5/8")
5	191-0886	1	Regulator, Voltage
6	821-0012	2	Screw, Cap - Hex Head - Self Locking (1/4-20 x 1-1/8")
7	191-1107	1	Bracket, Regulator Mounting
8	134-2100	2	Spacer, Regulator Mounting
9	FLYWHEEL (Includes Ring Gear)		
	134-2621	1	Engines With Rope Sheave or Machined PTO
	134-3019	1	Engines Without Rope Sheave

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
10	134-0673	1	Gear, Ring - Flywheel
11	332-2073	3	*Terminal, Wire - Stator Leads
12	323-0853	1	*Body, Terminal Connector
13	167-0188	2	Clip, Stator Leads
14	323-1075	1	*Body, Terminal Connector - Optional
15	323-1085	1	*Body, Terminal Connector - Optional
16	323-0892	1	*Body, Terminal Connector - Optional
17	323-0890	1	*Body, Terminal Connector - Optional

\* - Parts Included in 191-1256 Alternator Stator Assembly.

**OPTIONAL NUMBER 7  
ALTERNATOR (AUTOMOTIVE TYPE - RIGHT SIDE MOUNTED)**



ES-1121

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	191-1232	1	*Alternator Assembly (Includes Parts Marked †) (35 Ampere, 12 Volt) Motorola #12N37-1
	191-1233	1	† Alternator, 35 Ampere
2	191-1243	1	† Regulator, Voltage
3	191-0623	1	† Pulley, Alternator
4	191-0575	1	Bracket, Alternator and Starter Mounting
5	191-0576	1	Bracket, Alternator Adjusting
6	511-0076	1	Belt, Drive
7	191-0659	1	Brush and Holder (Part of 191-1233 Alternator)

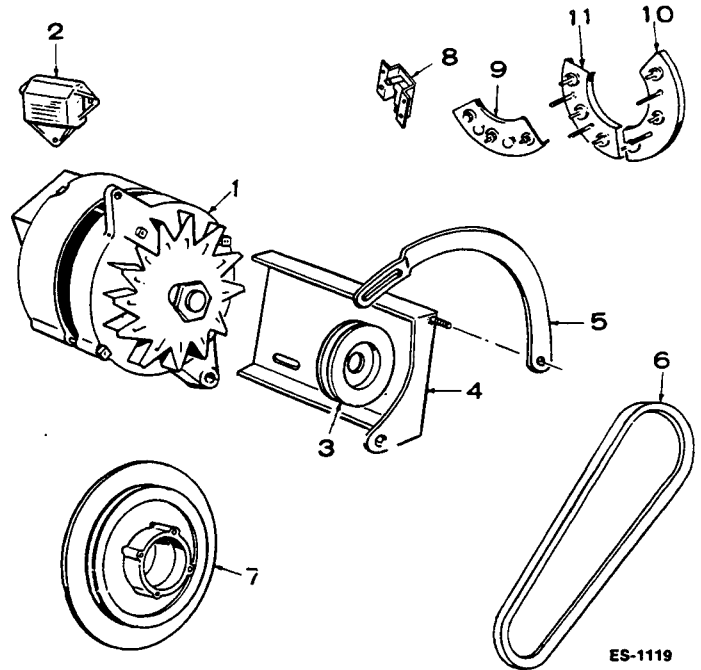
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
8	191-0671	1	Diode Assembly, Isolation (Part of 191-1233 Alternator)
9	191-0662	1	Diode Assembly, Rectifier - Negative (Part of 191-1233 Alternator)
10	191-0661	1	Diode Assembly, Rectifier - Positive (Part of 191-1233 Alternator)

\* - For components not listed, check alternator nameplate and contact your nearest Motorola dealer.

† - Parts Included in 191-1232 Alternator Assembly.

## OPTIONAL NUMBER 8 ALTERNATOR (AUTOMOTIVE TYPE - LEFT SIDE MOUNTED)

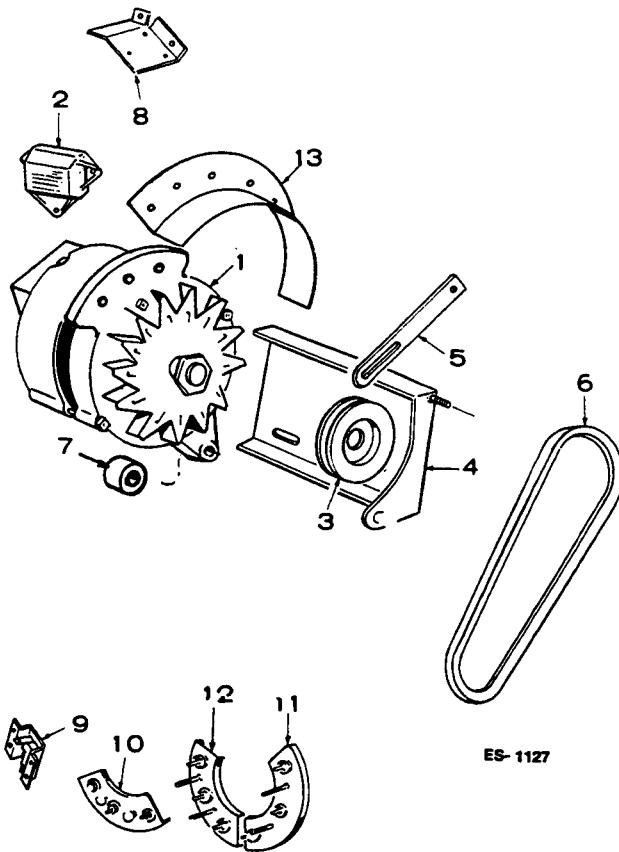
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	191-1232	1	*Alternator Assembly (35 Ampere, 12 Volt) Motorola #12N37-1 (Includes Parts Marked †)
	191-1233	1	†Alternator, 35 Ampere
2	191-1243	1	†*Regulator, Voltage
3	191-0623	1	†Pulley, Alternator
4	BRACKET, ALTERNATOR MOUNTING		
	191-0537	1	Pressure Cooled Engine
	191-0539	1	Vacu-Flo Cooled Engine
5	191-0535	1	Bracket, Alternator Adjusting
6	511-0051	1	Belt, Drive
7	191-0134	1	Pulley, Drive - Vacu-Flo Cooled Engine
8	191-0659	1	Brush and Holder Assembly (Part of 191-1233 Alternator)
9	191-0671	1	Diode Assembly, Isolation (Part of 191-1233 Alternator)
10	191-0662	1	Diode Assembly, Rectifier - Negative (Part of 191-1233 Alternator)
11	191-0661	1	Diode Assembly, Rectifier - Positive (Part of 191-1233 Alternator)



\* - For components not listed, check alternator nameplate and contact your nearest Motorola dealer.

† - Parts Included in 191-1232 Alternator Assembly.

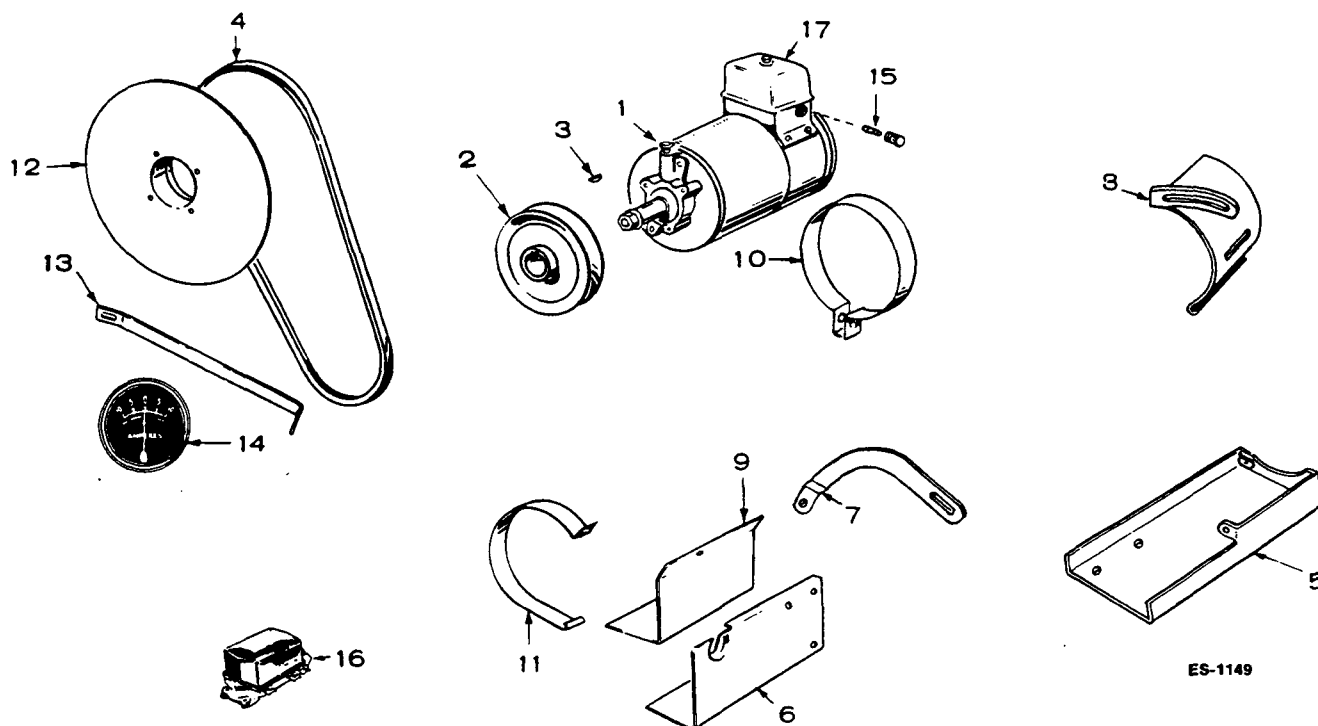
## OPTIONAL NUMBER 9 ALTERNATOR (AUTOMOTIVE TYPE - TOP MOUNTED)



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	191-0543	1	*Alternator (35 Ampere, 12 Volt) - Motorola #A12N-451
2	191-0642	1	*Regulator, Voltage
3	191-0623	1	Pulley, Alternator
4	191-0636	1	Bracket, Alternator Mounting
5	BRACKET, ALTERNATOR ADJUSTING		
	191-1168	1	Pressure Cooled Engines - Begin Serial Number 992673 During Spec J
	191-0637	1	Pressure Cooled Engines - Spec A through Serial Number 992673 During Spec J
	191-0637	1	Vacu-Flo Cooled Engines
6	BELT, DRIVE		
	511-0090	1	Pressure Cooled Engines - Begin Serial Number 992673 During Spec J
	511-0067	1	Pressure Cooled Engines - Spec A through Serial Number 992673 During Spec J
	511-0067	1	Vacu-Flo Cooled Engines
7	191-0640	1	Spacer, Alternator Bracket
8	191-0638	1	Bracket, Regulator Mounting
9	191-0659	1	Brush and Holder Assembly (Part of 191-0543 Alternator)
10	191-0663	1	Diode Assembly, Isolation (Part of 191-0543 Alternator)
11	191-0662	1	Diode Assembly, Rectifier - Negative (Part of 191-0543 Alternator)
12	191-0661	1	Diode Assembly, Rectifier - Positive (Part of 191-0543 Alternator)
13	191-0725	1	Guard, Belt

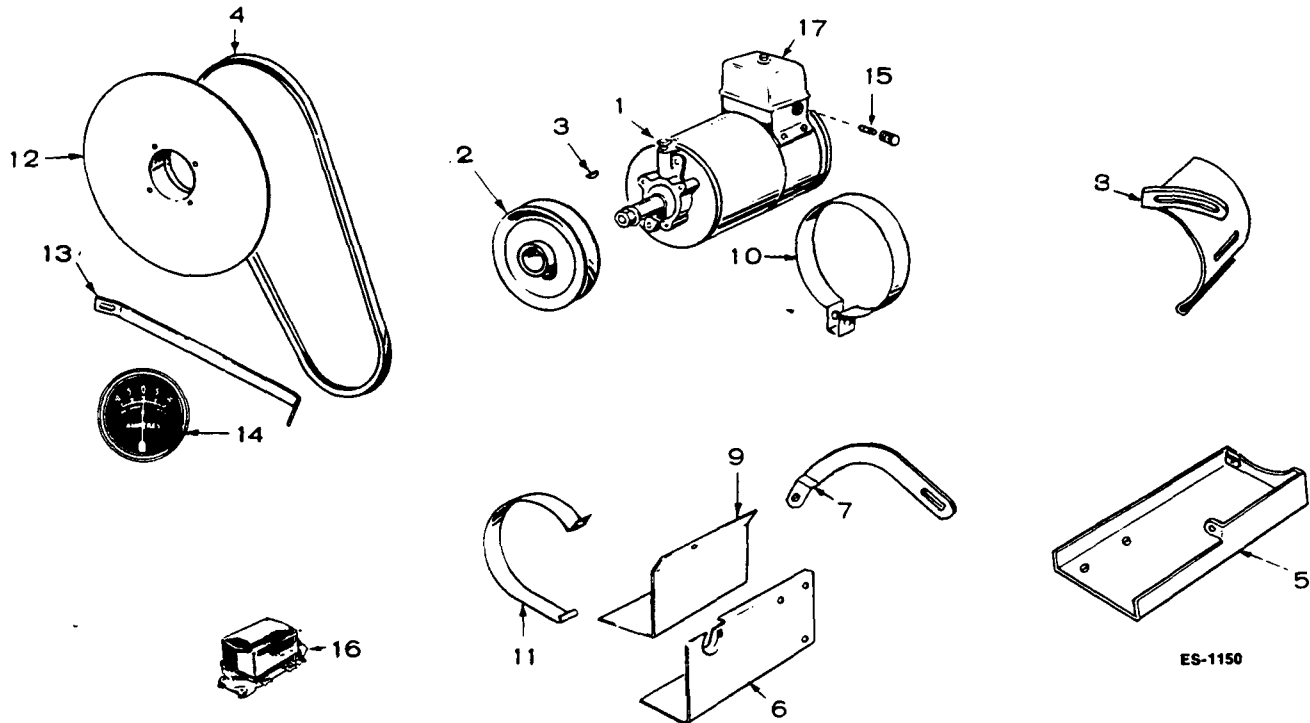
\* - For Components not listed, check alternator nameplate and contact your nearest Motorola dealer.

