

# THE WORLD FORMULA RACING ENGINE

## Illustrated Parts List



**124335**

TYPE NUMBER  
8101, 8102, 8103.

### **WARNING**

**TO REDUCE THE RISK OF DEATH, SERIOUS INJURY AND PROPERTY DAMAGE, AT ALL TIMES:**

- **INSTALL A RETURN TO IDLE SPRING!** This engine does not have a GOVERNOR. Before operating this engine a RETURN TO IDLE SPRING MUST BE ATTACHED to the throttle linkage and/or cable.
- **USE AN APPROPRIATE FLYWHEEL!** This engine is equipped with a stock flywheel. If the engine is MODIFIED, the STOCK FLYWHEEL MUST BE REPLACED with one appropriate for your modified engine.
- **FOLLOW BRIGGS & STRATTON REPAIR MANUAL P/N 272147 INSTRUCTIONS!** When removing and installing the flywheel and for all repairs, follow instructions and use only proper tools.
- **Special skills and knowledge are required to prepare the engine for competitive events and Sanctioned Racing.** Only qualified persons should perform this work.
- **READ AND FOLLOW OWNER'S MANUAL.**



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## BEFORE OPERATING ENGINE

- Read entire Operating & Maintenance Instructions AND the instructions for the equipment this engine powers.\*
- Failure to follow instructions could result in serious injury or death.

## THESE INSTRUCTIONS CONTAIN SAFETY INFORMATION TO

- Make you aware of hazards associated with engines
- Inform you of the risk of injury associated with those hazards, and
- Tell you how to avoid or reduce the risk of injury.

The safety alert symbol () is used to identify safety information about hazards that can result in personal injury.

A signal word (DANGER, WARNING, or CAUTION) is used with the alert symbol to indicate the likelihood and the potential severity of injury. In addition, a hazard symbol may be used to represent the type of hazard.



### DANGER

Indicates a hazard which, if not avoided, **will result in death or serious injury.**



### WARNING

Indicates a hazard which, if not avoided, **could result in death or serious injury.**



### CAUTION

Indicates a hazard which, if not avoided, **might result in minor or moderate injury.**

**CAUTION**, when used **without** the alert symbol, indicates a situation that **could result in damage to the engine.**



## WARNING



The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

## HAZARD SYMBOLS AND MEANINGS



Fire



Explosion



Toxic Fumes



Hot Surface



Moving Parts



Kickback



Shock

## THE INTERNATIONAL SYMBOLS USED ON THE ENGINE OR IN THIS MANUAL INCLUDE:



Safety Alert



Read Owner's Manual



Fuel



Fuel Shutoff



Oil



Choke



Stop



On Off



## WARNING



Engines give off carbon monoxide, an odorless, colorless, poison gas.

Breathing carbon monoxide can cause nausea, fainting or death.

- Start and run engine outdoors.
- Do not start or run engine in enclosed area, even if doors or windows are open.



## WARNING



Rapid retraction of starter cord (kickback) will pull hand and arm toward engine faster than you can let go.

Broken bones, fractures, bruises or sprains could result.

- When starting engine, pull cord slowly until resistance is felt, then pull rapidly.
- Remove all external equipment/engine loads before starting engine.
- Direct coupled equipment components such as, but not limited to, blades, impellers, pulleys, sprockets, etc., must be securely attached.

\* Briggs & Stratton does not necessarily know what equipment this engine will power. For that reason, you should carefully read and understand the operating instructions for the equipment on which your engine is placed.

 **WARNING**



Gasoline and its vapors are extremely flammable and explosive.

Fire or explosion can cause severe burns or death.

**WHEN ADDING FUEL**

- Turn engine OFF and let engine cool at least 2 minutes before removing gas cap.
- Fill fuel tank outdoors or in well-ventilated area.
- Do not overfill fuel tank. Fill tank to approximately 1-1/2 inches below top of neck to allow for fuel expansion.
- Keep gasoline away from sparks, open flames, pilot lights, heat, and other ignition sources.
- Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.

**WHEN STARTING ENGINE**

- Make sure spark plug, muffler, fuel cap and air cleaner are in place.
- Do not crank engine with spark plug removed.
- If fuel spills, wait until it evaporates before starting engine.
- If engine floods, set choke to OPEN/RUN position, place throttle in FAST and crank until engine starts.

**WHEN OPERATING EQUIPMENT**

- Do not tip engine or equipment at angle which causes gasoline to spill.
- Do not choke carburetor to stop engine.

**WHEN TRANSPORTING EQUIPMENT**

- Transport with fuel tank EMPTY or with fuel shut-off valve OFF.

**WHEN STORING GASOLINE OR EQUIPMENT WITH FUEL IN TANK**

- Store away from furnaces, stoves, water heaters or other appliances that have pilot light or other ignition source because they can ignite gasoline vapors.

 **WARNING**



Unintentional sparking can result in fire or electric shock.

Unintentional start-up can result in entanglement, traumatic amputation, or laceration.

**BEFORE PERFORMING REPAIRS OR ADJUSTMENTS**

- Disconnect spark plug wire and keep it away from spark plug.
- Disconnect battery at negative terminal (only engines with electric start).

**WHEN TESTING FOR SPARK**

- Use approved spark plug tester.
- Do not check for spark with spark plug removed.

 **WARNING**



Running engines produce heat. Engine parts, especially muffler, become extremely hot.

Severe thermal burns can occur on contact.

Combustible debris, such as leaves, grass, brush, etc. can catch fire.

