



RACING ENGINES

# Racing Performance Catalog & Reference Guide



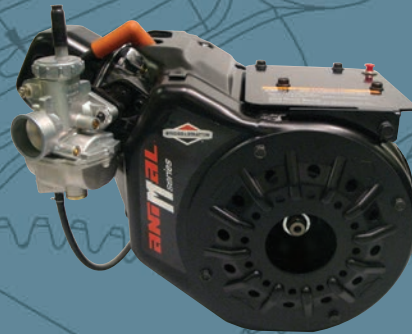
**Junior 206**  
Model/Type: 124332 8202-01  
(Kids kart/Supermileage)



**Animal**  
Model/Type: 124332 8003-01  
(Karting)



**206**  
Model/Type: 124332 8201-01  
(Karting/Snowmobiling/Jr. Drag)



**M-series**  
Model/Type: 124332 8203-01  
(Quarter Midget)



Version (REV. E)





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**FULL SYNTHETIC  
BRIGGS & STRATTON  
4T RACING  
OIL**

CUSTOM ENGINEERED BY  
**AMSOIL**

# NO COMPROMISES.

At the end of the day the effort you put into racing directly determines your outcome. You wouldn't compromise on your approach to racing, so why would you with your oil? What if there was an oil engineered specifically for high-revving, air-cooled racing engines, methanol or gas fuels, that gives you the power of a lite oil yet the wear protection of a heavy oil? What if that oil also had the added benefits of wear protection and a corrosion inhibitor to safeguard your investment during, between, and after the season was over?

COMPROMISES LEAD TO WHAT-IF'S AND AS RACERS THAT ISN'T PART OF OUR DNA, NO MORE COMPROMISES.

**INTRODUCING THE BRIGGS & STRATTON 4T FULL SYNTHETIC OIL CUSTOM ENGINEERED BY AMSOIL.**

- MAXIMUM HORSEPOWER
- OUTSTANDING WEAR PROTECTION
- EXCLUSIVE SYNTHETIC FORMULATION
- EXHAUSTIVELY TESTED ON THE DYNO AND ON THE TRACK
- DESIGNED FOR HIGH REVVING, AIR-COOLED RACING ENGINES

Available through any participating Briggs & Stratton Racing Dealer or your local AMSOIL source of supply. (Part Number GIS 2000)

Part Number: GIS2000



### 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


## OPERATOR SAFETY


### SAFETY AND CONTROL SYMBOLS



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, could result in minor or moderate injury.

**NOTICE** indicates a situation that could result in damage to the product.



### WARNING

Certain components in this product and its related accessories contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. Wash hands after handling.



### WARNING

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



### WARNING

Briggs & Stratton® Race engines are not designed for and are not to be used to power fun-karts, children's, recreational, or sports all-terrain vehicles (ATVs), motorbikes, scooters, hovercraft, airplane produces, or any other vehicle used outside of sanctioned racing. For information about competitive racing products, see [www.briggsracing.com](http://www.briggsracing.com). For use with utility and side-by-side ATVs, please contact Briggs & Stratton Engine Application Center, 1-866-927-3349. Improper engine application may result in serious injury or death.

**NOTICE:** This engine was shipped from Briggs & Stratton without oil. Before you start the engine, make sure you add oil according to the instructions in this manual. If you start the engine without oil, it will be damaged beyond repair and will not be covered under warranty.



### WARNING

 **Fuel 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 the fuel cap.
- Fill fuel tank outdoors or in well-ventilated area.
- Do not overfill fuel tank. To allow for expansion of the fuel, do not fill above the bottom of the fuel tank neck.
- Keep fuel 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.
- If fuel spills, wait until it evaporates before starting engine.

#### When Starting Engine

- Ensure that spark plug, muffler, fuel cap and air cleaner (if equipped) are in place and secured.
- Do not crank engine with spark plug removed.
- If engine floods, set choke (if equipped) to OPEN/RUN position, move throttle (if equipped) to FAST position and crank until engine starts.

#### When Operating Equipment

- Do not tip engine or equipment at angle which causes fuel to spill.
- Do not choke the carburetor to stop engine.
- Never start or run the engine with the air cleaner assembly (if equipped) or the air filter (if equipped) removed.

#### When Changing Oil

- When you drain the oil from the top oil fill tube, the fuel tank must be empty or fuel can leak out and result in a fire or explosion.

#### When Transporting Equipment

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

#### When Storing Fuel Or Equipment With Fuel In Tank

- Store away from furnaces, stoves, water heaters or other appliances that have pilot lights or other ignition sources because they can ignite fuel vapors.