## OPTIONAL NUMBER 10 GENERATOR (AUTOMOTIVE TYPE - 6 VOLT)



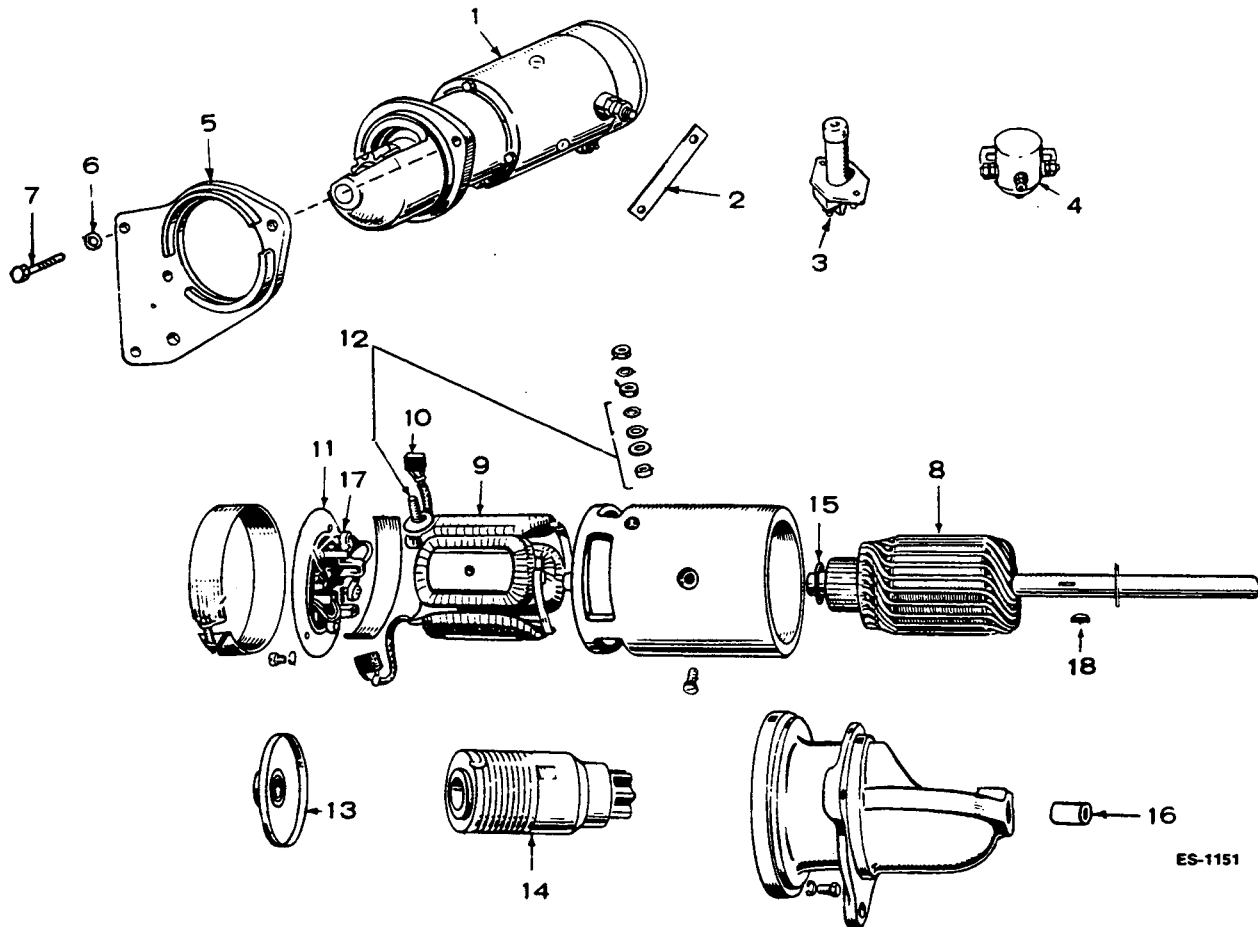
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	GENERATOR, 6 VOLT 191-0308	1	†Begin Spec F (Includes Pulley, Excludes Regulator) - Delco Remy # 1100055	10	191-0242	1	Band, Generator Mounting - Spec E
	191-0199	1	*Specs A through E (Includes Regulator, Excludes Pulley) - Prestolite # GAS-4175	11	191-0157	1	Band, Generator Mounting - Spec A through D
2	191-0162	1	Pulley, Generator - Specs A through E	12	191-0134	1	Pulley, Generator Drive - Vacu-Flo Cooled Engine
3	515-0105	1	Key, Pulley - Specs A through E	13	BRACE, GENERATOR MOUNTING BRACKET - VACU-FLO COOLED ENGINE		
4	511-0051	1	Belt, Drive	191-0305	1	Begin Spec F	
5	BRACKET, GENERATOR MOUNTING			191-0158	1	Specs A through D	
	191-0279	1	Pressure Cooled Engine	14	302-1361	1	Ammeter, Specs A through E (Includes Mounting Clamp)
	191-0304	1	Vacu-Flo Cooled Engine	15	321-0094	1	Fuse (5 Ampere) - Spec A through E
	191-0240	1	Pressure Cooled Engine	16	191-0309	1	†Regulator, Voltage - Begin Spec F
	191-0241	1	Vacu-Flo Cooled Engine	17	191-0382	1	*Regulator, Voltage - Specs A through E
6	BRACKET, GENERATOR MOUNTING - SPECS A THROUGH D						
	191-0155	1	Pressure Cooled Engine				† - For components check nameplate and contact your nearest Delco-Remy dealer.
	191-0172	1	Vacu-Flo Cooled Engine				* - For components check nameplate and contact your nearest Prestolite dealer.
7	191-0280	1	Bracket, Adjusting - Begin Spec F				
8	191-0239	1	Bracket, Adjusting - Spec E				
9	191-0156	1	Bracket, Adjusting - Specs A through D				

## OPTIONAL NUMBER 11 GENERATOR (AUTOMOTIVE TYPE - 12 VOLT)



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	GENERATOR, 12 VOLT 191-0813	1	†Begin Spec F (Excludes Pulley, Excludes Regulator)- Delco Remy #1100337	8	191-0239	1	Bracket, Adjusting - Spec E
	191-0159	1	*Specs A through E (Includes Regulator, Excludes Pulley) - Prestolite #GDY-4107	9	191-0156	1	Bracket, Adjusting - Specs A through D
2	PULLEY, GENERATOR 191-0229	1	Begin Spec F (No Longer Available, customer use off old Generator Assembly)	10	191-0242	1	Band, Generator Mounting - Spec E
	191-0164	1	Specs A through E	11	191-0157	1	Band, Generator Mounting - Spec A through D
3	515-0105	1	Key, Pulley - Specs A through E	12	191-0134	1	Pulley, Generator Drive - Vacu-Flo Cooled Engine
4	511-0051	1	Belt, Drive	13	BRACE, GENERATOR MOUNTING BRACKET - VACU-FLO COOLED ENGINE		
5	BRACKET, GENERATOR MOUNTING		Begin Spec F		191-0305	1	Begin Spec F
	191-0279	1	Pressure Cooled Engine		191-0158	1	Specs A through D
	191-0304	1	Vacu-Flo Cooled Engine	14	302-1360	1	Ammeter, Specs A through E (10 Ampere) - (Includes Mounting Clamp)
	191-0240	1	Pressure Cooled Engine	15	321-0094	1	Fuse (5 Ampere) - Spec A through E
	191-0241	1	Vacu-Flo Cooled Engine	16	191-0386	1	†Regulator, Voltage - Begin Spec F
6	BRACKET, GENERATOR MOUNTING - SPECS A THROUGH D		† - For components check nameplate and contact your nearest Delco-Remy dealer.	17	191-0278	1	*Regulator, Voltage - Specs A through E
	191-0155	1	Pressure Cooled Engine				* - For components check nameplate and contact your nearest Prestolite dealer.
	191-0172	1	Vacu-Flo Cooled Engine				
7	191-0280	1	Bracket, Adjusting - Begin Spec F				

**OPTIONAL NUMBER 12  
STARTER (GEAR ENGAGING - 6 VOLT) - KEYS 2 AND 4 -  
SPECS A THROUGH H**

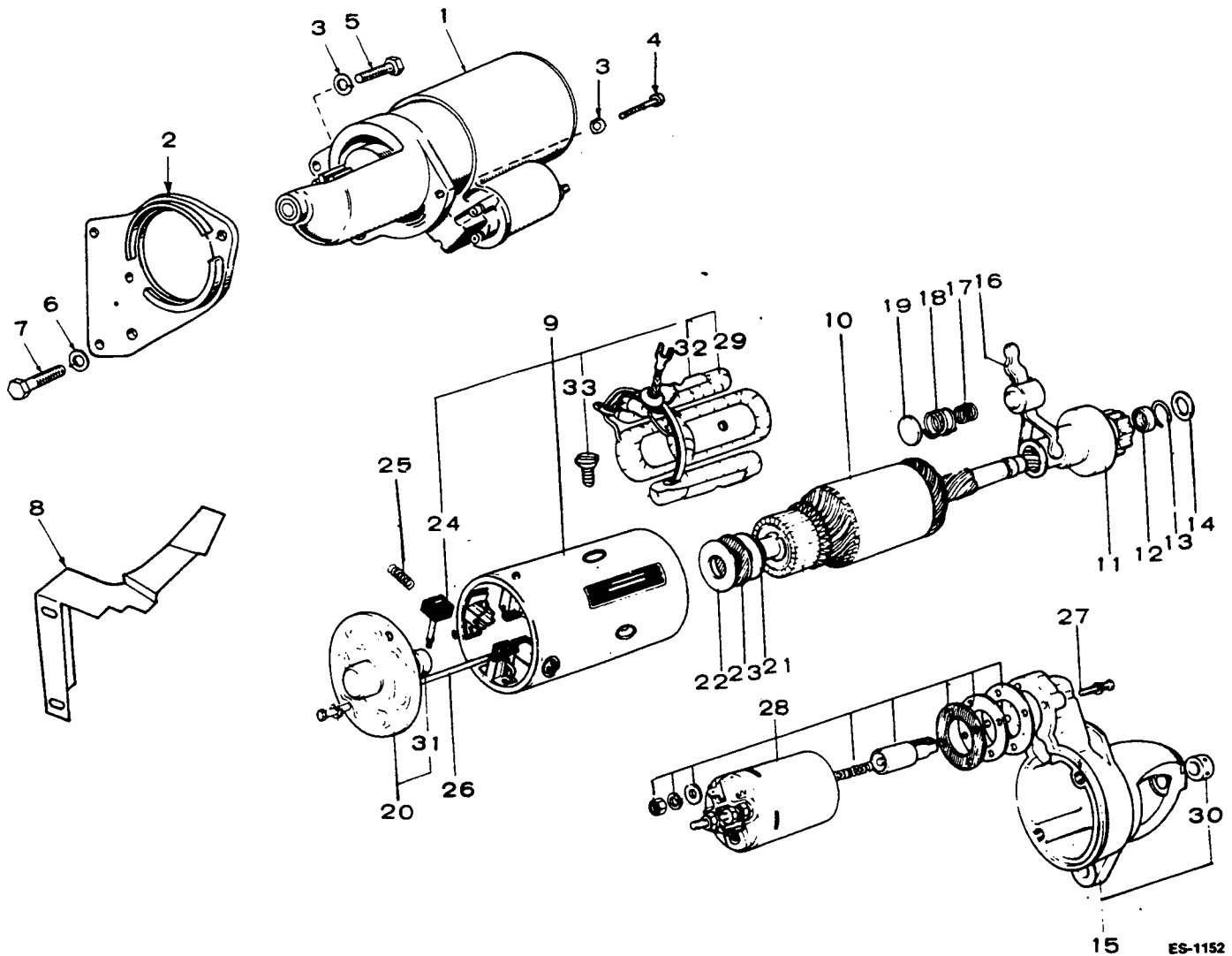


ES-1151

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	MOTOR, STARTER (INCLUDES PARTS MARKED *)			10	(P) 17-33	1	*Brush Set
	191-0526	1	Specs G and H	11	(P) 19-28	1	*Head Assembly, Commutator End
	191-0198	1	Spec A through F	12	191-1022	1	*Stud, Terminal (Package)
2	332-0570	1	Jumper, Starter Motor to Switch	13	191-1019	1	*Bearing Assembly, Intermediate
3	308-0028	1	Switch, Start	14	191-0271	1	*Drive Assembly
4	307-1046	1	Solenoid, Start	15	191-1021	1	*Washer, Armature Thrust (Package)
5	FLANGE, STARTER MOTOR MOUNTING			16	191-0735	1	*Bearing, Drive End
	191-0508	1	Specs G and H	17	191-1020	1	*Spring, Brush (Set of 4)
	191-0129	1	Specs A through F	18	515-0094	1	*Key, Woodruff (#6)
6	850-0050	3	Washer, Lock - Spring (3/8")				
7	102-0455	3	Screw, Cap - Hex Head (Special)				
8	(P) 16-47	1	*Armature				
9	(P) 20-42	1	*Coil Assembly, Field				

\* - Included in 191-0526 and 191-0198 Starter Motors.  
**NOTE:** Order Prestolite Parts (P) from your nearest Prestolite Dealer, giving part number, full description and Starter Motor number.

**OPTIONAL NUMBER 13  
STARTER (SOLENOID SHIFT - 12 VOLT) - KEYS 2 AND 4 -  
SPECS A THROUGH H**



15 ES-1152

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	191-0790	1	Motor, Starter (Includes Parts Marked *)
2	191-0508	1	Flange, Starter Motor
3	850-0050	2	Washer, Lock - Spring (3/8")
4	800-0049	1	Screw, Cap - Hex Head (3/8-16 x 7/8")
5	800-0050	1	Screw, Cap - Hex Head (3/8-16 x 1")
6	850-0050	2	Washer, Lock - Spring (3/8")
7	102-0455	2	Screw, Cap - Hex Head (Special)
8	134-2131	1	Baffle, Air
9	191-0806	1	*Yoke Assembly (Frame) - Includes Parts Marked Δ
10	191-0743	1	*Armature
11	191-0744	1	*Clutch
12	191-0745	1	*Stop, Pinion
13	191-0746	1	*Ring
14	191-0806	1	*Washer, Plain

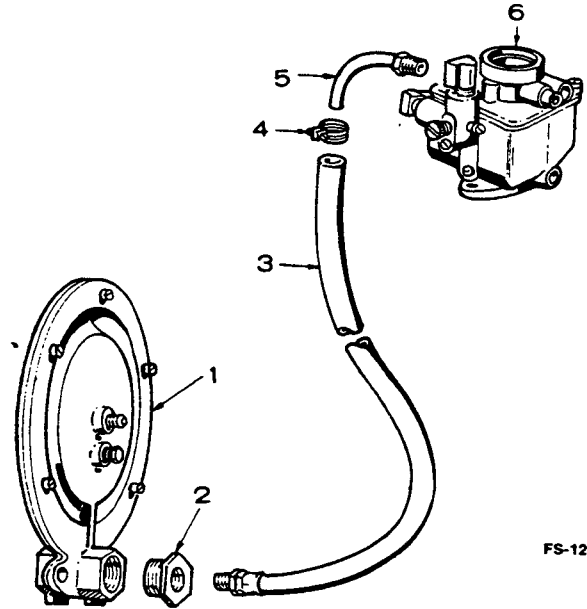
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
15	191-0808	1	£*Bracket Assembly, Front
16	191-0749	1	*Lever Assembly
17	191-0750	1	*Spring, Lever
18	191-0751	1	*Spring, Lever
19	191-0752	1	*Holder, Spring
20	191-0809	1	£*Bracket Assembly, Rear
21	191-0754	1	*Washer, Plain
22	191-0755	1	*Washer, Plain
23	191-0756	1	*Washer, Insulation
24	191-0757	4	Δ*Brush
25	191-0758	1	*Spring, Brush
26	191-0759	2	*Bolt, Through
27	191-0760	3	*Screw, Machine
28	191-0761	1	*Switch Assembly, Solenoid
29	191-0762	1	*ΔCoil Assembly, Field
30	191-0763	1	*Bearing, Front
31	191-0764	1	*Bearing, Rear
32	191-0765	4	*ΔPole Shoe
33	191-0766	4	*ΔScrew

\* - Included in 191-0790 Starter Motor.  
 Δ - Included in 191-0806 Yoke Assembly.  
 £ - No Longer Available - Replace with 191-0790 Starter.