- Allow muffler, engine cylinder and fins to cool before touching.
- Remove accumulated combustibles from muffler area and cylinder area.
- Install and maintain in working order a spark arrester before using equipment on forest-covered, grass-covered, brush-covered unimproved land. The state of California requires this (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal land.

 **WARNING**



Rotating parts can contact or entangle hands, feet, hair, clothing, or accessories.

Traumatic amputation or severe laceration can result.

- Operate equipment with guards in place.
- Keep hands and feet away from rotating parts.
- Tie up long hair and remove jewelry.
- Do not wear loose-fitting clothing, dangling drawstrings or items that could become caught.

 **WARNING**



Starting engine creates sparking.

Sparking can ignite nearby flammable gases.

Explosion and fire could result.

- If there is natural or LP gas leakage in area, do not start engine.
- Do not use pressurized starting fluids because vapors are flammable.

 **WARNING**

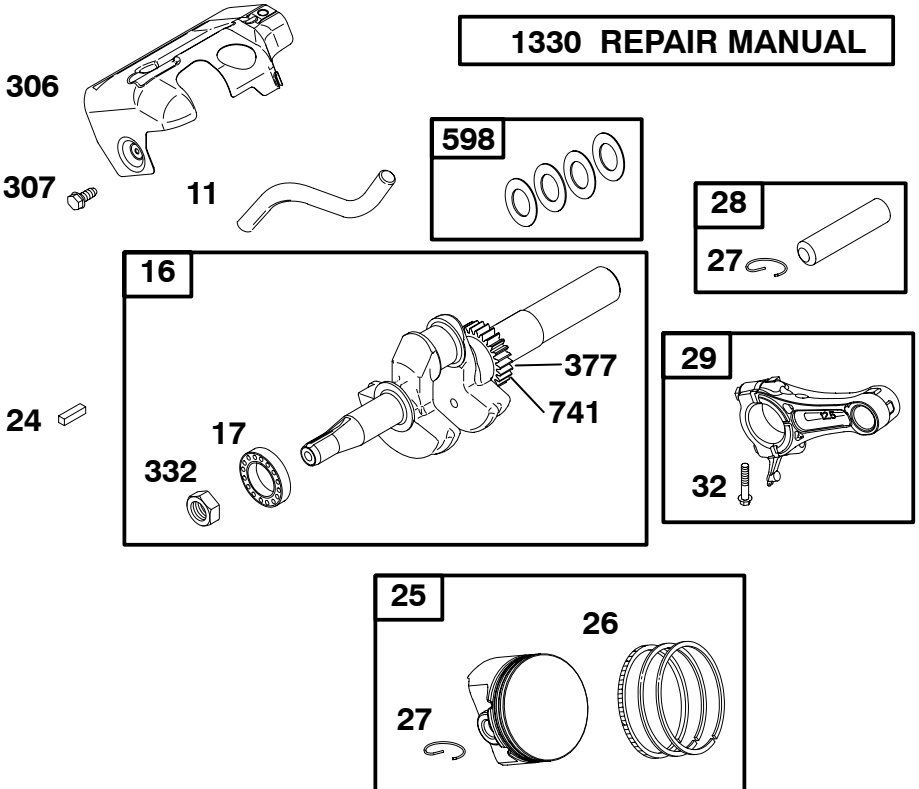
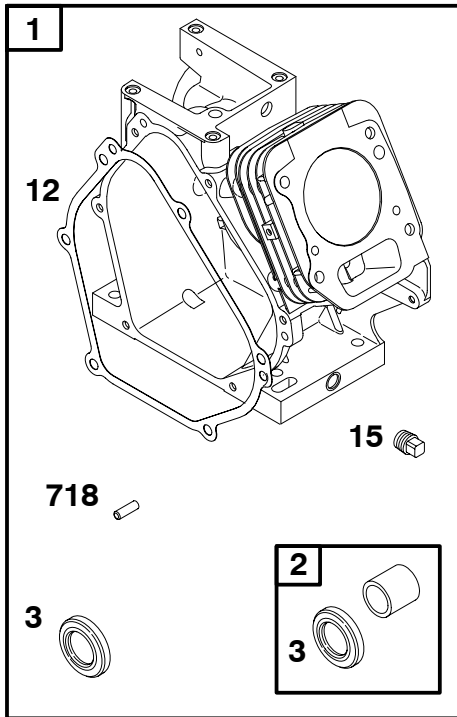


Replacement parts for fuel system (cap, hoses, tanks, filters, etc.) must be the same as original parts, otherwise fire can occur.