\*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**

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**

**POISONOUS GAS HAZARD.** Engine exhaust contains carbon monoxide, a poisonous gas that could kill you in minutes. You **CANNOT** see it, smell it, or taste it. Even if you do not smell exhaust fumes, you could still be exposed to carbon monoxide gas. If you start to feel sick, dizzy, or weak while using this product, shut it off and get to fresh air **RIGHT AWAY**. See a doctor. You may have carbon monoxide poisoning.

- Operate this product **ONLY** outside far away from windows, doors and vents to reduce the risk of carbon monoxide gas from accumulating and potentially being drawn towards occupied spaces.
- Install battery-operated carbon monoxide alarms or plug-in carbon monoxide alarms with battery back-up according to the manufacturer's instructions. Smoke alarms cannot detect carbon monoxide gas.
- **DO NOT** run this product inside homes, garages, basements, crawlspaces, sheds, or other partially-enclosed spaces even if using fans or opening doors and windows for ventilation. Carbon monoxide can quickly build up in these spaces and can linger for hours, even after this product has shut off.
- **ALWAYS** place this product downwind and point the engine exhaust away from occupied spaces.

**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 the starter cord slowly until resistance is felt and then pull rapidly to avoid kickback.
- 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.

**WARNING****Risk of death or serious injury**

Work must be performed on engine prior to starting or operating to reduce the risk of death, serious injury and property damage.

**Before using this engine:**

- Install a return to idle spring. This engine does not have a governor.
- After any engine modification replace stock flywheel with an appropriate flywheel.

**Read Repair Manual**

Special skills and knowledge are required to prepare the engine for competitive events and sanctioned racing. Only qualified persons should perform this work.

**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**

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 debris from muffler area and cylinder area.
- It is a violation of California Public Resource Code, Section 4442, to use or operate the engine on any forest-covered, brush-covered, or grass-covered land unless the exhaust system is equipped with a spark arrester, as defined in Section 4442, maintained in effective working order. Other states or federal jurisdictions may have similar laws. Contact the original equipment manufacturer, retailer, or dealer to obtain a spark arrester designed for the exhaust system installed on this engine.

**WARNING**

Unintentional sparking can result in fire or electric shock.

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



Fire hazard

**Before performing adjustments or repairs:**

- Disconnect the spark plug wire and keep it away from the spark plug.
- Disconnect battery at negative terminal (only engines with electric start).
- Use only correct tools.
- Do not tamper with governor spring, links or other parts to increase engine speed.
- Replacement parts must be of the same design and installed in the same position as the original parts. Other parts may not perform as well, may damage the unit, and may result in injury.
- Do not strike the flywheel with a hammer or hard object because the flywheel may later shatter during operation.

**When testing for spark:**

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

Each racer is solely responsible to check and maintain engine legality per the rule set they compete under.

**Due to the conditions inherent in racing, Briggs & Stratton does not warrant race engines or parts.**

## GENERAL SPECS

Model: 124332

Type: 8003-01 – Animal

8201-01 – Jr. 206

8202-01 – LO 206

8203-01 – M Series

Displacement: 12.48 Cu. in. - 204cc

Design: Slant, 30 degree Overhead Valve

Bore: 2.6875/2.6885 in.

Stroke: 2.2 in.

Compression Ratio: 8.5 to 1

Factory Timing: 29 degrees BTDC

## SPECIAL TOOL REQUIREMENTS

General Model 12 Manual Part No. 276781

Flywheel Holder Tool Part No. 19433

PVL™ Flywheel Puller Part No. 19584

## RACING SPECIFICS

PVL™ Ignition Module Gap - .010/.014 (.15/.36mm)

Digital Rev Limiter: Max. 12,000 RPM - Part No. 555681

Max. 6,100 RPM - Part No. 555718

Max. 4,100 RPM - Part No. 555725

*Oil - Briggs & Stratton Racing recommends using **ONLY** 14 ounces of Briggs & Stratton 4T full-synthetic racing oil. Briggs & Stratton 4T was specially engineered and tested in conjunction with Briggs & Stratton to protect your investment from the rigors of racing without compromising performance or longevity. Air-cooled, splash lube oil system along with strict manufacturing tolerances and component materials require oil engineered for the task. We do NOT recommend the use of automotive oils as these products were engineered for pressure lubed systems and the lower operating temperatures. We also **strongly** recommend against the use of 'karting' labeled oils as PAG based oils are extremely hydroscopic by nature (attract water), have a low solubility and TBN, and vaporize within the range of our operating temperatures. Briggs & Stratton 4T Racing oil, p/n GBS2960, is available through your local Briggs Racing or Amsoil dealer.*