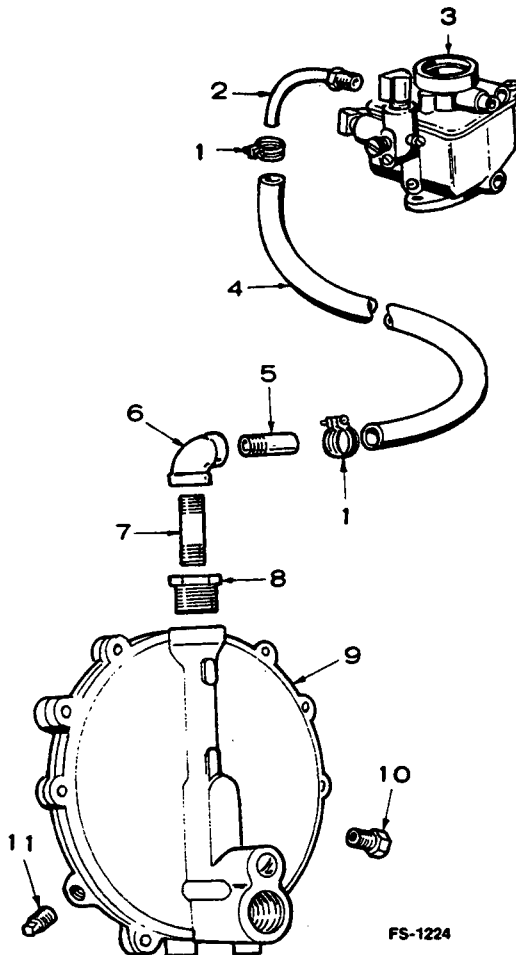
## OPTIONAL NUMBER 14 FUEL SYSTEM (GAS-GASOLINE - ENSIGN REGULATOR)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	148-0428	1	Regulator, Gas Pressure
2	505-0021	1	Bushing, Regulator Outlet
3	501-0025	1	Line, Fuel - Regulator to Carburetor
4	503-0027	1	Clamp, Hose
5	148-0147	1	Pipe, Carburetor Inlet
6	CARBURETOR (Gas-Gasoline) (Includes Mounting Gasket See Separate Group For Components)		
	142-0367	1	Key 1 and 2
	142-0436	1	Key 3 and 4
	KIT, REPAIR - REGULATOR		
	148-0300	1	For Ensign Model F
	148-0522	1	For Ensign Model F1



FS-1223

## OPTIONAL NUMBER 15 FUEL SYSTEM (GAS-GASOLINE - GARRETSON REGULATOR)

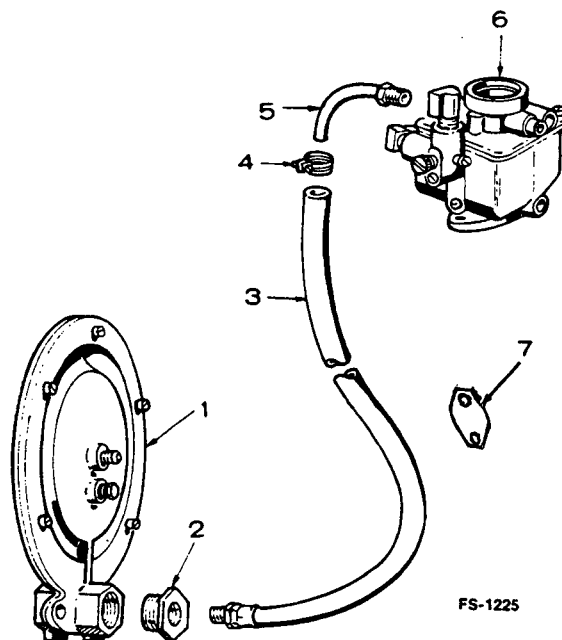


FS-1224

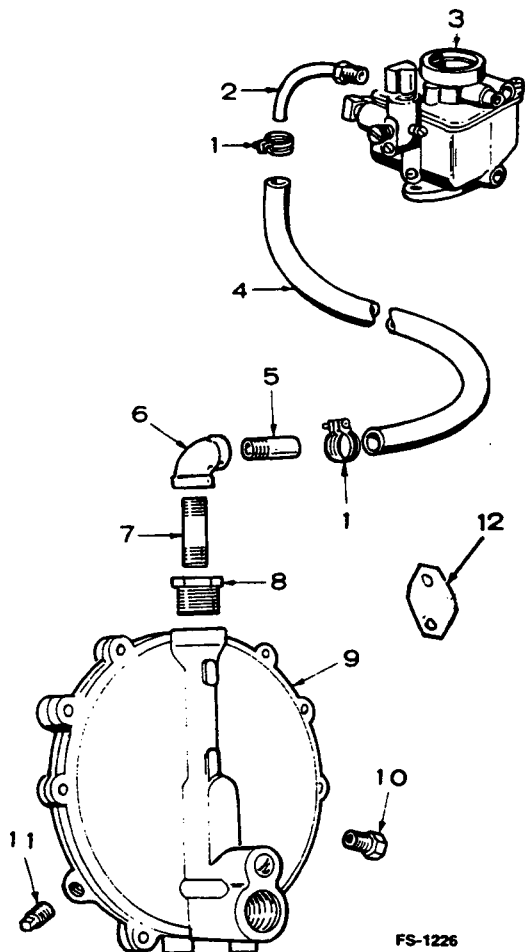
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	503-0032	2	Clamp, Hose
2	148-0147	1	Pipe, Fuel - Carburetor Inlet
3	CARBURETOR (GAS-GASOLINE) (Includes Mounting Gasket See Separate Group For Components)		
	142-0367	1	Key 1 and 2
	142-0436	1	Key 3 and 4
4	503-0315	1	Hose, Fuel (1/2" ID x 2 Ft)
5	505-0302	1	Nipple, Half
6	505-0038	1	Elbow, Pipe
7	505-0099	1	Nipple, Pipe
8	505-0017	1	Bushing, Regulator Outlet
9	148-0311	1	Regulator, Gas Pressure
10	148-0107	1	Vent, Regulator
11	505-0057	1	Plug, Regulator
	148-0390	1	Kit, Repair - Garretson Regulator

## OPTIONAL NUMBER 16 FUEL SYSTEM (GAS - ENSIGN REGULATOR)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	148-0428	1	Regulator, Gas Pressure
2	505-0021	1	Bushing, Regulator Outlet
3	501-0025	1	Line, Fuel - Regulator to Carburetor
4	503-0027	1	Clamp, Hose
5	148-0147	1	Pipe, Carburetor Inlet
6	CARBURETOR (GAS ONLY) (Includes Mounting Gasket) (See Separate Group For Components)		
	142-0372	1	Keys 1 and 2
	142-0472	1	Keys 3 and 4
	KIT, REPAIR - REGULATOR		
	148-0300	1	For Ensign Model F
	148-0522	1	For Ensign Model F1
7	149-0136	1	Plate, Fuel Pump Hole Cover



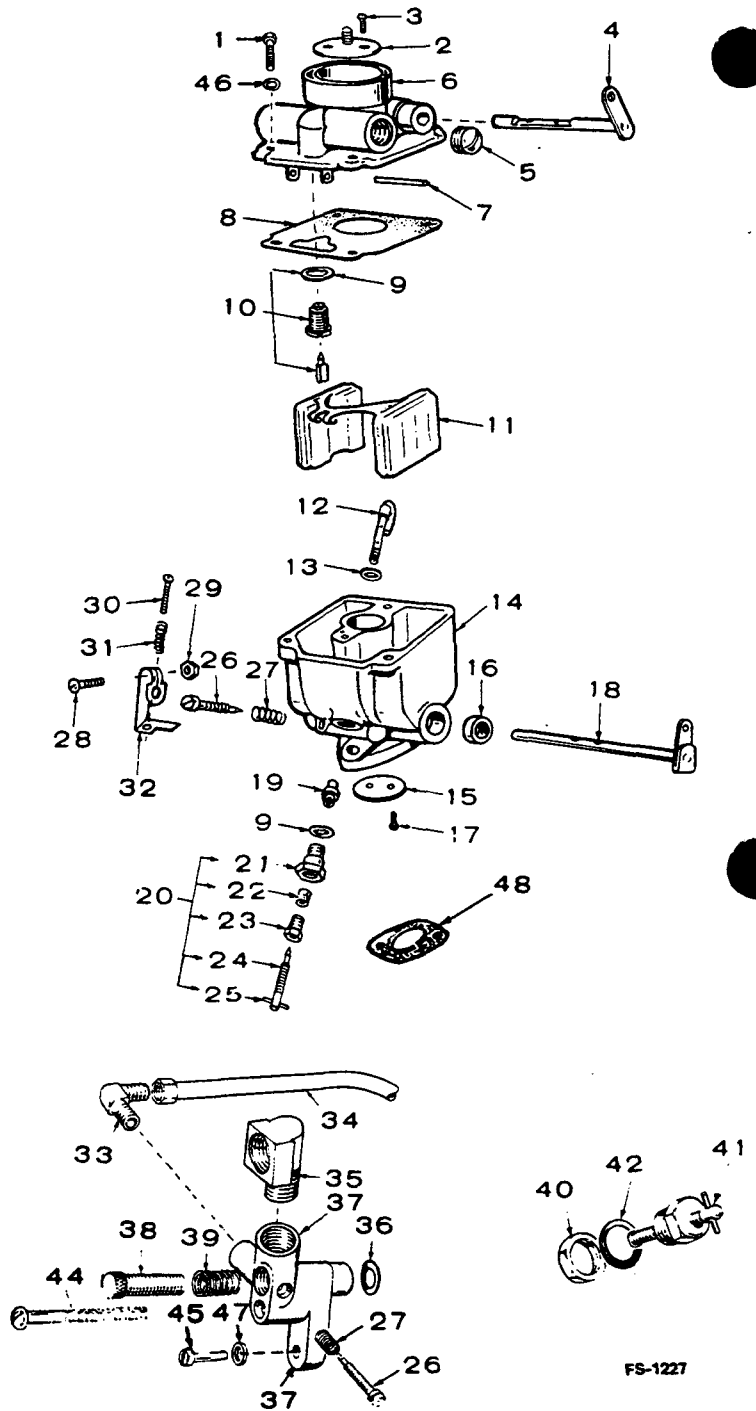
## OPTIONAL NUMBER 17 FUEL SYSTEM (GAS - GARRETSON REGULATOR)



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	503-0032	2	Clamp, Hose
2	148-0147	1	Pipe, Fuel - Carburetor Inlet
3	CARBURETOR (GAS ONLY) (Includes Mounting Gasket See Separate Group For Components)		
	142-0372	1	Keys 1 and 2
	142-0472	1	Keys 3 and 4
4	503-0315	1	Hose, Fuel (1/2" ID x 2 FT)
5	505-0302	1	Nipple, Half
6	505-0038	1	Elbow, Pipe
7	505-0099	1	Nipple, Pipe
8	505-0017	1	Bushing, Regulator Outlet
9	148-0311	1	Regulator, Gas Pressure
10	148-0107	1	Vent, Regulator
11	505-0057	1	Plug, Regulator
	148-0390	1	Kit, Repair - Garretson Regulator
12	149-0136	1	Plate, Fuel Pump Hole Cover

## OPTIONAL NUMBER 18 CARBURETOR PARTS (GAS-GASOLINE)

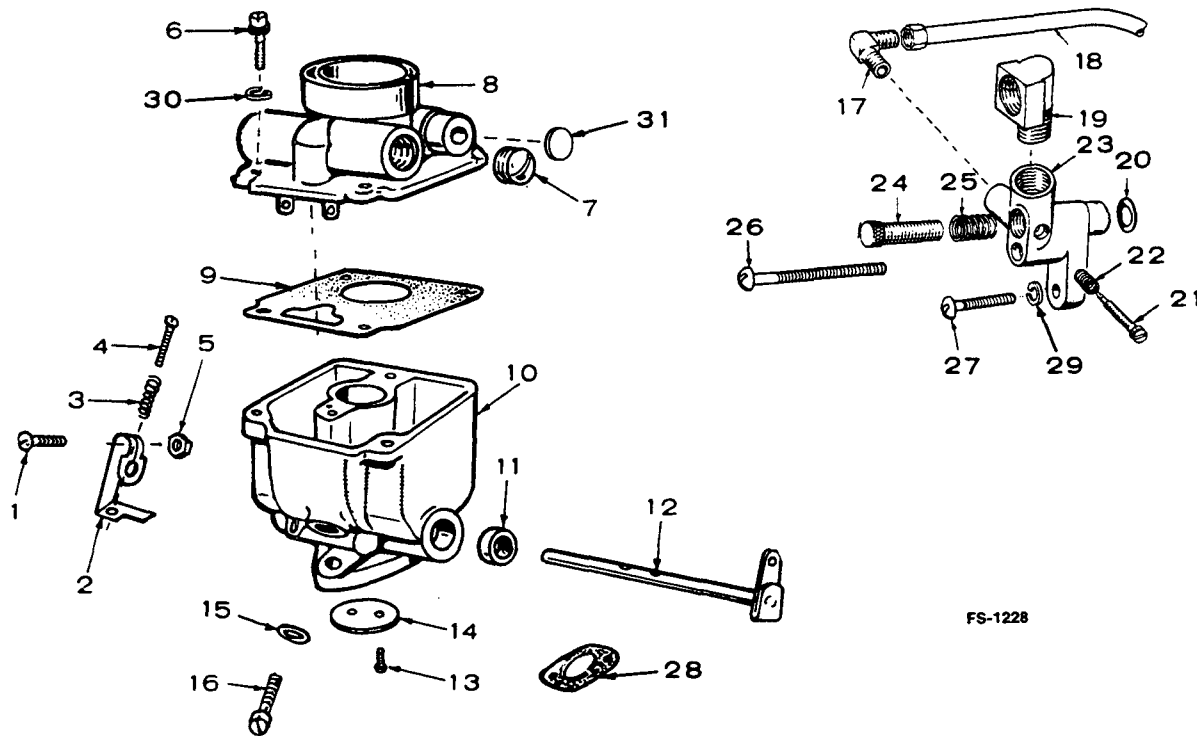
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	CARBURETOR, COMPLETE (Includes Mounting Gasket)		
	142-0367	1	Key 1 and 2
	142-0436	1	Key 3 and 4
	KIT, REPAIR		
	142-0371	1	Kit, Repair (Includes Parts Marked †)
	142-0033	1	†Kit, Gasket (Includes Parts Marked *)
1	SCREW, MACHINE - FILLISTER HEAD		
	815-0103	1	#10-24 x 1/2"
	815-0109	2	#10-24 x 5/8"
2	142-0055	1	Fly, Choke
3	815-0091	2	†Screw, Machine - Fillister Head (#4-40 x 3/16")
4	SHAFT ASSEMBLY, CHOKE		
	142-0217	1	Key 1 and 2
	142-0420	1	Key 3 and 4
5	505-0008	1	Plug, Pipe (1/8")
6	SLEEVE ASSEMBLY, CHOKE (Cover)		
	142-0205	1	Sleeve Assembly, Choke (Cover)
7	142-0039	1	†Shaft, Float
8	142-0031	1	*Gasket, Body to Sleeve
9	148-0017	2	*Gasket
10	142-0049	1	†Valve and Seat Assembly
11	142-0361	1	Float and Lever
12	142-0285	1	Nozzle
13	142-0032	1	*†Gasket, Nozzle
14		1	Body Assembly (Not Sold Separately)
15	142-0369	1	Fly, Throttle
16	142-0343	2	Bushing, Throttle Shaft
17	815-0072	2	Screw, Machine - Oval Head (#4-40 x 3/16")
18	142-0368	1	†Shaft, Throttle
19	NUT AND JET, NOZZLE		
	142-0370	1	†Nut and Jet, Nozzle
20	142-0042	1	Needle Assembly (Includes Parts Marked Δ)
21	142-0046	1	ΔRetainer, Main Adjusting Needle
22	142-0206	1	†ΔPacking, Main Adjusting Needle
23	142-0045	1	ΔRetainer, Main Adjusting Needle Packing
24	142-0041	1	†ΔNeedle, Main Adjusting
25	516-0027	1	ΔPin, Main Adjusting Needle
26	142-0040	2	†Needle, Idle Adjusting
27	142-0282	2	Spring, Idle Adjusting Needle
28	813-0103	1	Screw, Machine - Round Head (#10-32 x 3/4")
29	870-0053	1	Nut, Hex (#10-32)
30	812-0063	1	Screw, Machine - Round Head (#6-32 x 1/2")
31	142-0035	1	Spring, Throttle Stop Adjusting Screw
32	145-0008	1	Lever, Throttle Stop
33	502-0034	1	Elbow, Idle Line to Adapter
34	149-0030	1	Line, Idle
35	502-0074	1	Elbow, Adapter
36	509-0091	1	Gasket, Adapter Mounting
37	148-0126	1	Adapter, Gas
38	148-0131	1	Screw, Adapter Adjusting
39	148-0010	1	Spring, Adapter Adjusting Screw
40	148-0038	1	Nut, Hex - Float Lock (Used only on early models with metal float)
41	148-0135	1	Lock Assembly, Float (Used only on early models with metal float)
42	148-0017	1	*Gasket, Float Lock (Used only on early models with metal float)



43	142-0015	1	Plug, Body
44	812-0088	1	Screw, Round Head Machine (#8-32 x 1-3/4")
45	812-0125	1	Screw, Round Head Machine (#12-24 x 1/2")
46	850-0030	1	Washer, Lock - Spring (#10)
47	850-0038	1	Washer, Lock - Spring (1/4")
48	141-0078	1	*Gasket, Carburetor Mounting

† - Parts Included in 142-0371 Repair Kit.  
 \* - Parts Included in 142-0033 Gasket Kit.  
 Δ - Parts Included in 142-0042 Needle Assembly.