 **WARNING**

**DO NOT** strike the flywheel with a hammer or hard object because the flywheel may later shatter during operation.

1330 REPAIR MANUAL

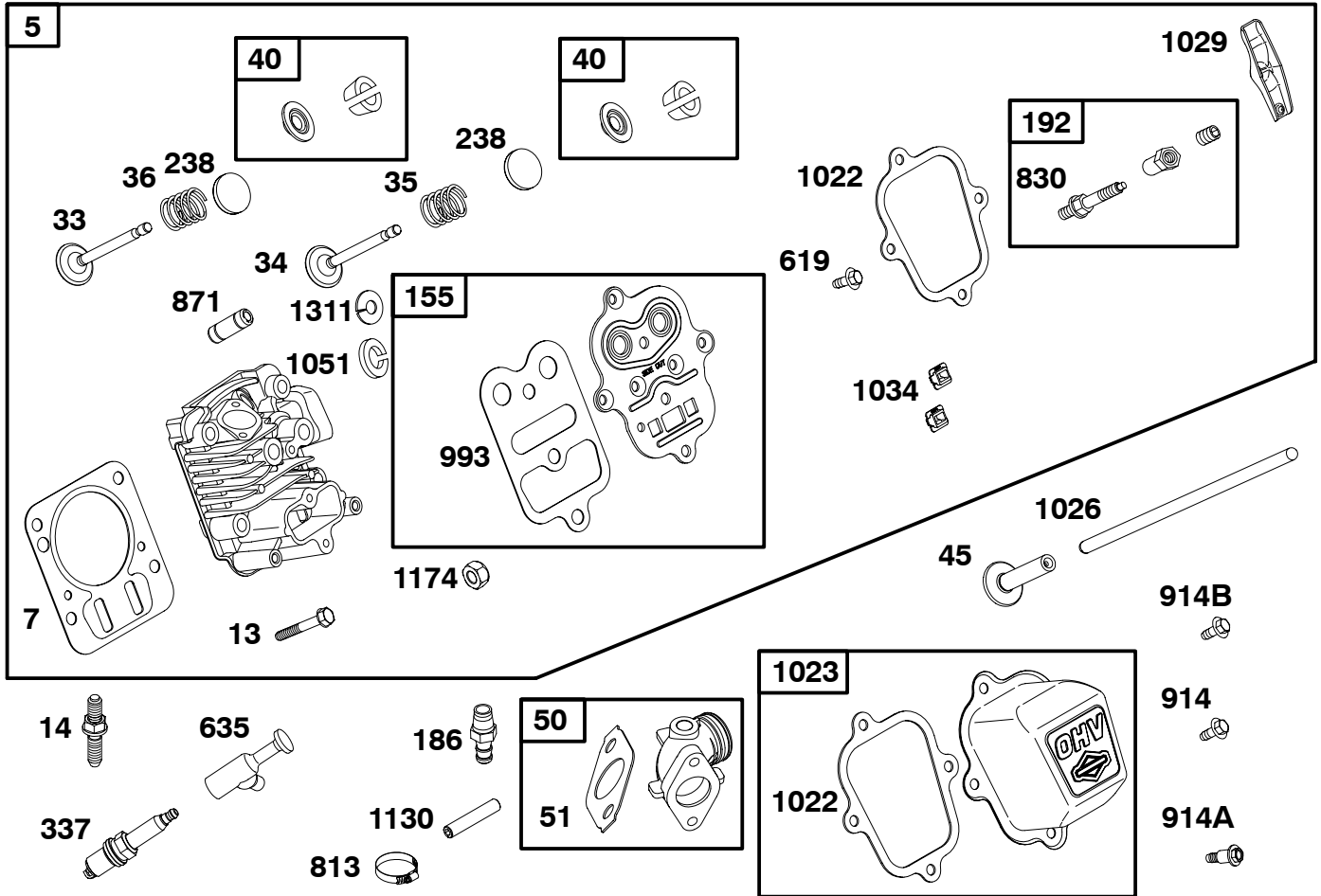


REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION		
1	555633	Cylinder Assembly	25	557001	Piston Assembly (Standard)	27	555521	Lock-Piston Pin		
2	555140	Kit-Bushing/Seal (Magneto Side)			----- <b>Note</b> -----	28	555520	Pin-Piston		
3	★299819	Seal-Oil (Magneto Side)			557002	Piston Assembly (.010" Oversize)	29	557005	Rod-Connecting (Connecting Rod)	
11	692600	Tube-Breather			557003	Piston Assembly (.020" Oversize)	306	557037	Shield-Cylinder (Cylinder Shield)	
12	★699485	Gasket-Crankcase			557004	Piston Assembly (.030" Oversize)	307	699483	Screw (Metric)	
15	555079	Plug-Oil Drain					32	557078	Screw (Connecting Rod)	
16	555622	Crankshaft					332	699359	Nut (Flywheel)	
17	698024	Bearing-Ball					598	555619	Shim-Endplay (Crankshaft)(Contains .007, .012, .018, and .025)	
24	555054	Key-Flywheel	26	555514	Ring Set (Standard)			377	555049	Key-Woodruff
					----- <b>Note</b> -----			718	555579	Pin-Locating
					555515	Ring Set (.010" Oversize)		741	555574	Gear-Timing
					555516	Ring Set (.020" Oversize)		1330	272147	Repair Manual
					555517	Ring Set (.030" Oversize)				