## OPTIONAL PERFORMANCE PARTS

High - G/Force Breather Bypass System - Part No. 555688

Magnetic Drain Plug - Part No. 691663

Gearbox Splined Crankshaft - Part No. 555722

6-1 Gearbox Complete - Part No. 555721 (page 9)

Electric Starter Kit - Part No. 555703

Fuel Filter - Part No. 394358S

206 Stator Lighting System (snowmobile) - Part No.555773

## TORQUE SPECS

DESCRIPTION	WRENCH/SOCKET SIZE	TORQUE
Air Guard	7mm	40-50 lb-in. (4.5-5.6 Nm)
Blower Housing	10mm & 3/8"	60-110 lb-in. (7-12.5 Nm)
Carburetor (to manifold)	10mm	80-110 lb-in. (9-12.4 Nm)
Connecting Rod	5/16"	125-135 lb-in. (14-15 Nm)
Cylinder Head Bolts	10mm	200-220 lb-in. (20-27 Nm)
Exhaust Brace Screws	10mm	95-125 lb-in. (11-14 Nm)
Exhaust Stud	10mm	95-125 lb-in. (11-14 Nm)
Flywheel Nut	15/16	55-75 ft-lbs. (74.5-101 Nm)
Flywheel Fan	10mm	180-240 lb-in. (20-27 Nm)
Intake (to cylinder)	5mm Allen	70-90 lb-in. (8-10.2 Nm)
Oil Drain Plug	3/8"	100-125 lb-in. (11-14 Nm)
PVL Module	7mm	20-35 lb-in. (2.3-4 Nm)
Rocker Arm Stud	US-7/16", metric-10mm	90-120 lb-in. (10-14 Nm)
Rocker Arm Plate	10mm	70-90 lb-in. (7.9-10.1 Nm)
Rocker Arm Set Screw	US-1/8" Allen, metric-4mm	50-70 lb-in. (5.6-7.9 Nm)
Spark Plug	5/8" Deep	95-145 lb-in. (11-16.4 Nm)
Side Cover	10mm (patched, grade 8.8) 10mm (unpatched, grade 8.8) 10mm (patched, grade 10.8)	215-230 lb-in. (24-26 Nm) 160-175 lb-in. (18-19 Nm) 260-270 lb-in. (29-30 Nm)
Starter Gear	#2 Phillips	35-53 lb-in. (4-6 Nm)
Top Control Plate	10mm	70-90 lb-in. (8-10 Nm)
Valve Cover	10mm Lower & 3/8"	30-60 lb-in. (3.5-7 Nm)