## OPTIONAL NUMBER 19 CARBURETOR PARTS (GAS)



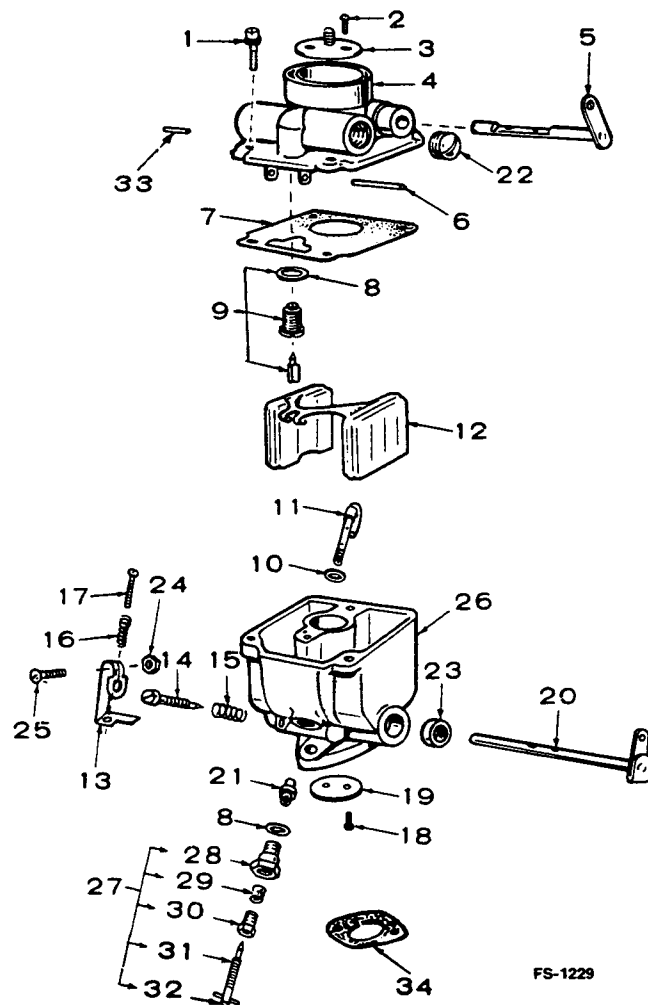
FS-1228

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	CARBURETOR, COMPLETE (Includes Mounting Gasket)						
	142-0372	1	Key 1 and 2	13	815-0072	2	Screw, Machine - Oval Head (#4-40 x 1/4")
	142-0472	1	Key 3 and 4	14	142-0369	1	Fly, Throttle
	142-0033	1	Kit, Gasket (Includes Parts Marked *)	15	148-0017	1	Gasket, Plug
1	813-0103	1	Screw, Machine - Round Head (#10-32 x 3/4")	16	142-0015	1	Plug, Body
2	145-0008	1	Lever, Idle Stop - Throttle	17	502-0034	1	Elbow, Idle Line to Adapter
3	142-0035	1	Spring, Throttle Stop Adjusting Screw	18	149-0030	1	Line, Idle
4	812-0063	1	Screw, Machine - Round Head (#6-32 x 1/2")	19	502-0074	1	Elbow, Adapter
5	870-0053	1	Nut, Hex (#10-32)	20	509-0091	1	Gasket, Adapter Mounting
6	SCREW, MACHINE - FILLISTER HEAD			21	142-0040	1	Needle, Idle Adjusting
	815-0103	1	#10-24 x 1/2"	22	142-0282	1	Spring, Idle Adjustng Needle
	815-0109	2	#10-24 x 5/8"	23	148-0126	1	Adapter, Carburetor
7	505-0008	1	Plug, Pipe (1/8")	24	148-0131	1	Screw, Adapter Adjusting
8	142-0205	1	Cover, Carburetor	25	148-0010	1	Spring, Adapter Adjusting Screw
9	142-0031	1	Gasket, Cover to Body	26	812-0088	1	Screw, Round Head Machine (#8-32 x 1-3/4")
10		1	Body, Carburetor (Not Sold Separately)	27	812-0125	1	Screw, Round Head Machine (#12-24 x 1/2")
11	142-0343	2	Bushing, Throttle Shaft	28	141-0078	1	Gasket, Carburetor Mounting
12	142-0368	1	Shaft Assembly, Throttle	29	850-0038	1	Washer, Lock - Spring (1/4")
				30	850-0030	1	Washer, Lock - Spring (#10)
				31	517-0010	2	Plug, Welsh - Brass (1/4")

\* - Parts Included in 142-0033 Gasket Kit.

## OPTIONAL NUMBER 20 CARBURETOR PARTS (GASOLINE WITH ADJUSTABLE MAIN JETS)

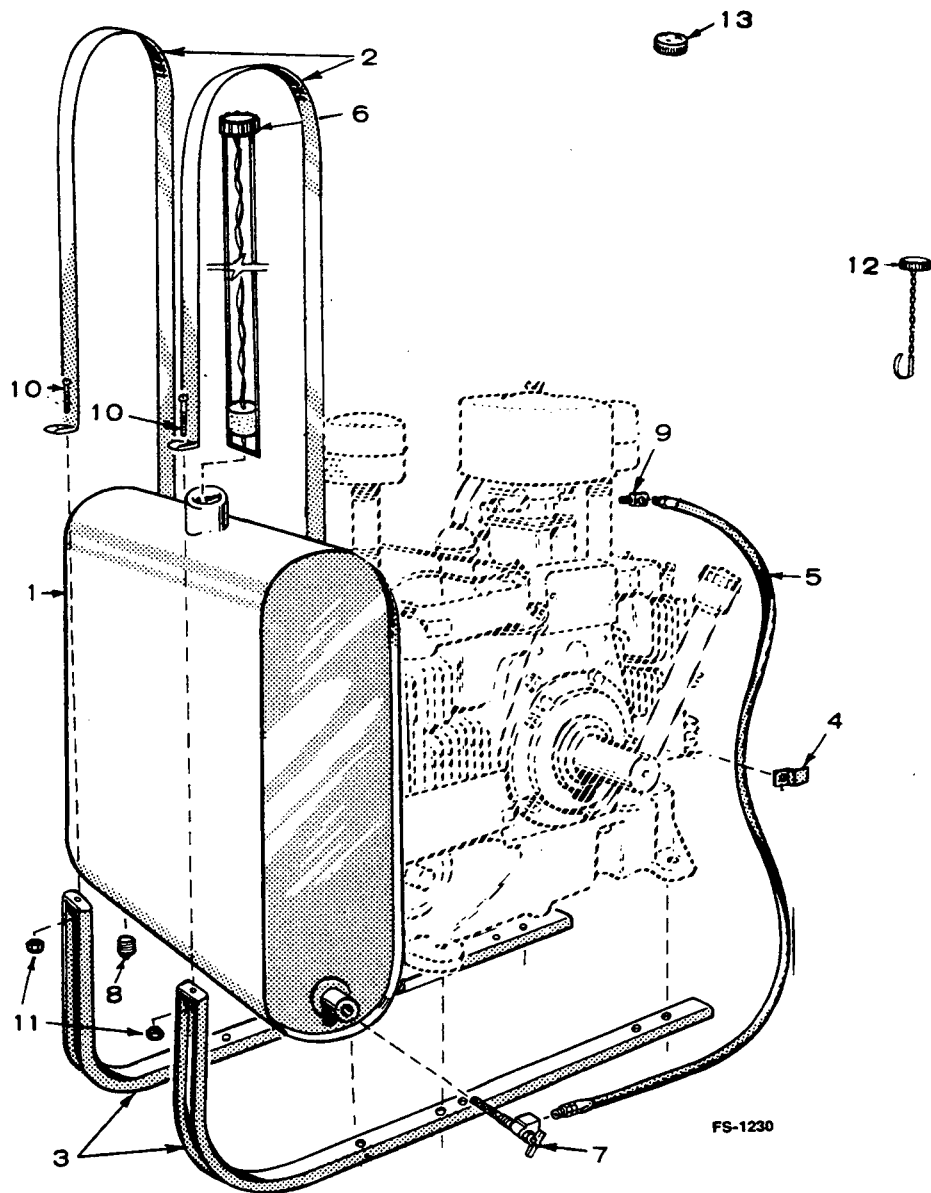
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	142-0416	1	Carburetor Complete (Includes Mounting Gasket - 3/4" Venturi)
	142-0371	1	Kit, Repair (Includes Parts Marked †)
	142-0033	1	†Kit, Gasket (Includes Parts Marked *)
1	SCREW, FILLISTER HEAD		
	815-0103	1	#10-24 x 1/2"
	815-0109	2	#10-24 x 5/8"
2	815-0091	2	†Screw, Fillister Head with IT Washer (#4-40 x 3/16")
3	142-0055	1	Fly, Choke
4	142-0205	1	Sleeve, Choke (Cover)
5	142-0420	1	Shaft, Choke
6	142-0039	1	†Shaft, Float
7	142-0031	1	*Gasket, Body
8	GASKET		
	148-0017	1	*Float Valve Seat
	148-0017	1	*Needle Assembly
9	142-0049	1	†Valve and Seat Assembly
10	142-0032	1	*Gasket, Nozzle
11	142-0285	1	Nozzle Assembly
12	142-0361	1	Float and Lever Assembly
13	145-0008	1	Lever, Idle Stop - Throttle
14	142-0040	1	†Needle, Idle Adjusting
15	142-0282	1	Spring, Idle Needle
16	142-0035	1	Spring, Throttle Stop
17	812-0063	1	†Screw, Machine - Round Head (#6-32 x 1/2")
18	815-0072	2	†Screw, Oval-Head Machine (#4-40 x 1/4")
19	142-0369	1	Fly, Throttle
20	142-0368	1	†Shaft, Throttle
21	142-0370	1	Nut and Jet, Nozzle
22	505-0008	1	Plug, Inlet
23	142-0343	2	Bushing, Throttle Shaft
24	870-0053	1	Nut, Hex (#10-32)
25	813-0103	1	Screw, Machine - Round Head (#10-32 x 3/4")
26		1	Body Assembly, Lower (Not Sold Separately)
27	142-0042	1	Needle Assembly (Includes Parts Marked Δ)
28	142-0046	1	ΔRetainer, Main Adjusting Needle
29	142-0206	1	Δ†Packing, Main Adjusting Needle
30	142-0045	1	ΔRetainer, Main Adjusting Needle Packing
31	142-0041	1	Δ†Needle, Main Adjusting
32	516-0027	1	ΔPin, Main Adjusting Needle
33	142-0227	1	Pin, Choke Stop
34	141-0078	1	*Gasket, Carburetor Mounting



FS-1229

- † - Parts Included in Repair Kit. Parts with Δ symbol are included in 142-0371 kit only.
- \* - Parts Included in 142-0033 Gasket Kit.
- Δ - Parts Included in 142-0042 Needle Assembly.

## OPTIONAL NUMBER 21 FUEL TANK (SIDE MOUNTED)

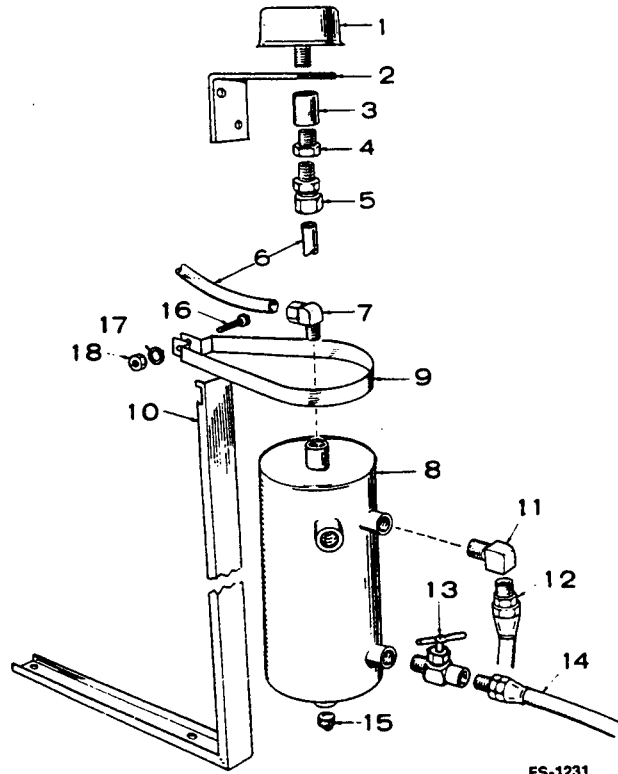


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	159-0984	1	Kit, Fuel Tank with Gauge (Includes Parts Marked *)	7	504-0013	1	†*Valve, Shut-off
	159-0597	1	Kit, Fuel Tank Without Gauge (Includes Parts Marked †)	8	505-0057	1	†*Plug, Tank Drain
1	159-0981	1	†*Tank, Fuel (Less Cap)	9	502-0020	1	†*Elbow, Carburetor Inlet
2	159-0596	2	†*Strap, Fuel Tank	10	813-0108	2	†*Screw, Machine - Round Head (#10-32 x 1-1/2")
3	159-0595	2	†*Bracket, Fuel Tank	11	870-0053	2	†*Nut, Hex (#10-32)
4	134-0599	1	†*Clip, Fuel Line	12	159-0020	1	†Cap, Fuel Tank (For 2-5/16" Filler Neck) - Late Models
5	501-0008	1	†*Line, Fuel	13	159-0007	1	Cap, Fuel Tank (For 1-3/4" Filler Neck) - Early Models
6	193-0207	1	*Cap and Gauge, Fuel Tank (For 2-5/16" Filler Neck) - Late Models				

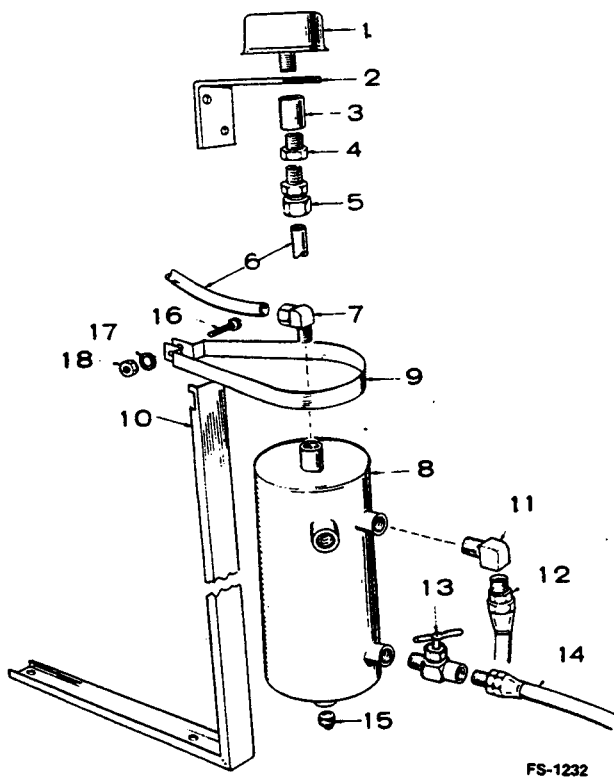
† - Included in 159-0597 Fuel Tank Kit.  
\* - Included in 159-0984 Fuel Tank Kit.