★ Engine Gasket Set-Reference 358  
 Δ Valve Gasket Set-Reference 1095

● Carburetor Overhaul Kit-Reference 121

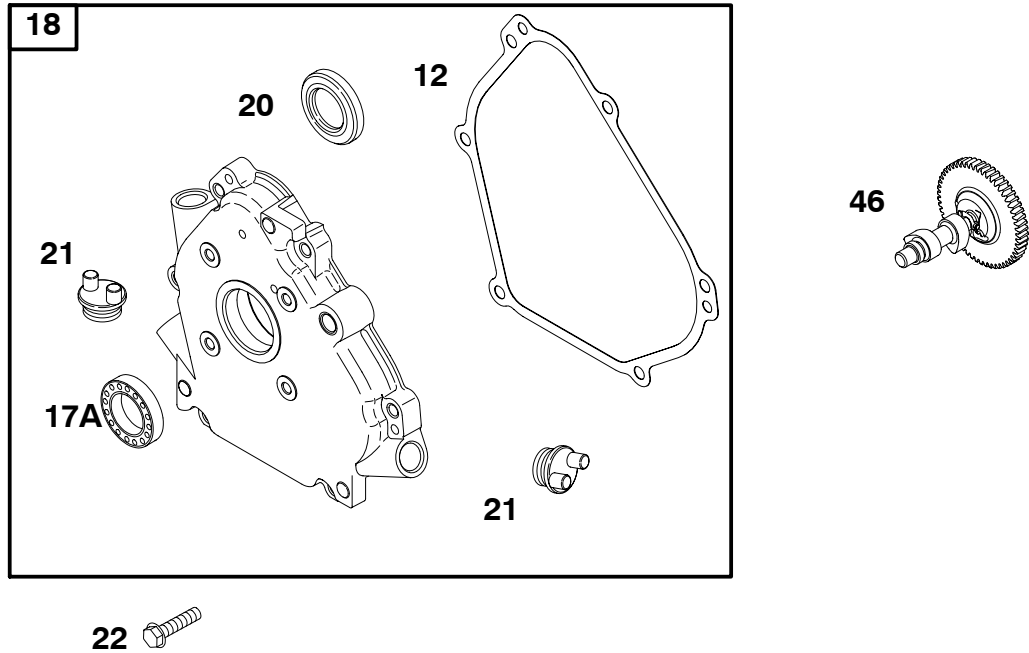
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REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
5	557101	Head-Cylinder	155	698214	Plate-Cylinder Head			(Rocker Cover)
7	★Δ698210	Gasket-Cylinder Head	186	557054	Connector-Hose			(Center)
13	699482	Screw (Cylinder Head) (Metric)	192	694543	Adjuster-Rocker Arm	993	★Δ694088	Gasket-Cylinder Head Plate
14	557097	Stud (Cylinder Head)	238	557016	Cap-Valve	1022	★Δ691890	Gasket-Rocker Cover
33	557018	Valve-Exhaust	337	557039	Plug-Spark	1023	555528	Cover-Rocker
34	557017	Valve-Intake	619	699230	Screw (Cylinder Head Plate) (Metric)	1026	555531	Rod-Push
35	557024	Spring-Valve (Intake)	635	692927	Boot-Spark Plug	1029	557015	Arm-Rocker
36	557024	Spring-Valve (Exhaust)	813	557051	Clamp (Intake Manifold)	1034	691343	Guide-Push Rod
40	557025	Retainer-Valve	830	694544	Stud-Rocker Arm	1051	557026	Ring-Retaining
45	557098	Tappet-Valve	871	555645	Bushing-Valve Guide (.002" Oversize)	1130	557108	Stud (Intake Manifold)
50	557009	Manifold-Intake	914	699481	Screw (Rocker Cover) (Bottom) (Metric)	1174	557102	Nut (Intake Manifold)
51	★557044	Gasket-Intake	914A	555542	Screw (Rocker Cover) (Top)	1311	557099	Washer (Intake Manifold)
			914B	555614	Screw			

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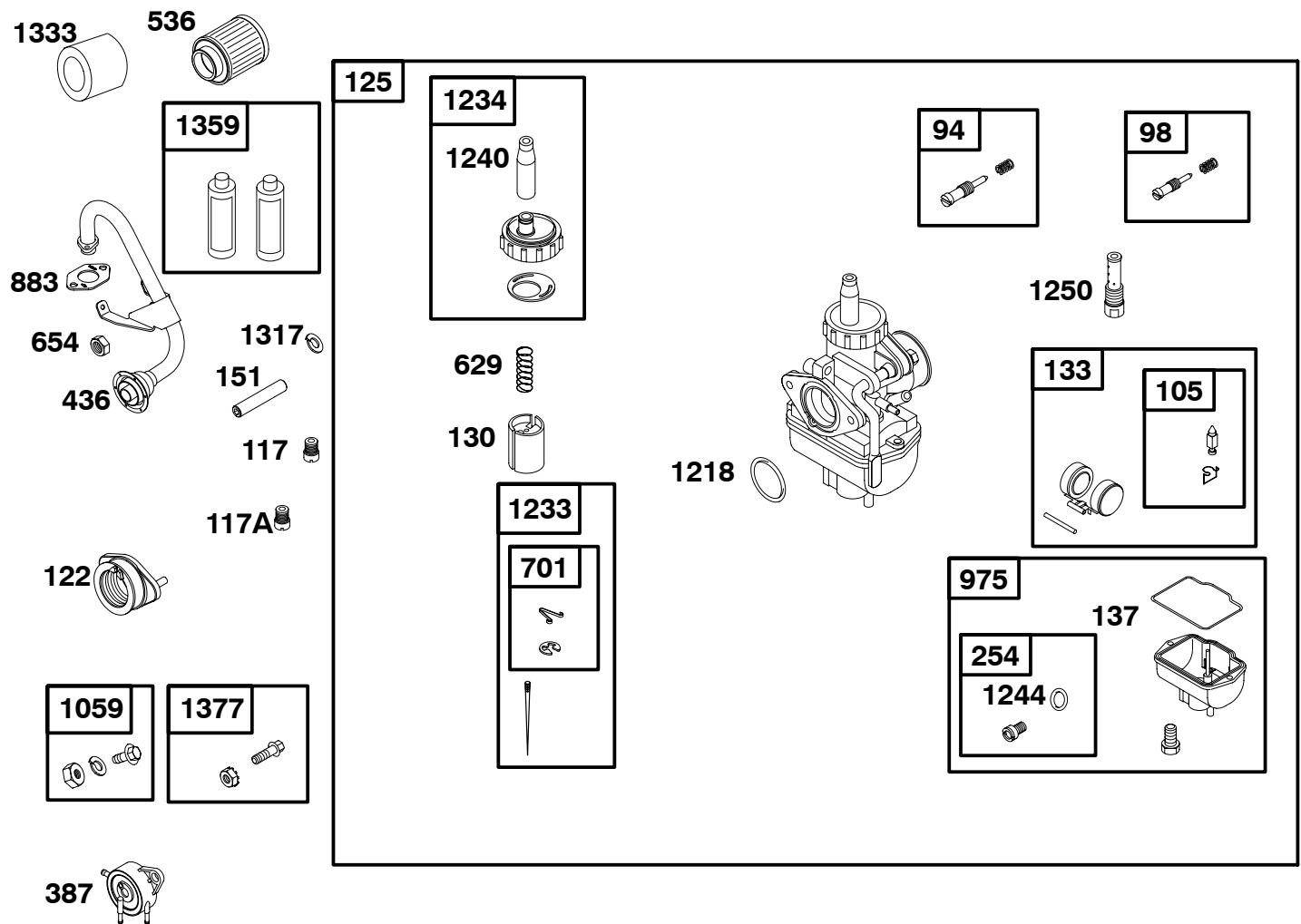