## RACE ONLY FEATURES:

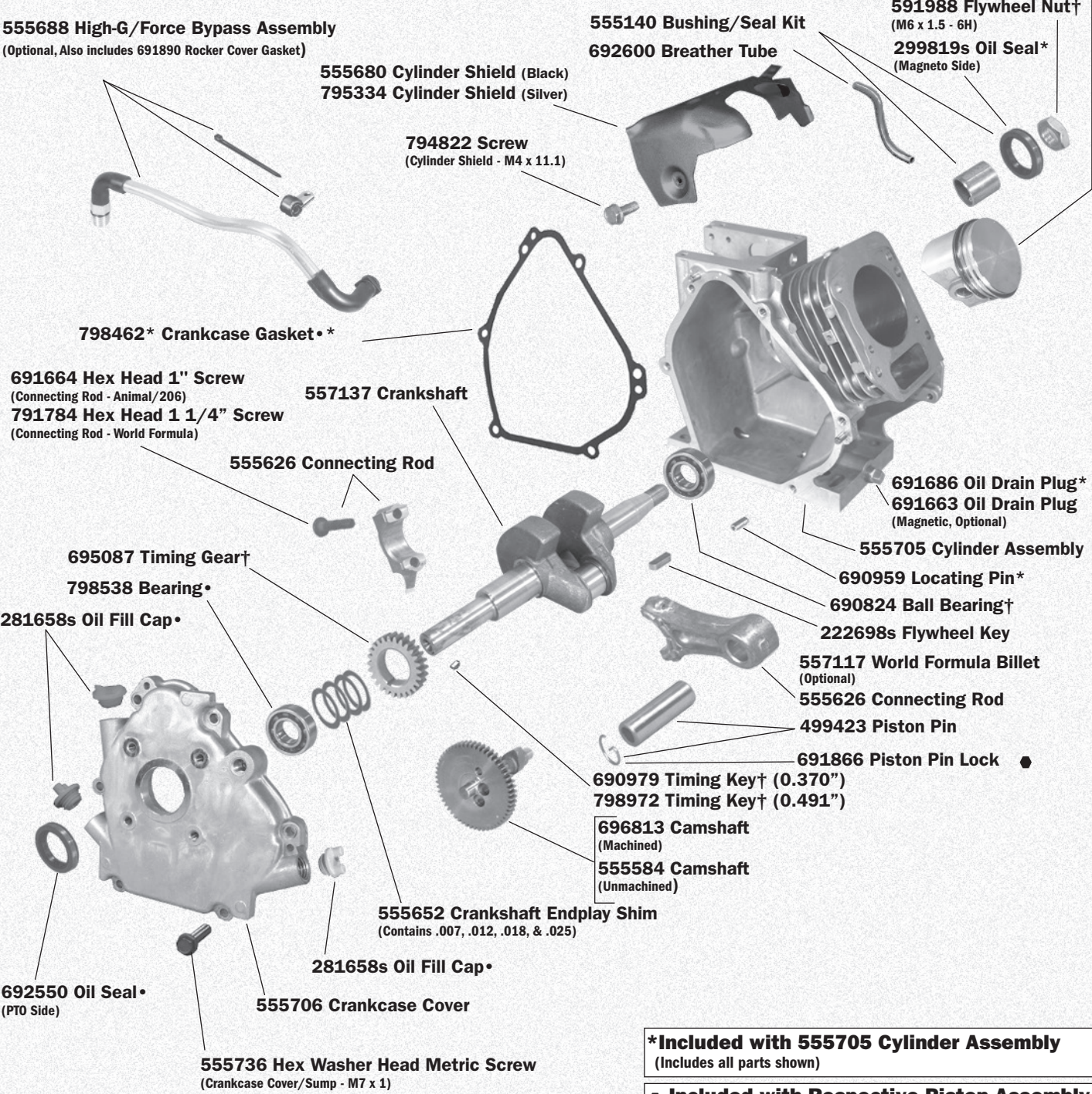
- Reinforced, Cast Iron Sleeved, Dual Ball Bearing RACING cylinder
- Single cast, custom aluminum alloy cylinder head with high-flow intake port, custom seat/guide material
- Squeeze cast, T-7 heat treated aluminum rod with reinforced I-beam
- Carbon steel crankshaft with Induction hardened micro-polished crankpin reinforced timing gear
- Cam ground, barrel faced, eutectic alloy piston with 3 piece ring set with chrome faced top ring
- .255 max. lift ground cam with nitrited lobes and built-in mechanical compression release
- High silicon racing engineered valve springs for seasons of racing
- High grade stainless steel, dished valves with nitrited exhaust
- 3-piece automotive style keepers and reinforced rocker arm and lock ball
- PVL Digital ignition with built-in rpm rev limiter
- PVL steel hub, cast aluminum flywheel
- Briggs & Stratton tooled 22mm round slide, fully adjustable jet carburetor
- Sealing Interface Solutions custom graphite composite mesh, fire ring head gasket (Animal)
- Splined, heat-treated carbon steel crankshaft for 6-1 gearbox p/n 555721 installation (M-series)

# ANIMAL cylinder assembly

(Engine Model Series 124432)

ANIMAL ENGINES

<b>555660 Piston Assembly</b> (Std.)	<b>555664 Ring Set</b> ● (Std.)	<b>555692 Ring Set</b> (.010" Over Compression Ring)	<b>55513 Ring Set</b> (.10" Over - Contains 10 Top Rings)
<b>555661 Piston Assembly</b> (.10" Over)	<b>555665 Ring Set</b> ● (.10" Over)	<b>555693 Ring Set</b> (.020" Over Compression Rings)	<b>55514 Ring Set</b> (.20" Over - Contains 10 Top Rings)
<b>555662 Piston Assembly</b> (.20" Over)	<b>555666 Ring Set</b> ● (.20" Over)	<b>555694 Ring Set</b> (.030" Over Compression Ring)	<b>55515 Ring Set</b> (.30" Over - Contains 10 Top Rings)
<b>555663 Piston Assembly</b> (.30" Over)	<b>555667 Ring Set</b> ● (.30" Over)		