## OPTIONAL NUMBER 22 RESERVOIR (DAY) TANK - ONE QUART

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	159-0591	1	Kit, Tank (Includes all parts in this group)
1	159-0041	1	Cap, Vent
2	415-0055	1	Bracket, Vent Cap
3	505-0028	1	Coupling, Pipe
4	505-0016	1	Bushing, Reducer (3/8 to 1/8")
5	502-0116	1	Connector, Compression
6	159-0345	1	Tubing, Copper (5/16 x 12")
7	502-0024	1	Elbow, Compression (90°)
8	159-0294	1	Tank, Reservoir
9	159-0556	1	Band, Reservoir Tank
10	159-0612	1	Bracket, Reservoir Tank Mounting
11	502-0020	1	Elbow, Street (90°)
12	501-0005	1	Line, Fuel - to Fuel Pump (18")
13	504-0086	1	Valve, Shut-off
14	501-0007	1	Line, Fuel - to Carburetor (24")
15	505-0057	1	Plug, Tank Drain
16	812-0156	1	Screw, Machine - Round Head (1/4-20 x 1-1/2")
17	850-0040	1	Washer, Lock - Spring (1/4")
18	861-0011	1	Nut, Square (1/4-20)

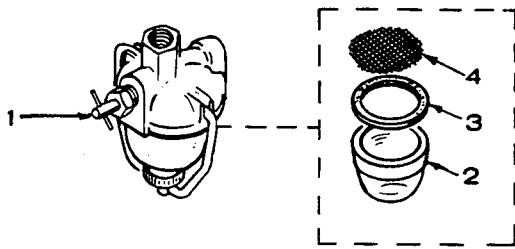


## OPTIONAL NUMBER 23 RESERVOIR (DAY) TANK - TWO QUART



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	159-0942	1	Kit, Tank (Includes all parts in this group)
1	159-0041	1	Cap, Vent
2	415-0055	1	Bracket, Vent Cap
3	505-0028	1	Coupling, Pipe
4	505-0016	1	Bushing, Reducer (3/8 to 1/8")
5	502-0116	1	Connector, Compression
6	159-0345	1	Tubing, Copper (5/16 x 12")
7	502-0024	1	Elbow, Compression (90°)
8	159-0746	1	Tank, Reservoir
9	159-0936	1	Band, Reservoir Tank
10	159-0612	1	Bracket, Reservoir Tank Mounting
11	502-0020	1	Elbow, Street (90°)
12	501-0005	1	Line, Fuel - to Fuel Pump (18")
13	504-0086	1	Valve, Shut-off
14	501-0007	1	Line, Fuel - to Carburetor (24")
15	505-0057	1	Plug, Tank Drain
16	812-0156	1	Screw, Machine - Round Head (1/4-20 x 1-1/2")
17	850-0040	1	Washer, Lock - Spring (1/4")
18	861-0011	1	Nut, Square (1/4-20)

## OPTIONAL NUMBER 24 FUEL FILTER



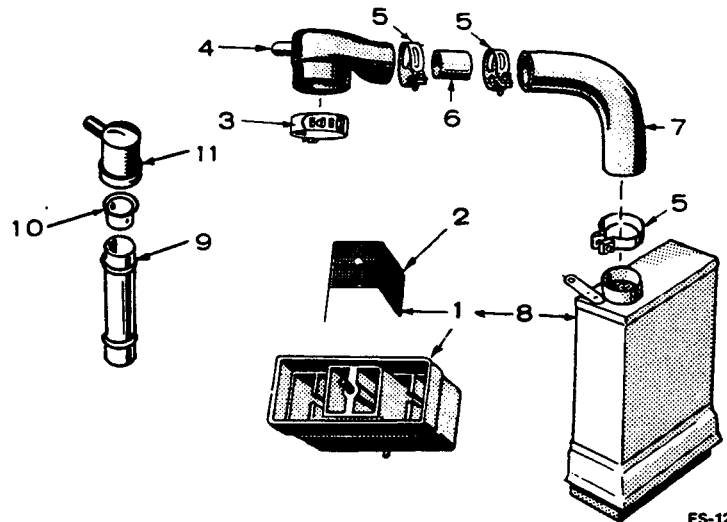
FS-1204

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	149-0079	1	Bowl Assembly, Sediment - Complete (Includes Parts Marked *)
2	149-0150	1	*Bowl Only
3	149-0149	1	*Gasket, Bowl Mounting
4	149-0202	1	*Screen

\* - Parts Included in 149-0079 Sediment Bowl Assembly.

## OPTIONAL NUMBER 25 RECTANGULAR AIR CLEANER AND BREATHER

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	140-0403	1	Kit, Cup and Screen (Part of 140-0399 Air Cleaner)
2	140-0068	1	Screen, Air Cleaner (Part of 140-0399 Air Cleaner)
3	503-0107	1	Clamp, Hose
4	145-0080	1	Inlet, Carburetor Air
5	503-0280	3	Clamp, Hose
6	140-0211	1	Sleeve, Air Cleaner Hose
7	503-0480	1	Hose, Air Inlet (3/4" ID x 8-1/4")
8	140-0399	1	Cleaner, Air
9	123-0129	1	Tube, Breather
10	123-0104	1	Valve, Breather
11	123-0293	1	Cap, Breather Tube



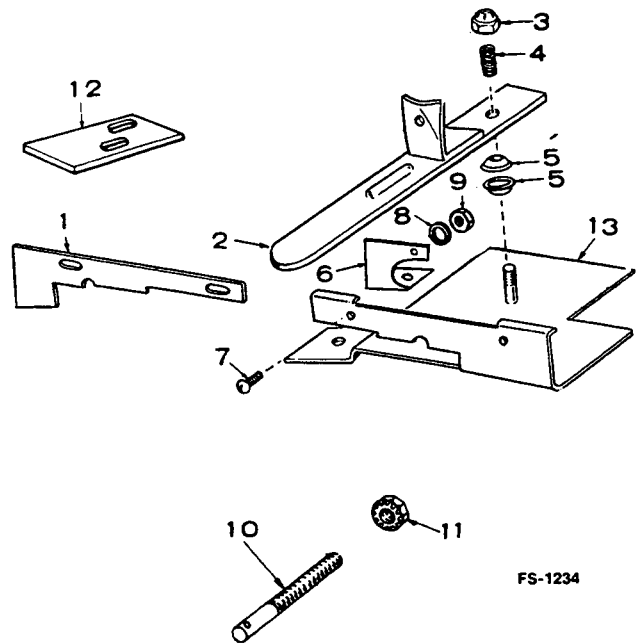
FS-1233



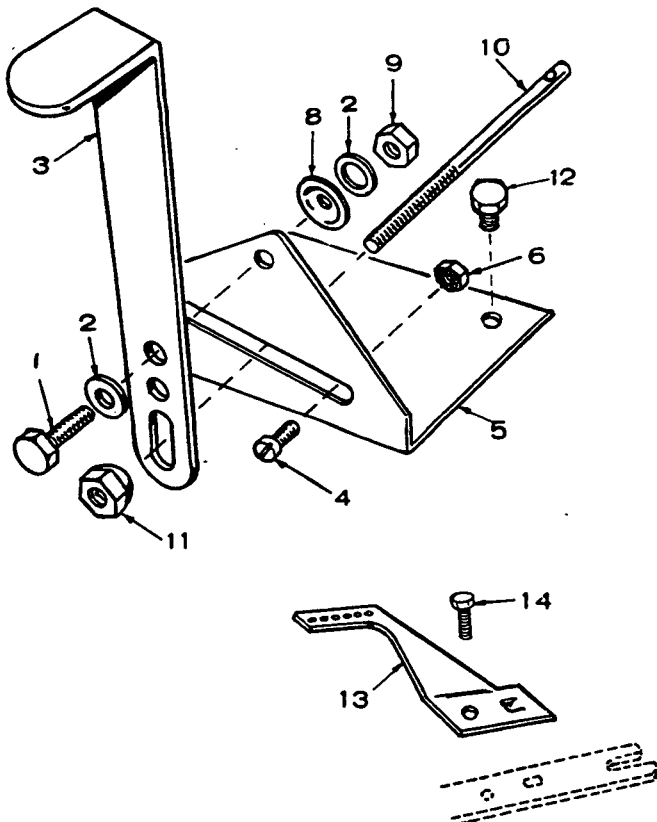
## OPTIONAL NUMBER 26 GOVERNOR CONTROL - VARIABLE SPEED (152-0147)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	152-0147	1	Bracket and Control Arm Assembly Complete (Includes Parts Marked *)
1	152-0152	1	*Plate, Adjusting
2	152-0145	1	*Lever, Adjusting
3	870-0065	1	*Nut, Self Locking (1/4-20)
4	150-1012	1	*Spring, Throttle Lever
5	152-0041	2	*Washer, Tension
6	152-0153	1	*Stiffener, Control Bracket
7	812-0077	2	*Screw, Machine - Round Head (#8-32 x 3/8")
8	853-0005	2	*Washer, Lock - ET (#8)
9	860-0008	2	*Nut, Machine - Hex (#8-32)
10	150-1009	1	Stud, Speed Adjusting
11	870-0200	1	Nut, Machine - Hex With ET (#10-32)
12	152-0144	1	Adapter, Throttle Stop
13	152-0146	1	*Bracket, Mounting

\* - Parts Included in 152-0147 Bracket and Control Assembly.



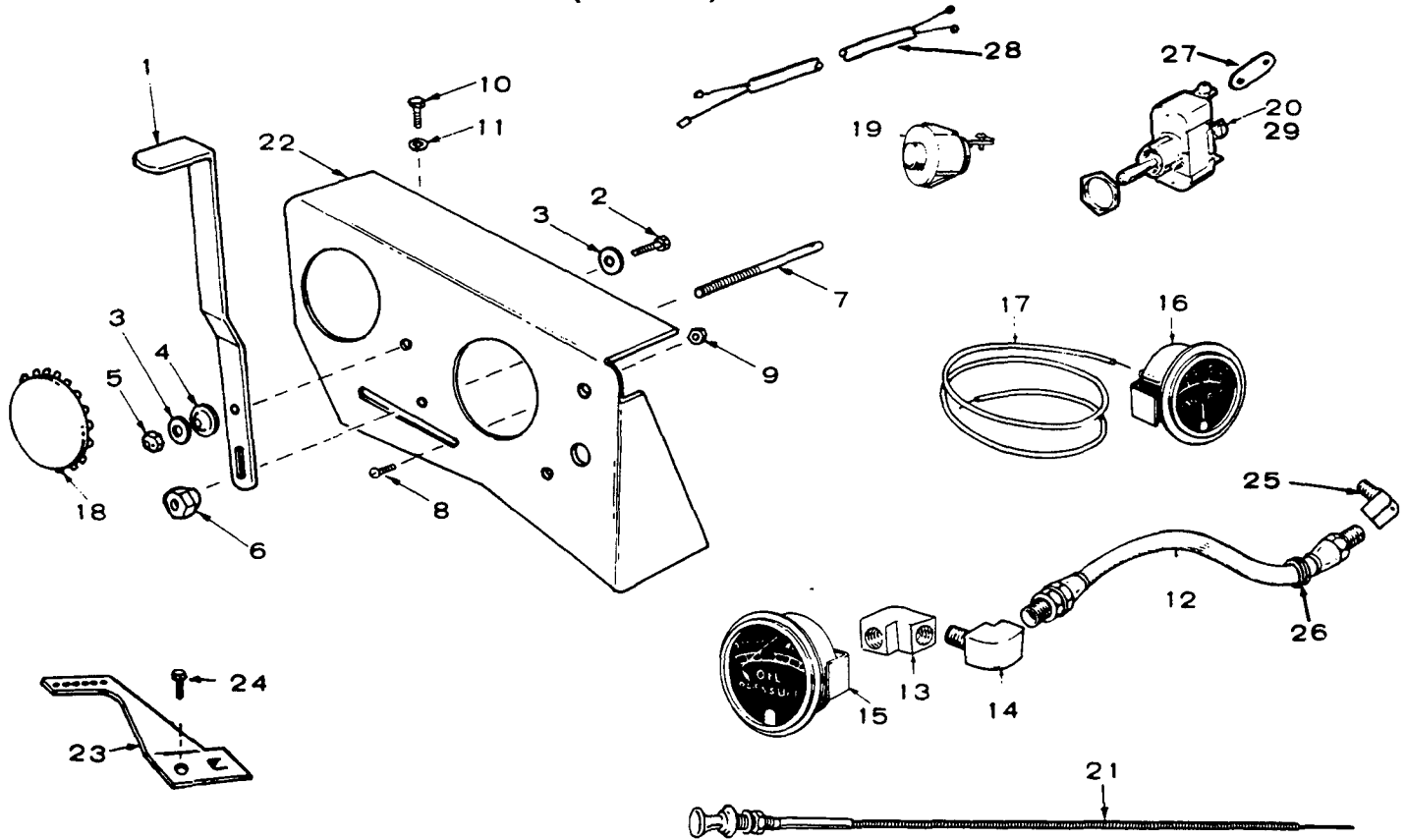
## OPTIONAL NUMBER 27 GOVERNOR CONTROL - VARIABLE SPEED (152-0085)



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	152-0085	1	Bracket and Control Arm Assembly Variable Speed - Complete (Includes Parts Marked *)
1	800-0005	1	*Screw, Cap - Hex Head (1/4-20 x 3/4")
2	526-0015	2	*Washer, Flat (9.3/16" ID x 9.16" OD x 1.16" Thk)
3	152-0083	1	*Lever, Control
4	815-0199	2	*Screw, Machine - Fillister Head (#10-32 x 5/16")
5	152-0086	1	*Bracket, Mounting
6	870-0131	2	*Nut, Hex with ET Lock Washer (#10-32)
8	152-0041	1	*Washer, Tension
9	870-0065	1	*Nut, Hex - Self Locking (1/4-20)
10	152-0090	1	Stud, Speed Adjusting
11	150-0621	1	Nut, Special - Speed Adjusting Stud
12	821-0008	2	Screw, Cap - Hex Head Locking (1/4-20 x 5/16")
13	150-1000	1	Extension, Governor Arm
14	815-0181	1	Screw, Cap - Hex Head with ET Lock Washer (#10-32 x 1/2")

\* - Parts Included in 152-0085 Bracket and Control Arm Assembly.