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12	★699485	Gasket-Crankcase	21	281658	Cap-Oil Fill	46	557041	Camshaft
17A	692517	Bearing-Ball	22	699478	Screw (Crankcase Cover/Sump) (Metric)			
18	557103	Cover-Crankcase						
20	★692550	Seal-Oil (PTO Side)						

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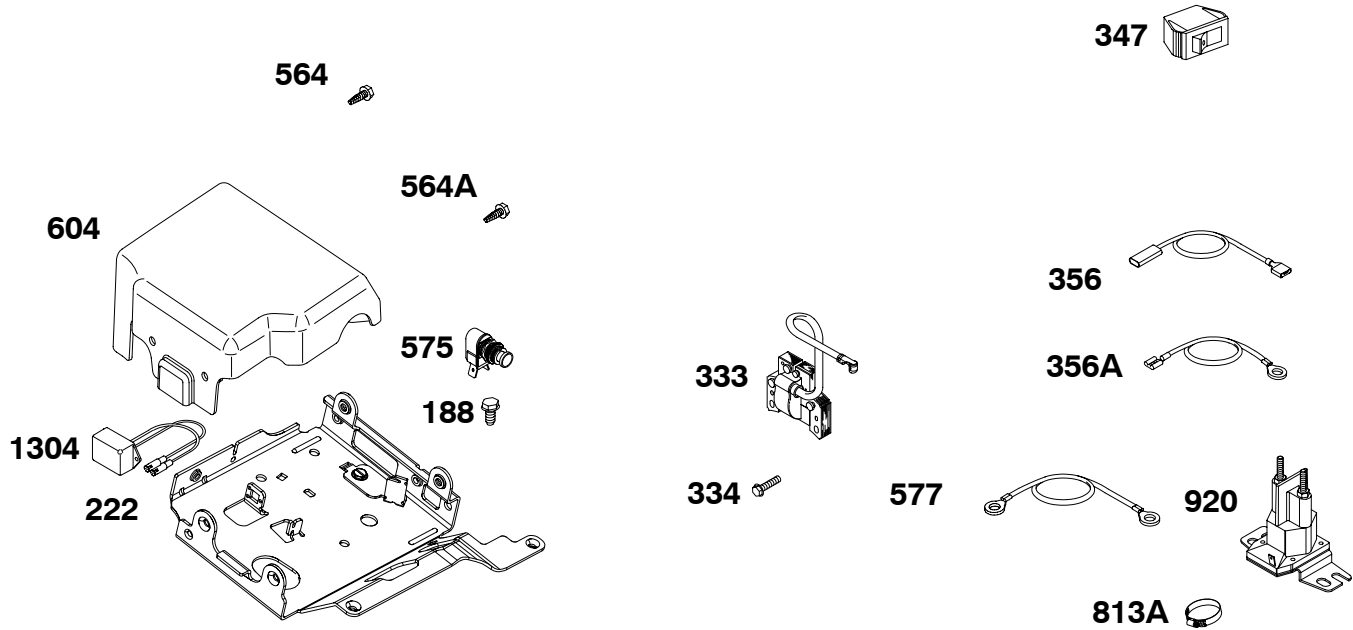
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REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
94	555585	Kit-Idle Mixture	436	557045	Manifold-Exhaust Used on Type No(s). 8101, 8102.	1059	557105	Kit-Screw/Washer Used on Type No(s). 8101, 8102.
98	555586	Kit-Idle Speed	536	698973	Cleaner-Air	1218	●557007	Seal-O Ring (Carburetor)
105	555648	Valve-Needle Float	629	557087	Spring-Throttle Return	1233	557081	Jet-Needle
117	555536	Jet-Main (Gasoline) (Contains: 30 and 34mm Pilot Jets, 93, 95, 96, 98 and 100mm Main Jets)	654	555323	Nut (Carburetor)	1234	557088	Cap-Throttle Cable
117A	555639	Jet-Main (Blank)(Contains 5)	701	555650	Retainer-Needle Valve (Contains 5 Clips and 5 Retainers)	1240	555647	Boot-Throttle Cable
122	557050	Spacer-Carburetor	883	557047	Gasket-Exhaust Used on Type No(s). 8101, 8102.	1244	555610	Seal-O Ring (Carburetor Bowl Drain)
125	557006	Carburetor	975	557008	Bowl-Float	1250	557086	Tube-Emulsion
130	557083	Valve-Throttle				1317	557099	Washer (Exhaust Manifold)
133	557080	Float-Carburetor				1333	557096	Cover-A/C Water Repellant
137	●557082	Gasket-Float Bowl				1359	100094	Kit-Filter Recharging
151	557097	Stud (Exhaust Manifold)				1377	555646	Kit-Screw/Nut (Carburetor to Spacer) (Metric)
254	555607	Drain-Carburetor Bowl						
387	808656	Pump-Fuel						