**\* Included with 555705 Cylinder Assembly**  
(Includes all parts shown)

**● Included with Respective Piston Assembly**  
(Includes all parts shown)

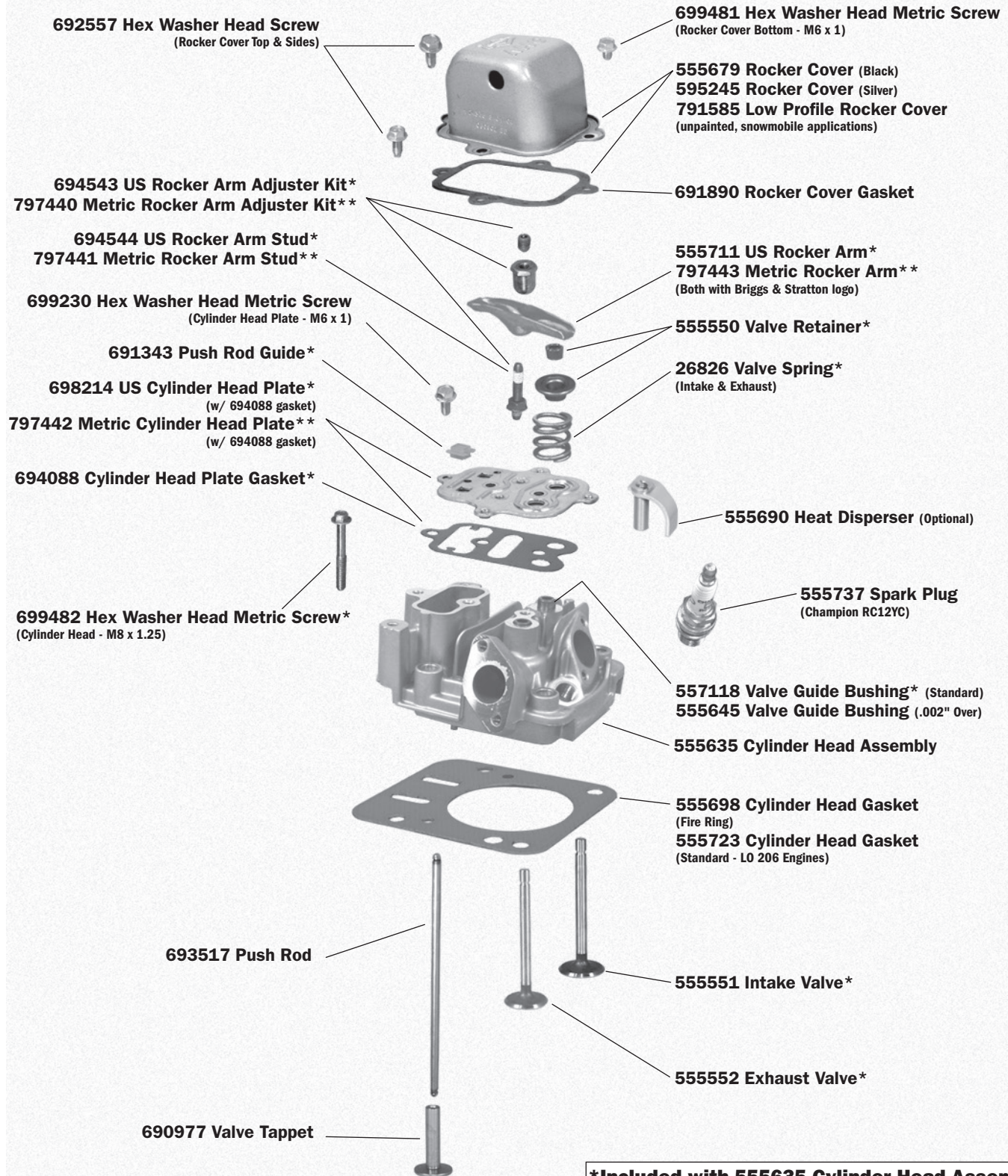
**† Included with 557137 Crankshaft**

**• Included with 555706 Crankcase Cover**

**276781 Repair Manual**

**ANIMAL head assembly**  
(Engine Model Series 124432)

**ANIMAL ENGINES**



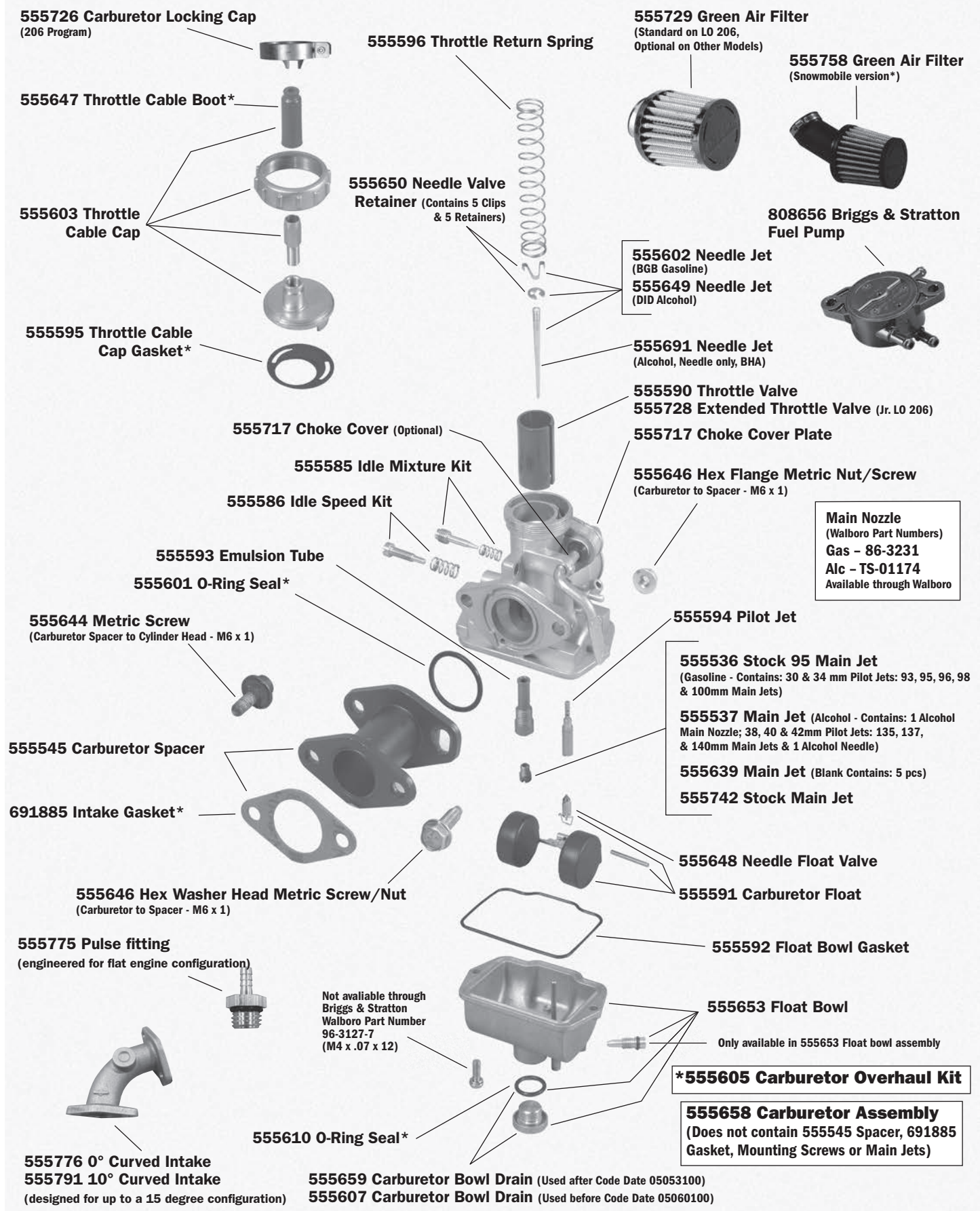
**\*Included with 555635 Cylinder Head Assembly**

**\*\*Not interchangeable with metric rocker system parts.**

# ANIMAL carburetor assembly

(Engine Model Series 124432)

ANIMAL ENGINES





**ANIMAL housing & flywheel**  
(Engine Model Series 124432 )

**ANIMAL ENGINES**

**555773 206 Stator Lighting System**  
(optional)



\*Flywheel only available in kit  
698315 Regulator  
698314 Stator  
810129 Stator Screw (1 pc, 4 needed)

**555681 Magneto Armature**  
(Animal - 12,000 rpm)  
**555718 Magneto Armature**  
(206 - 6,100 rpm)  
**555725 Magneto Armature**  
(Jr. 206 - 4,100 rpm)