## OPTIONAL NUMBER 28 CONTROL (ENGINE) - KEYS 2 AND 4

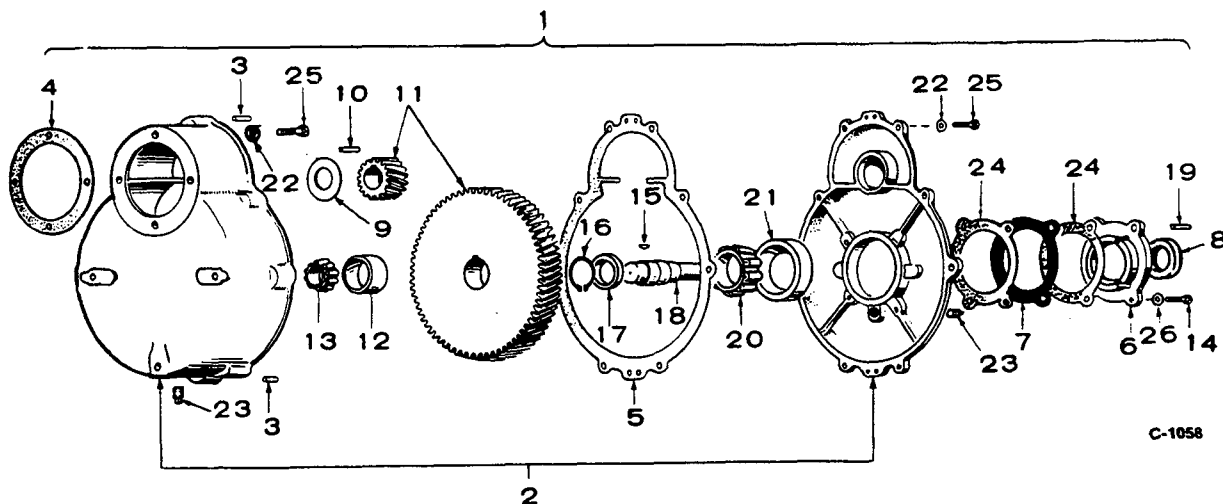


SC-1193

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
<b>NOTE:</b> These controls consist of various combinations and do not necessarily consist of all parts shown in this group.			
1	152-0164	1	Lever, Throttle Control
2	800-0005	1	Screw, Cap - Hex Head (1/4-20 x 3/4")
3	526-0015	2	Washer, Flat (9/32" ID x 9/16" OD x 1/16" Thk)
4	152-0041	1	Washer, Tension
5	870-0065	1	Nut, Hex Self Locking (1/4-20)
6	150-0621	1	Nut, Special - Speed Adjusting Stud
7	150-0147	1	Stud, Speed Adjusting
8	815-0199	2	Screw, Machine - Fillister Head (#10-32 x 5/16")
9	870-0131	2	Nut, Hex with ET Lock Washer (10-32)
10	800-0002	2	Screw, Cap - Hex Head (1/4-20 x 3/8")

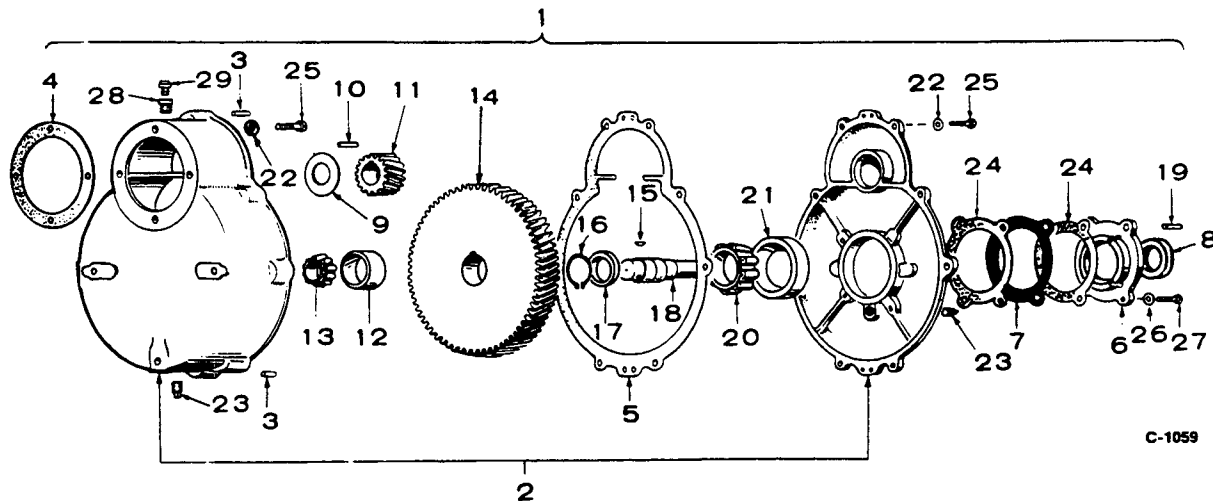
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
11	850-0040	2	Washer, Lock - Spring (1/4")
12	501-0203	1	Line, Oil
13	502-0055	1	Elbow, Pipe (90°)
14	502-0002	1	Elbow, Inverted Male (90°)
15	193-0005	1	Gauge, Oil Pressure
16	AMMETER (Select According to Scale) (Includes Mounting Clamp)		
	302-1361	1	Scale Reads 20-0-20
	302-1363	1	Scale Reads 45-0-45
17	334-0028	1	Lead (4 foot piece of wire)
18	517-0009	1	Plug, Dot Button
19	308-0029	1	Switch, Start
20	308-0232	1	Switch, Stop
21	153-0328	1	Cable, Choke
22	301-2780	1	Bracket, Engine Control
23	150-1000	1	Extension, Governor Arm
24	815-0181	1	Screw, Cap - Hex Head W/ET (#10-32 x 1/2")
25	502-0020	1	Elbow, Street - Oil Line to Cylinder Block
26	508-0084	1	Grommet, Oil Line
	332-0592	1	Jumper
28	338-0565	1	Harness, Start and Run
29	308-0140	1	Switch, Start-Run-Stop (Toggle)

## OPTIONAL NUMBER 29 REDUCTION GEARBOX (3.3:1)



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	REDUCTION GEAR ASSEMBLY			14	800-0007	4	Screw, Cap - Hex Head (1/4-20 x 1")
	190-0444	1	Mounted Left Side Horizontal	15	515-0159	1	Key, Driven Gear
	190-0440	1	Mounted Right Side Horizontal	16	518-0013	1	Ring, Retainer
2	190-0050	1	Housing - Includes Cover (Also Order 2 #516-0012 Pins)	17	190-0202	1	Spacer, Bearing
3	516-0012	2	Pin, Dowel	18	190-0192	1	Shaft, Take-Off
4	190-0020	1	Gasket, Housing to Engine	19	515-0103	1	Key, Take-Off Shaft
5	190-0021	1	Gasket, Cover to Housing	20	510-0023	1	Cone, Roller Bearing
6	190-0016	1	Plate, Bearing Retainer	21	510-0024	1	Cup, Roller Bearing
7	190-0115	1	Shim Set, End Play Adjustment	22	850-0045	12	Washer, Lock - Spring (5/16")
8	509-0016	1	Seal, Oil	23	505-0054	3	Plug, Pipe (1/4)
9	190-0195	1	Washer, Pinion Gear	24	190-0306	2	Gasket, Bearing Plate to Housing
10	515-0142	1	Key, Pinion Gear	25	800-0028	16	Screw, Cap - Hex Head (5/16-18 x 1")
11	190-0447	1	Gear, Set (Pinion and Driven)	26	526-0063	4	Washer, Flat - Copper (17/64" ID x 7/16" OD x 1/22" Thk)
12	510-0022	1	Cup, Roller Bearing				
13	510-0021	1	Cone, Roller Bearing				

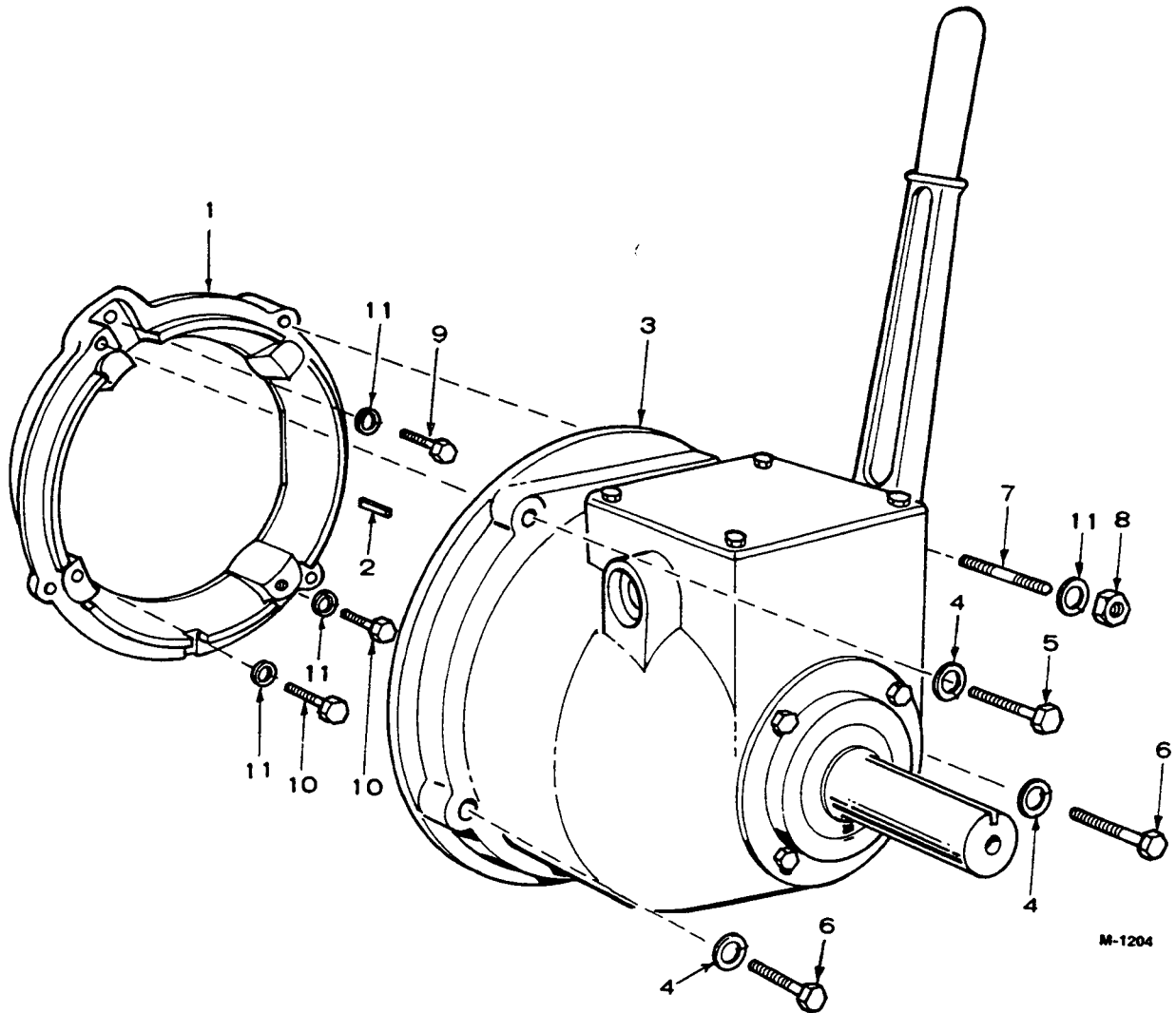
## OPTIONAL NUMBER 30 REDUCTION GEARBOX (4:1)



C-1059

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	REDUCTION GEAR ASSEMBLY			16	518-0013	1	Ring, Retainer
	190-0193	1	Mounted Left Side Horizontal	17	190-0202	1	Spacer, Bearing
	190-0299	1	Mounted Right Side Horizontal	18	190-0192	1	Shaft, Take-Off
	190-0410	1	Mounted Vertical Down	19	515-0103	1	Key, Take-Off Shaft
2	190-0050	1	Housing - Includes Cover (Also Order 2 #516-0012 Pins)	20	510-0023	1	Cone, Roller Bearing
3	516-0012	2	Pin, Dowel	21	510-0024	1	Cup, Roller Bearing
4	190-0020	1	Gasket, Housing to Engine	22	850-0045	12	Washer, Lock - Spring (5/16")
5	190-0021	1	Gasket, Cover to Housing	23	PLUG, PIPE (1/4) 505-0054	3	Mounted Left Side and Mounted Right Side Gear Box
6	190-0016	1	Plate, Bearing Retainer		505-0054	2	Mounted Vertical Down Gear Box
7	190-0115	1	Shim Set, End Play Adjustment	24	190-0306	2	Gasket, Bearing Plate to Housing
8	509-0016	1	Seal, Oil	25	800-0028	16	Screw, Cap - Hex Head (5/16-18 x 1")
9	190-0195	1	Washer, Pinion Gear	26	526-0063	4	Washer, Flat - Copper (17/64" ID x 7/16" OD x 1/32" Thk)
10	515-0142	1	Key, Pinion Gear	27	800-0007	4	Screw, Cap - Hex Head (1/4-20 x 1")
11	190-0447	1	Gear, Pinion	28	505-0007	1	Bushing, Reducer - Mounted Vertical Down Gear Box
12	510-0022	1	Cup, Roller Bearing	29	518-0172	1	Vent, Mounted Vertical Down Gear Box
13	510-0021	1	Cone, Roller Bearing				
14	190-0190	1	Gear, Driven				
15	515-0159	1	Key, Driven Gear				

## OPTIONAL NUMBER 31 CLUTCH

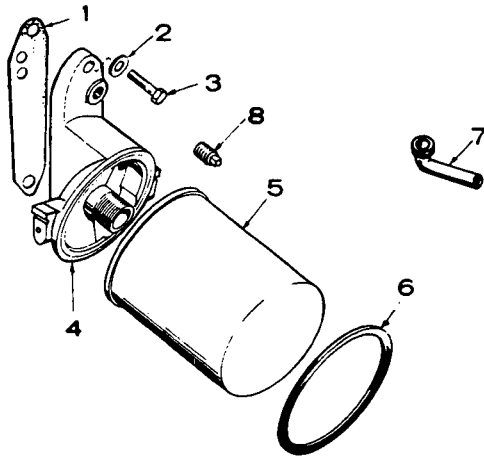


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	190-0178	1	Kit, Clutch - Complete
1	190-0171	1	Adapter, Clutch to Engine
2	515-0041	1	Key, Clutch
3	190-0174	1	*Clutch Assembly
4	850-0055	3	Washer, Lock - Spring (7/16")
5	800-0074	1	Screw, Cap - Hex Head (7/16-14 x 1-3/4")
6	800-0075	2	Screw, Cap - Hex Head (7/1-14 x 2")
7	520-0126	1	Stud (3/8 x 3-7/8")
8	104-0091	1	Nut, Hex (Special)
9	800-0053	1	Screw, Cap - Hex Head (3/8-16 x 1-3/4")
10	800-0054	2	Screw, Cap - Hex Head (3/8-16 x 2")
11	850-0050	4	Washer, Lock - Spring (3/8")

\* - For components, check Clutch nameplate and contact your nearest Rockford dealer.