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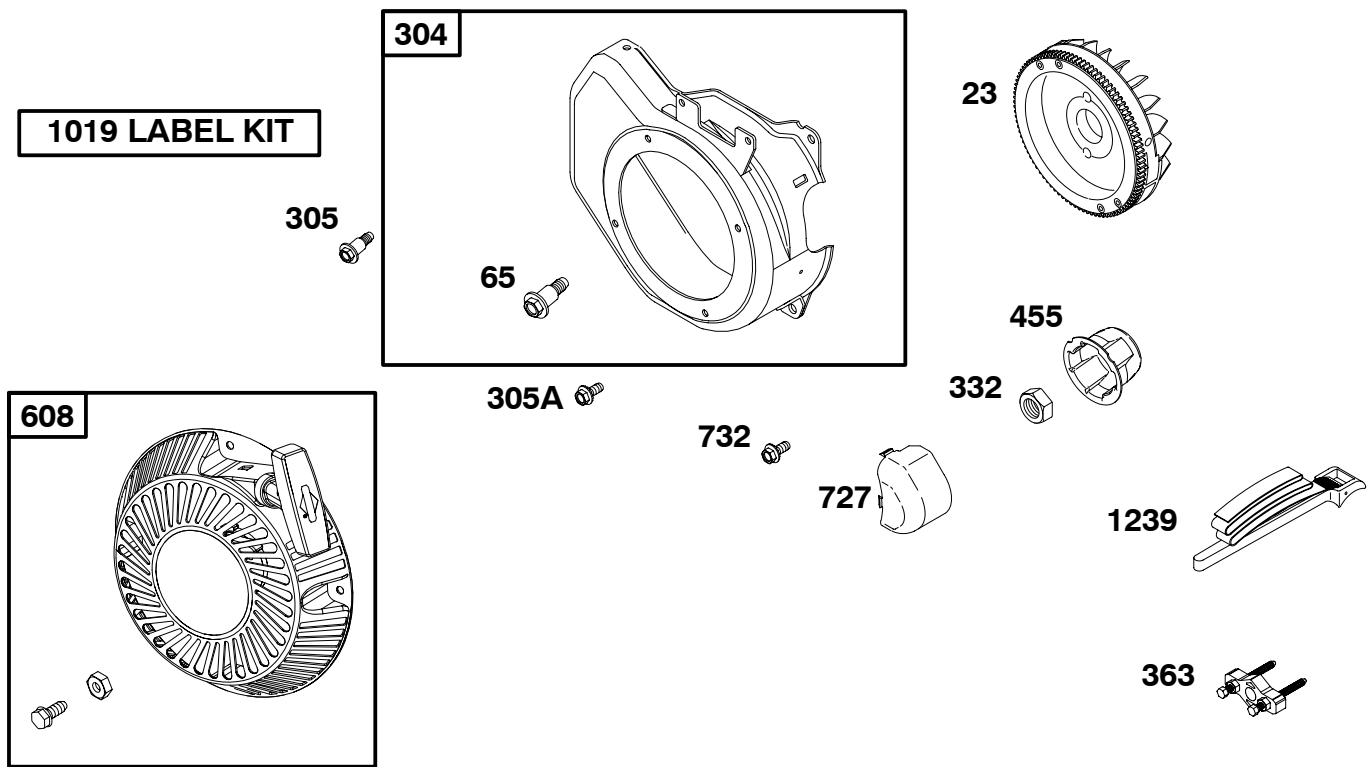


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188	699479	Screw (Control Bracket) (Metric)	347	555564	Switch-Rocker	564	699491	Screw (Control Cover) (Metric)
222	699493	Bracket-Control	356	555569	Wire-Stop (Rocker Switch)	564A	699492	Screw (Control Cover) (Metric)
333	557040	Armature-Magneto	356A	555568	Wire-Stop	575	557028	Switch-Starting
334	699477	Screw (Magneto Armature) (Metric)				577	555373	Cable-Starter
						604	555613	Cover-Control
						813A	555382	Clamp (Solenoid Starter)
						920	557067	Starter-Solenoid
						1304	557000	Limiter-Rev