**555685 Flywheel & Ignition Kit**  
(includes 555778 (fan) and 699201 x 2 screws)

**555719 PVL™ Magneto Wire**

**555683 Flywheel**  
(includes 692592 (fan) and 699201 x 2 screws)

**699477 Metric Screw**  
(Magneto Armature - M4 x .7)

**695630 Stop Wire**  
(Used on Type No. 8002 & 8003)

**699201 Screw**  
(Flywheel Fan - M8 x 1.25)

**557128 Starter Gear**  
(Includes 4 Pcs. 557129 - Screw, Optional for Electric Start)

**555704 Blower Housing**

**794451 Hex Washer Head Metric Screw**  
(Blower housing - M6 x 1)

**555778 Flywheel Fan**

**691736 Flywheel Washer**

**555731 Hex Jam Nut**  
(Flywheel - M16 x 1.5 - 6H)

**555702 Flywheel Guard**

**794954 Metric Screw**  
(M5 x .8)

**699200 Hex Washer Head Screw**  
(M4.2 x 1.4)

**691678 Hex Washer Head Screw**  
(Blower Housing - 5/16 - 18unc)

**555255 Rewind Guard**

**19433 Flywheel Wrench**

**19584 Flywheel Puller**

**591302 Flywheel Cup (Optional)**

**695287 Rewind Starter (Optional)**  
(Contains 4 pcs - M5 x .8)

**Starter Kit - 798790**  
• **Electric Start Conversion Kit - Includes**  
**557068 Starter Assembly**  
**557119 Starter bracket**  
**557128 Starter Gear**  
**698039 Starter Drive Cover**

**ANIMAL control bracket & gasket sets**  
(Engine Model Series 124432)

**ANIMAL ENGINES**

699479 MetricScrew  
(Control Panel - M6 x 1)

555699 Control Panel



- 555728 - Junior 206 Throttle slide -.285 'Black'
- 555732 - Junior 206 Throttle slide -.310 'Black'
- 555733 - Club Throttle slide -.440 'Red'
- 555734 - Club Throttle slide -.520 'Blue'
- 555735 - CA Novice Throttle slide -.342 'Purple'
- 555740 - CA Junior Club Throttle slide -.490 'Green'
- 555741 - CA Junior National Throttle slide .570 'Yellow'

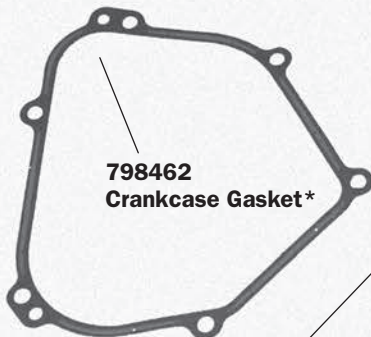
557028 Starting Switch

793379 Stop Wire  
(Used on Type No. 8003)

692602 Stop Wire  
(Rocker Switch, Used on Type No. 8001 & 8002)

**\*Included with 555631 Engine Gasket Set**

**+ Included with 555636 Valve Gasket Set**

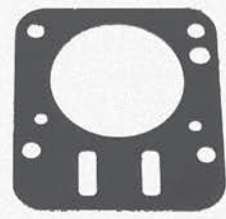


798462  
Crankcase Gasket\*

299819s Oil Seal\*  
(Magneto Side)