**OPTIONAL NUMBER 32  
SPIN ON OIL FILTER - BEGIN SPEC G**

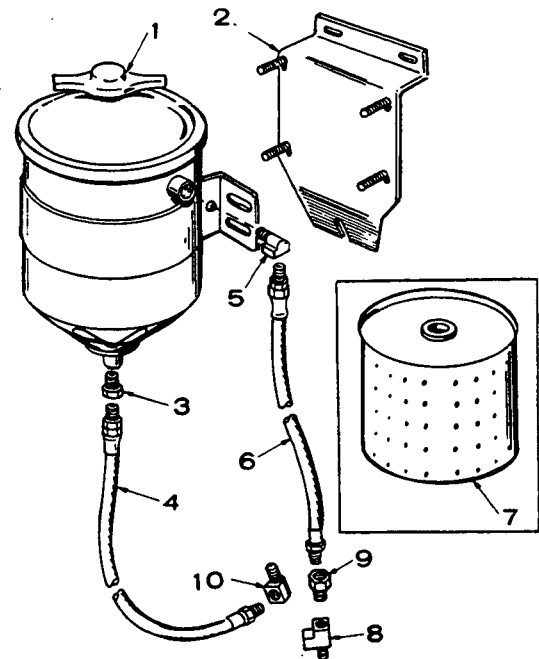
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	122-0321	1	Gasket, Filter Adapter
2	526-0065	2	Washer, Flat - Copper (21/64" ID x 9/16" OD x 1/16" Thk)
3	800-0028	2	Screw, Cap - Hex Head (5/16-18 x 1")
4	122-0320	1	Adapter, Filter
5	122-0445	1	Filter, Spin-On
6	122-0347	1	Seal, Air
7	122-0345	1	Tube, Oil Drain
8	505-0057	1	Plug, Adapter Outlet (1/8")



LS-1052

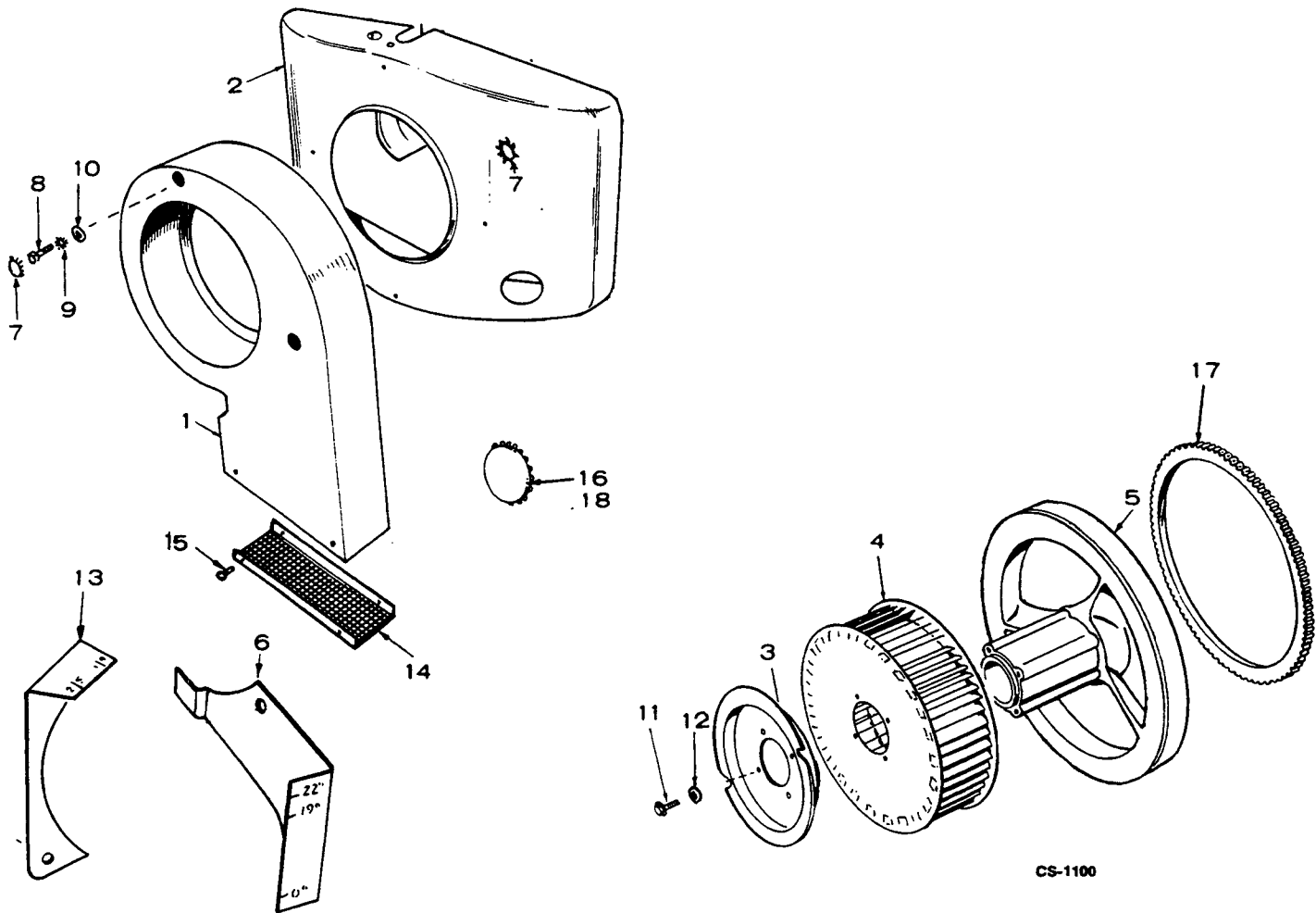
**OPTIONAL NUMBER 33  
CARTRIDGE TYPE OIL FILTER**

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	122-0091	1	Filter, Oil (Includes Cartridge)
2	122-0088	1	Bracket, Filter Mounting
3	502-0003	1	Connector, Oil Filter Outlet
4	501-0005	1	Line, Oil Filter Return
5	502-0002	1	Elbow, Oil Filter Inlet
6	501-0008	1	Line, Oil Filter Inlet
7	122-0037	1	Cartridge, Oil Filter
8	502-0058	1	Tee, Oil Pressure Line
9	502-0003	1	Connector, Oil Pressure Line
10	502-0002	1	Elbow, Oil Return Line



LS-1053

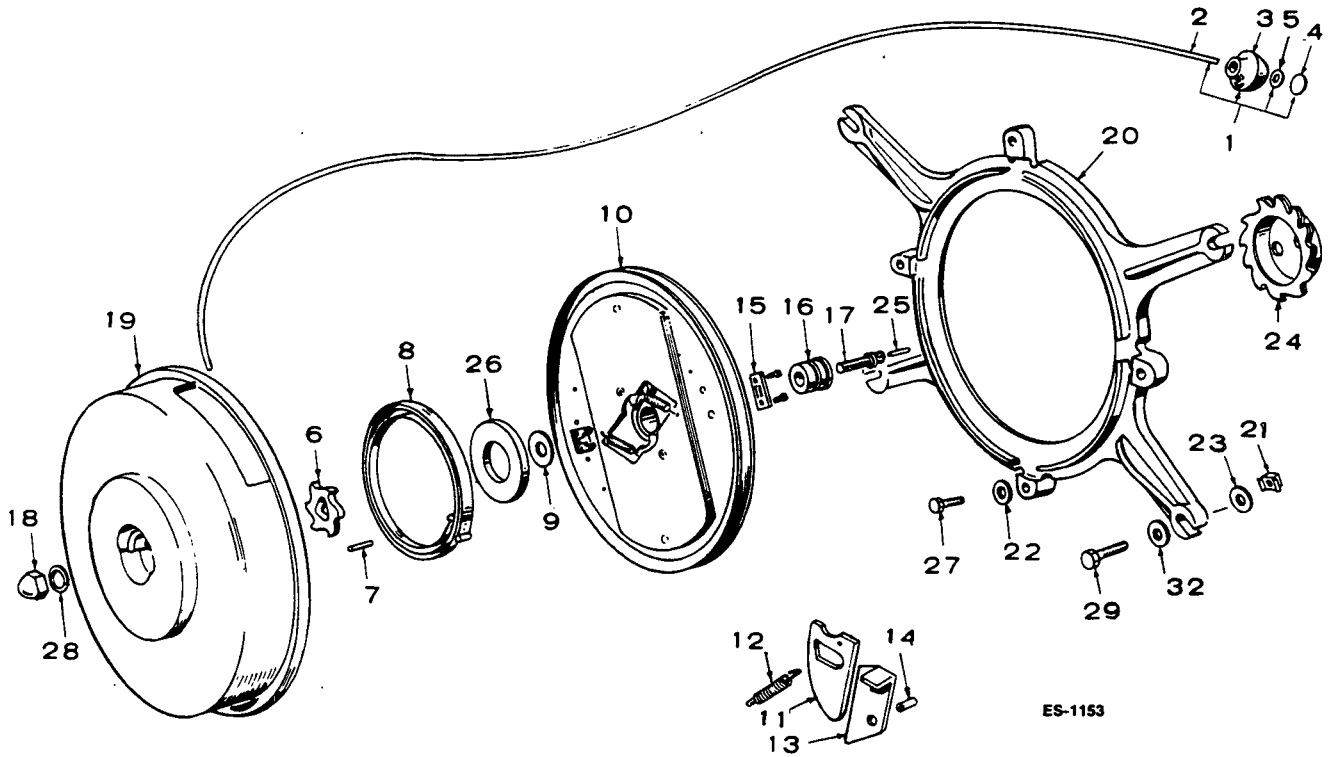
**OPTIONAL NUMBER 34  
AIR HOUSING - VACU FLO COOLING (AND FLYWHEEL)**



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	SCROLL, AIR DISCHARGE (Includes Guard) 134-3103	1	Mounted in 6 o'clock position
	134-3070	1	Mounted in 9 o'clock position
	134-3041	1	Mounted in 3 o'clock position or 12 o'clock position
2	HOUSING, BLOWER		Begin Spec J
	134-2795	1	Key 2
	134-2796	1	Key 4
	134-1576	1	Spec G and H
	134-1284	1	Spec A through F
3	192-0272	1	Sheave, Rope
4	WHEEL, BLOWER		
	134-0565	1	Spec A through G
	134-0753	1	Begin Spec J
5	FLYWHEEL (Includes Ring Gear)		
	104-0302	1	Key 2
	104-0491	1	Key 4
6	INDICATOR, IGNITION TIMING - BEGIN SPEC E		
	166-0519	1	Right Side
	166-0555	1	Left Side

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
7	517-0021	3	Plug, Dot Button (7/8")
8	800-0002	4	Screw, Cap - Hex Head (1/4-20 x 3/8")
9	853-0013	4	Washer, Lock - ET (1/4")
10	526-0015	4	Washer, Flat (9/32" ID x 9/16" OD x 1/16" Thk)
11	800-0010	4	Screw, Cap - Hex Head (1/4-20 x 1-3/4")
12	850-0040	4	Washer, Lock - Spring (1/4")
13	160-0500	1	Bracket, Timing - Key 2 and 4 Spec A through D
14	134-2956	1	Guard, Scroll Outlet
15	815-0421	4	Screw, Cap - Hex Head (#10-16 x 1/2")
16	517-0035	1	Plug, Dot Button (Timing Hole)
17	134-0673	1	Gear, Ring - Flywheel
18	517-0009	1	Plug, Dot Button - Spec G and H

**OPTIONAL NUMBER 35  
REDI-PULL STARTER - KEYS 1 AND 3**



ES-1153

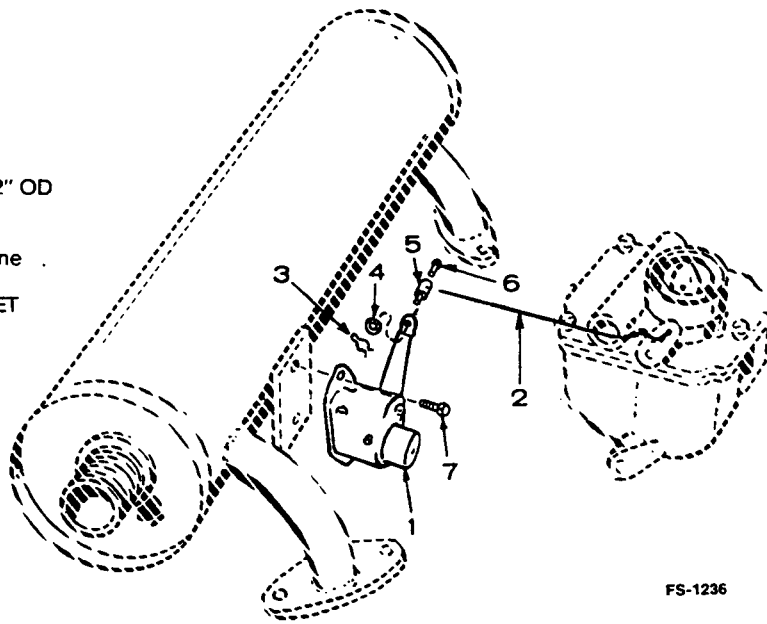
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	<b>KIT, STARTER - COMPLETE</b>						
	192-0325	1	Begin Spec E (Includes Parts Marked †)	21	870-0110	4	†ΔNut, Speed Grip (1/4-20)
	192-0215	1	Specs A through D (Includes Parts Marked Δ)	22	526-0180	4	†ΔWasher, Flat (17/64" ID x 7/8" OD x 1/8" Thk)
1	192-0045	1	†ΔRope and Grip Assembly (Includes Parts Marked □)	23	526-0130	4	†ΔWasher, Flat (17/64" ID x 1" OD x 1/16" Thk)
2	192-0043	1	†Δ□Rope	24	192-0309	1	†Wheel, Ratchet - Begin Spec E:
3	192-0044	1	†Δ□Grip	25	516-0132	1	†ΔPin, Spiral - Brass
4	517-0025	1	†Δ□Plug, Grip	26	526-0168	1	†ΔWasher, Flat (1-15/32" ID x 3" OD x .047" Thk)
5	526-0021	1	†Δ□Washer, Flat (17/64" ID x 3/4" OD x 1/16" Thk)	27	815-0137	4	†ΔScrew, Cap - Hex Head (1/4-20 x 1-1/4")
6	192-0153	1	†ΔWheel, Cog	28	850-0050	1	†ΔWasher, Lock - Spring (3/8")
7	516-0138	1	†ΔPin, Roll	29	800-0007	4	†ΔScrew, Cap - Hex Head (1/4-20 x 1-1/4")
8	192-0039	1	†ΔSpring, Recoil	31	815-0137	2	†ΔScrew, Cap - Hex Head (1/4-20 x 1-1/4")
9	526-0123	1	†ΔWasher, Thrust	32	526-0158	4	†ΔWasher, Flat (.261" ID x 1" OD x 1/8" Thk)
10	192-0180	1	†ΔSheave, Rope (Includes Parts Marked *)	33	526-0015	2	†ΔWasher, Flat (9/32" ID x 9/16" OD x 1/16" Thk)
11	192-0172	2	†Δ*Pawl	34	192-0170	1	ΔWheel, Ratchet - Specs A through D
12	192-0165	2	†Δ*Spring, Pawl	35	192-0218	2	ΔScrew, Cap - Hex Head - Specs A through D
13	192-0168	2	†Δ*Arm, Ratchet				
14	516-0110	4	†Δ*Pin, Roll (2) Pawl (2) Ratchet Arm				
15	192-0167	1	†Δ*Clamp, Rope				
16	192-0163	1	†ΔBearing, Sheave Hub				
17	192-0323	1	†ΔScrew, Cap - Socket Head (Special)				
18	862-0003	1	†ΔNut, Hex (3/8-16)				
19	192-0152	1	†ΔCover, Starter				
20	192-0186	1	†ΔRing, Mounting				

† - Parts Included in 192-0325 Starter Kit.  
 Δ - Parts Included in 192-0215 Starter Kit.  
 □ - Parts Included in 192-0045 Rope and Grip Assembly.  
 \* - Parts Included in 192-0180 Rope Sheave.