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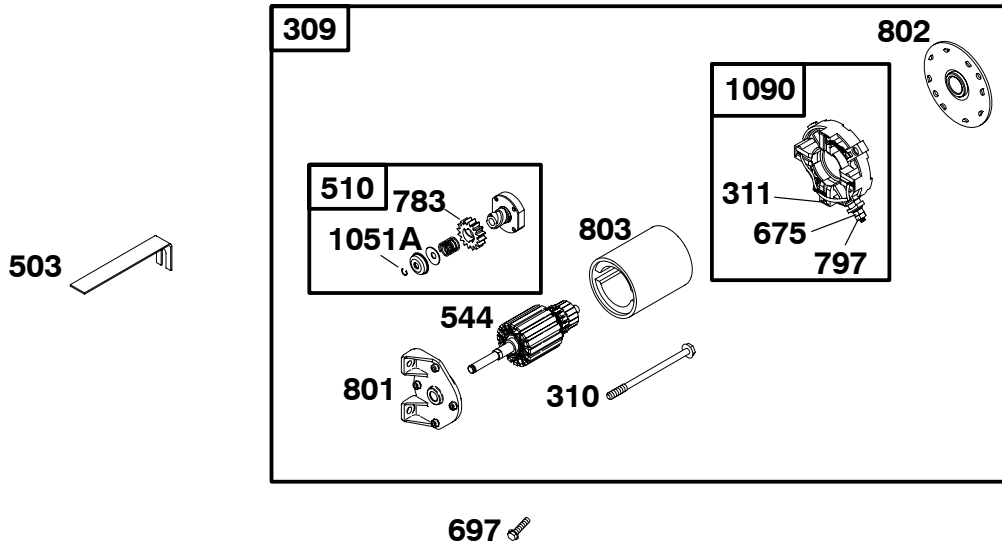




REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
23	555625	Flywheel	332	699359	Nut (Flywheel)			
65	557107	Screw (Rewind Starter) (Metric)	363	19069	Puller-Flywheel			
304	555623	Housing-Blower	455	555518	Cup-Flywheel			
305	555629	Screw (Blower Housing) (Metric)	608	555576	Starter-Rewind			
305A	557042	Screw (Blower Housing)	727	698039	Cover-Starter Drive			
			732	699200	Screw (Starter Drive Cover)			
			1019	555577	Kit-Label			
			1239	19433	Wrench-Flywheel			

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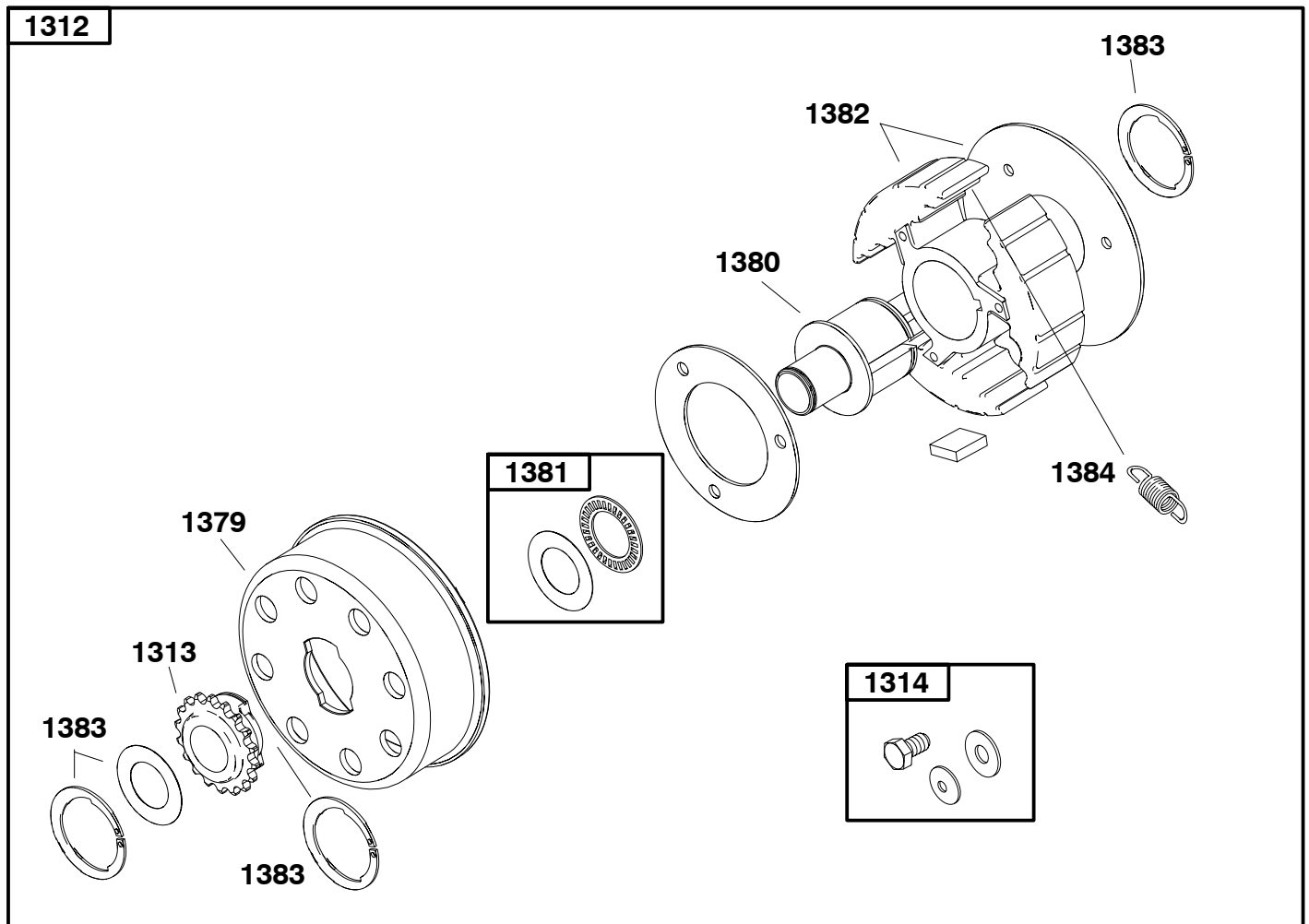
● Carburetor Overhaul Kit-Reference 121



REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
309	557068	Motor-Starter	675	691261	Washer (Brush Retainer)	797	555380	Nut (Brush Retainer)
310	557077	Screw (Starter Motor)	697	790537	Screw (Starter Motor)	801	557076	Cap-Drive
311	497608	Brush Set	783	557071	Gear-Pinion	802	557074	Cap-End
503	691532	Strap-Starter				803	557072	Housing-Starter
510	557069	Drive-Starter				1051A	557070	Ring-Retaining
544	557075	Starter-Armature				1090	557073	Retainer-Brush

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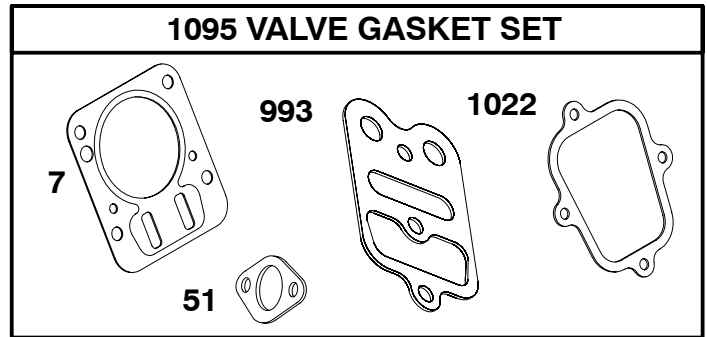
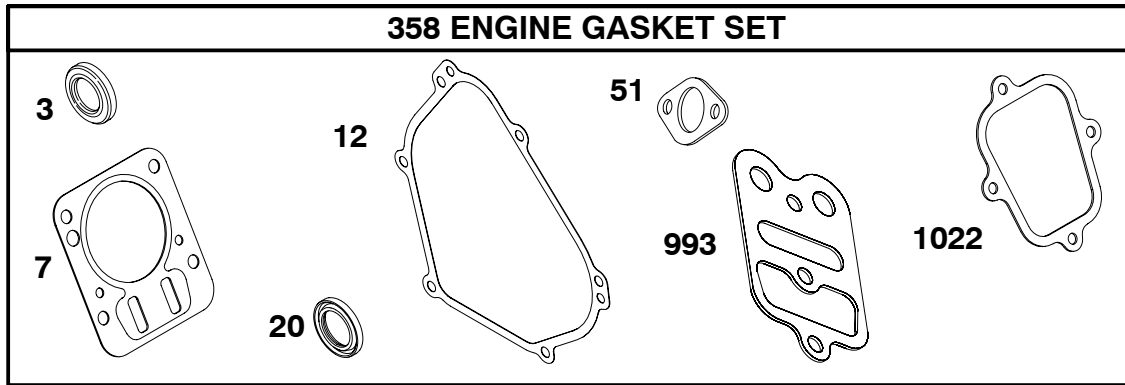
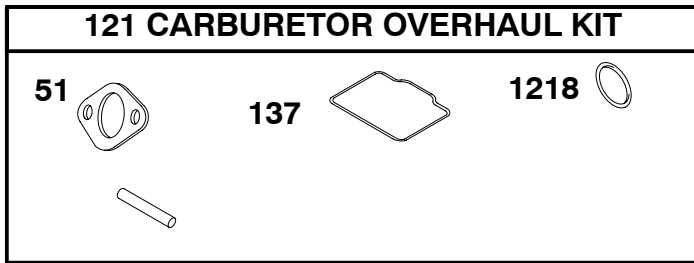
● Carburetor Overhaul Kit-Reference 121



REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1312	557023	Clutch-Centrifugal Used on Type No(s). 8101, 8102.	1314	557019	Mounting-Hardware Used on Type No(s). 8101, 8102.	1382	557114	Clutch-Cartridge (Springs Included) Used on Type No(s). 8101, 8102.
1313	557020	Gear-Clutch (17T, #219) Used on Type No(s). 8101,8102.	1379	557111	Clutch-Drum Used on Type No(s). 8101, 8102.	1383	557115	Rings-Snap Used on Type No(s). 8101, 8102.
		----- <b>Note</b> ----- <b>557021</b> Gear-Clutch (16T, #219) Used on Type No(s). 8101, 8102.	1380	557112	Clutch-Hub Shaft Used on Type No(s). 8101, 8102.	1384	557116	Spring-Cartridge Kit includes: 3 Orange, 3 Yellow) Used on Type No(s). 8101, 8102.
		<b>557090</b> Gear-Clutch (19T, #219) Used on Type No(s). 8101, 8102.	1381	557113	Clutch-Thrust Spacer/ Bearing Used on Type No(s). 8101, 8102.			
		<b>557091</b> Gear-Clutch (18T, #219) Used on Type No(s). 8101, 8102.						

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REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
3	★299819	Seal-Oil (Magneto Side)	121	557089	Kit-Carburetor Overhaul	1022	★Δ691890	Gasket-Rocker Cover
7	★Δ698210	Gasket-Cylinder Head	137	●557082	Gasket-Float Bowl	1095	557027	Gasket Set-Valve
12	★699485	Gasket-Crankcase	358	557110	Gasket Set-Engine	1218	●557007	Seal-O Ring (Carburetor)
20	★692550	Seal-Oil (PTO Side)	993	★Δ694088	Gasket-Cylinder Head Plate			
51	★●Δ557044	Gasket-Intake						

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