692550 Oil Seal\*  
(PTO Side)

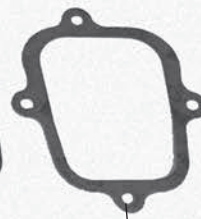


691885 Intake Gasket\*\*

555698 Cylinder Head Gasket\*\*  
(Fire Ring)



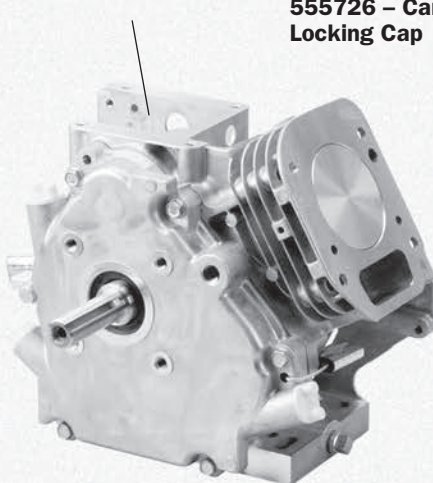
694088 Cylinder Head Plate Gasket\*\*



691890 Rocker Cover Gasket\*\*

**206 PARTS**

555715 - Sealed Shortblock



555726 - Carburetor Locking Cap



555727 - Max-Torque Clutch, 3/4" crank, 17 tooth, 35 chain



555718 - 206 Ignition Module, 6,100 rpm limiter



555728 - .285" Junior Throttle Slide  
555732 - .310" Junior Throttle Slide



555729 Green Air Filter

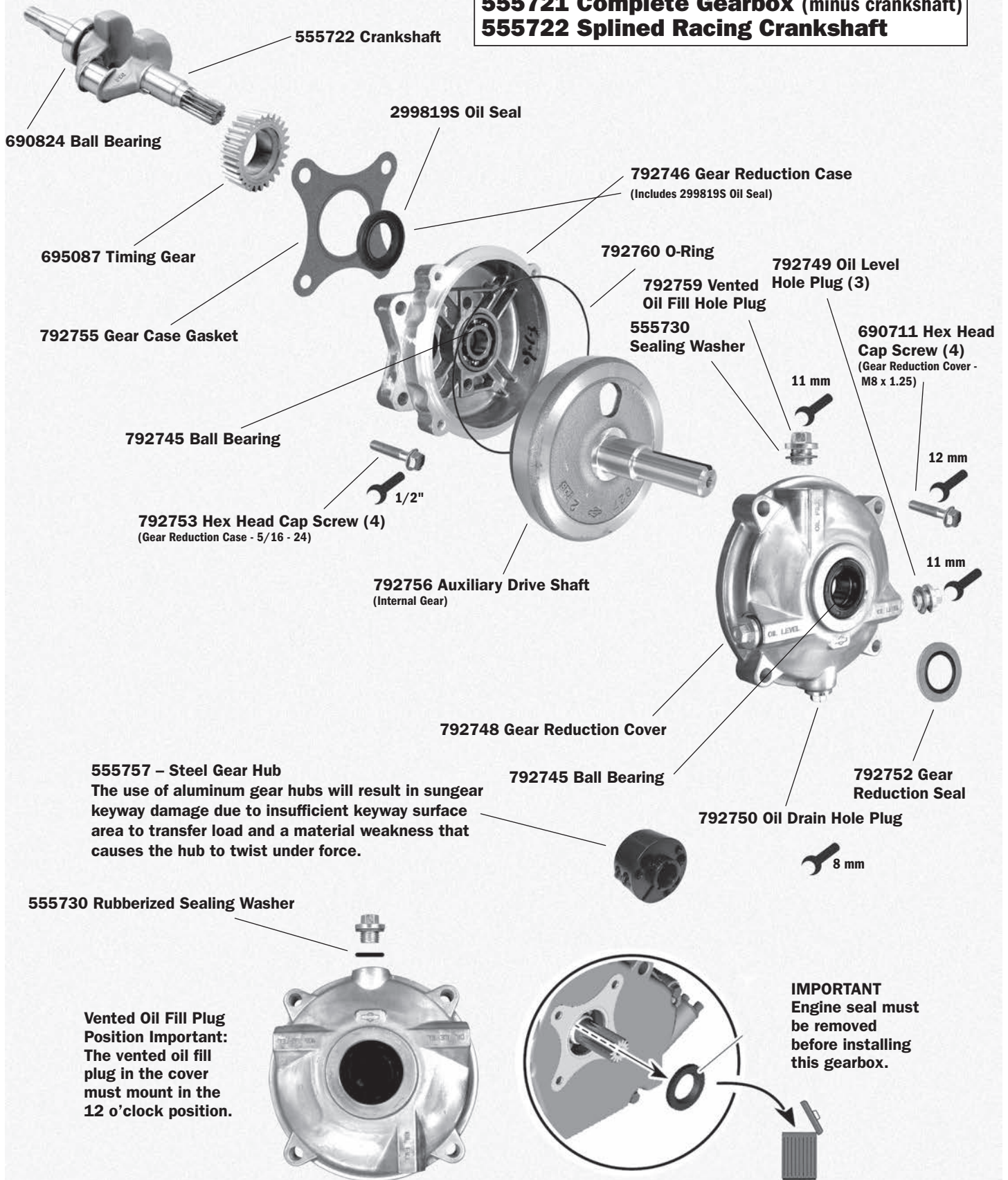


555725 - Junior PVL Ignition Module, 4,100 rpm limiter



**ANIMAL gear reduction unit**  
(Engine Model Series 124432 )

**555721 Complete Gearbox (minus crankshaft)**  
**555722 Splined Racing Crankshaft**



**ANIMAL ENGINES**

**BRIGGSRACING.com**



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For support videos, engine carburetor setup and general guides  
please visit [www.BriggsRacing.com](http://www.BriggsRacing.com)

Stop by and take advantage of our racing forums  
to ask others questions and advice as well!

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MS5701 (REV. E)

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**YOU.POWERED.**