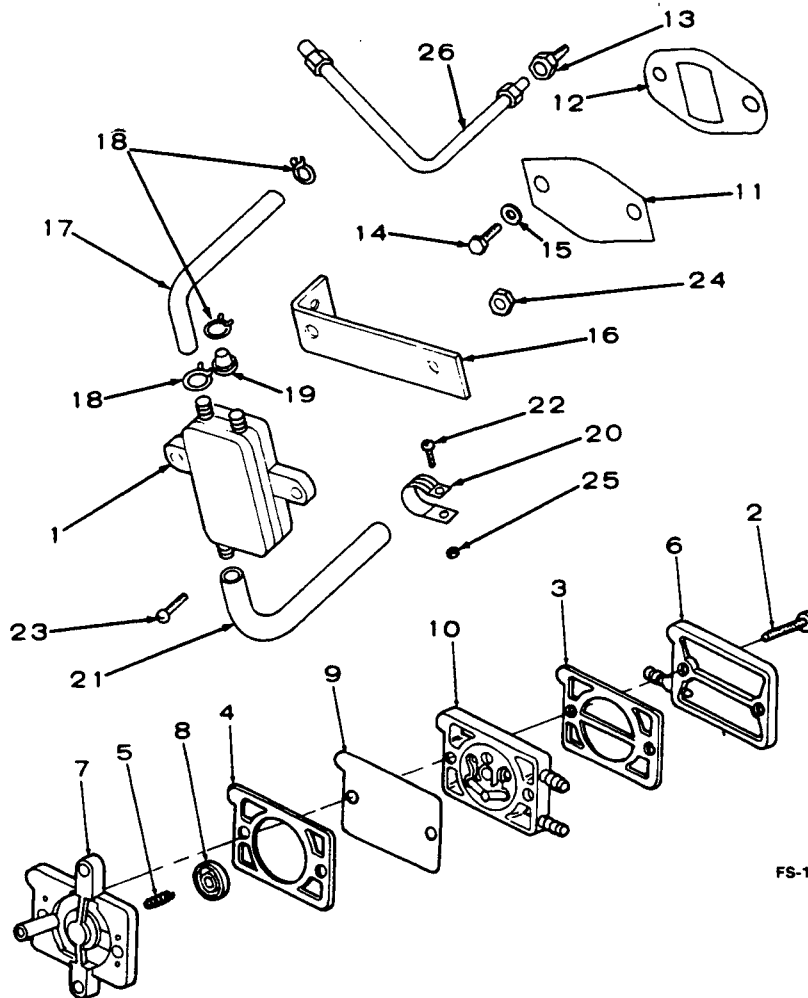
## OPTIONAL NUMBER 36 CHOKE (SISSON)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	153-0223	1	Choke, Sisson
2	153-0361	1	Link, Choke to Carburetor
3	516-0059	1	Pin, Cotter
4	526-0006	1	Washer, Flat (15/64" ID x 1/2" OD x 3/64" Thk)
5	152-0155	1	Swivel, Choke to Linkage
6	815-0104	1	Screw, Fillister Head Machine (#8-32 x 5/16")
7	815-0315	2	Screw, Cap - Hex Head W/ET (1/4-20 x 1/2")



FS-1236

**OPTIONAL NUMBER 37  
FUEL PUMP - VACUUM PULSE  
KEY 4 - SPEC J**

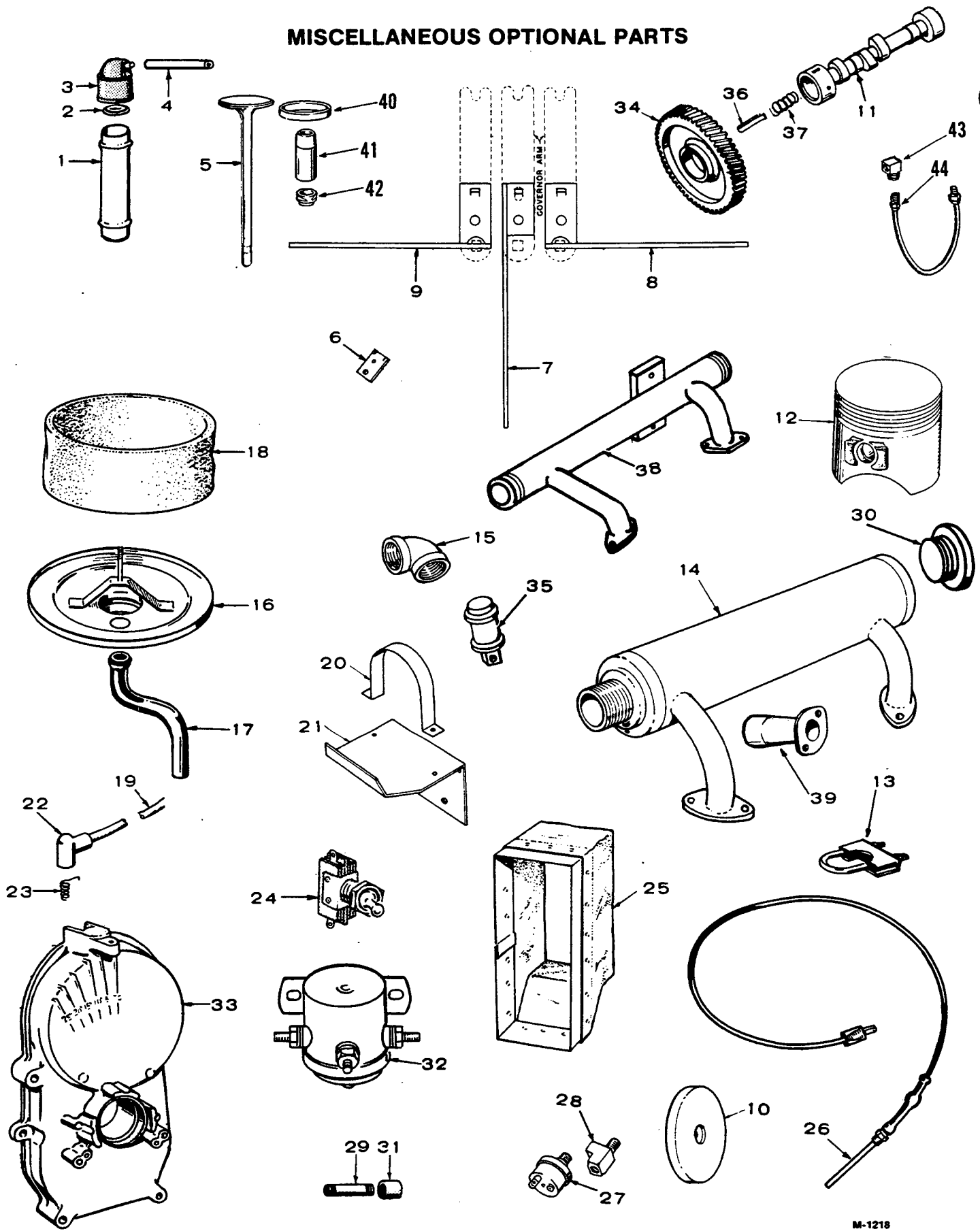


FS-1237

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	149-1982	1	Pump, Fuel - Vacuum, Pulse (Includes Parts Marked*)	15	526-0063	2	Washer (Copper) - Hole Cover Plate (17/64" ID x 7/16" OD x 1/32" Thk)
2	142-0540	2	*Screw - Pump Cover to Body	16	149-1329	1	Bracket, Mounting - Pulse Pump
3	149-1323	1	*Gasket - Cover to Valve Assembly	17	503-0573	1	Hose, Fuel - Upper (1/4" ID x 16")
4	142-0541	1	*Gasket - Pump Cover	18	503-0301	3	*Clamp, Hose (7/16")
5	142-0545	1	*Spring - Fuel Pump	19	149-1321	1	*Cap, Fuel Fitting
6	149-1983	1	*Cover, Pump (Includes Cap and Clamp)	20	332-0051	2	Clip, Wire (7/16")
7	149-1324	1	*Base, Pump	21	503-0385	1	Hose, Fuel - Lower (1/4" ID x 8")
8	142-0552	1	*Plate, Drive - Fuel Pump	22	812-0061	4	Screw, Round Head - Machine (#6-32 x 3/8")
9	142-0555	1	*Diaphragm - Fuel Pump	23	813-0102	2	Screw, Round Head - Machine (#10-32 x 5/8")
10	142-0537	1	*Valve Assembly, Reed - Fuel Pump (Includes Cap and Clamp)	24	870-0131	2	Nut, Hex (W/ET 10-32)
11	149-0136	1	Plate - Fuel Pump Hole Cover	25	870-0183	4	Nut, Hex (W/ET 6-32)
12	149-0003	2	Gasket, Fuel Pump Hole Cover	26	149-1330	1	Line, Pulse Pump
13	502-0018	1	Fitting - Pulse Pump				
14	800-0004	2	Screw, Cap - Hex Head - Fuel Pump Hole Cover (1/4-20 x 5/8")				

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

# MISCELLANEOUS OPTIONAL PARTS



M-1218

## MISCELLANEOUS OPTIONAL PARTS

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	123-0810	1	Tube, Breather (1-9/16" Diameter x 4-7/8" Long) - Specs A through H				Left Side
2	123-0315	1	Valve, Breather (1-9/16" Diameter) - Specs A through H				23-1/2" Long - Rubber Covered Terminal - Spec A through F
3	123-0787	1	Cap, Breather Tube (1-9/16" Diameter) - Specs A through H				7-1/4" Long - Eye Type Terminal - Engine with Top Mounted Coil - Spec A through F
4	123-0853	1	Hose, Breather Cap Extension (Use with 1-9/16" Diameter Cap) - Specs A through H				7-1/2" Long - Rubber Covered Terminal - Engine with Top Mounted Coil - Spec A through F
5	110-1037	2	Valve, Intake - Chrome Cobalt				Clamp, Coil - Top Mounted - Specs A through F
6	150-0635	1	Arm, Extension - Governor Arm (Rear Pull)	20	160-0624	1	Bracket, Coil - Top Mounted - Spec A through F
7	150-0755	1	Arm, Extension - Governor Arm (Front Pull)	21	160-0625	1	Cover, Spark Plug Terminal - Specs A through H
8	150-0752	1	Arm, Extension - Governor Arm (Right Side Pull)	22	166-0250	2	Spring, Contact - Spark Plug Cover - Specs A through H
9	150-0790	1	Arm, Extension - Governor Arm (Left Side Pull)	23	166-0253	2	Switch, Ignition on-off - Begin Spec F
10	134-2824	1	Guard, Flywheel Capscrew	24	308-0140	1	Anti-Vibration Package - Vacu-Flo Cooled Engines
11	105-0238	1	Camshaft - Key 4 Without Spark Advance Mechanism	25	405-1059	1	Heater Assembly, Oil Base
12	PISTON AND PIN ASSEMBLY (Piston Has Round Holes in Oil Ring Grooves and Top Groove is 9/32" from top of Piston)			26	102-0558	1	Switch, Low Oil Pressure (Also A sending Unit)
	112-0170	2	Standard Size	27	309-0237	1	Tee, Low Oil Pressure Switch
	112-0170-05	2	.005" Oversize	28	502-0058	1	NIPPLE, OIL DRAIN
	112-0170-10	2	.010" Oversize				505-0342 1 3/8 x 5-1/2" (Early Models)
	112-0170-20	2	.020" Oversize				505-0081 1 1/2 x 5-1/2" (Late Models)
	112-0170-30	2	.030" Oversize				30 CAP, PIPE
	112-0170-40	2	.040" Oversize				505-0618 1 Use With Muffler 155-1253 (1-1/2") - Spec J
13	155-1239	2	Clamp, Muffler (1-5/8") (Use With Ray Gun Muffler)				505-0329 1 Use With Exhaust Manifold 154-1909 (1-1/4") - Spec J
14	MUFFLER, EXHAUST			31	COUPLING, OIL DRAIN		
			Right Side Outlet				505-0028 1 3/8" (Early Models)
	155-0510	1	3" Diameter x 15-7/8" Long				505-0014 1 1/2" (Late Models)
	155-0859	1	3-1/2" Diameter x 16-1/2" Long				32 307-0367 1 Solenoid, Start (12 Volt)
			Left Side Outlet				33 103-0387 1 Gearcase (Includes Oil Seal) - Manual Speed Controlled Engines
	155-0550	1	3" Diameter x 15-7/8" Long				34 105-0030 1 Gear, Timing - Manual Speed Controlled Engines
	155-0859	1	3-1/2" Diameter x 16-1/2" Long				105-0150 1 Key 1 and 2
	155-1660	2	3.24" Dia x 6.3" Long (Ray Gun)				105-0233 1 Key 3 and 4 (Includes Spark Advance Mechanism Pins)
	155-1698	2	Spark Arrestor (Ray Gun)				35 313-0018 1 Switch, Push Button (Stop)
	155-1253	1	3-1/2" Dia x 19-3/16" Long (Crossover Left and Right Outlet)				36 105-0058 1 Plunger, Camshaft Thrust - Manual Speed Controlled Engines
15	505-0041	1	Elbow, Pipe - Exhaust				37 105-0059 1 Spring, Camshaft Plunger - Manual Speed Controlled Engines
16	140-1348	1	Base, Air Cleaner (Long Mounting Tube for Higher Elevation above Carburetor) - Begin Spec J				38 154-1909 1 Manifold - Exhaust - Crossover Spec J
17	123-1284	1	Hose, Breather (Use with Tall Air Cleaner Base) - Begin Spec J				39 154-1757 2 Adapter Assembly, Manifold Use with 155-1660 Muffler And 155-1698 Spark Arrestor - Spec J
18	140-1218	1	Wrapper - Air Cleaner Element (Polyurethane) - Begin Spec J				
19	CABLE, SPARK PLUG						
			Right Side				
	167-1594	1	Kit - Non-Resistor Specs A through F	40	110-1000	2	Insert, Intake (Stellite)
	167-1330	1	17-1/2" Long - Eye Type Terminal - Engine with Top Mounted Coil - Spec A through F	41	110-1827	2	Guide, Intake Valve
			17-3/4" Long - Rubber Covered Terminal - Engine with Top Mounted Coil - Spec A through F	42	509-0090	2	Seal, Oil - Intake Valve (Includes Ret. Rings)
	167-1460	1		43	502-0020	1	Elbow, Street - Oil Line
				44	501-0005	1	Line, Oil