

Gas Tie Drill
910200
Operating Manual



Gas Tie Drill

910200

Record of Changes

Rev No.	Date	Description of Changes
Rev 1	7.2019	Initial release.
Rev 2	7.2019	Update Handle Drawing to Rev 2
Rev 3	10.2019	Add assembly drawings.
Rev 3.1	10.2022	Add Service Parts List
Rev 3.2	1.2023	Update Format and Layout
Rev 3.3	10.2023	Update Technical Support & Service information

Table of Contents

Section 1: Overview and Safety	5
Racine Railroad Products Tie Drill Overview	5
Environmental Protection	5
Safety Information	5
Safety Terms	6
Machine Use and Safety Precautions	6
Fueling	7
Vibrations and Cold Precautions	7
Section 2: Specifications and Installation	8
Specifications	8
Components	9
Tool Assembly	10
Fuel	11
Mixing Instructions	11
Section 3: Tool Operation	13
Personal Protective Equipment	13
Pre-Start Check	13
Starting the Engine (Cold)	13
Drill Use	14
Reverse Rotation	15
Section 4: Maintenance	16
Maintenance Chart	17
Emissions Data	18
Troubleshooting	19
Air Filter	20
Fuel Filter	20
Spark Plug	20
Replacing the Chuck	21
Adjusting the Carburetor	21
High Altitude Operation	21
Cleaning Cylinder Fins	22
Cleaning the Silencer and Exhaust Port	22
Exhaust Port Cleaning	22
Storage	23

Section 5: Parts and Service Support	24
Service Parts	25
Anti-Vibration Handle for Gas Tie Drill / RRP # 719213 (Rev 2 (7.2019))	26
Engine Cover	27
Handles, Throttle Control	28
Intake	29
Carburetor.....	30
Carburetor Parts List	31
Exhaust.....	32
Fuel System.....	33
Starter	34
Ignition	35
Chuck, Clutch, Gear Case	36
Chuck, Clutch, Gear Case Part Number	37
Engine, Short Block	38
Tools	39
Section 6: Warranty Terms and Conditions	40

Section 1: Overview and Safety

Racine Railroad Products Tie Drill Overview

Racine Railroad Products designs and manufactures equipment primarily for the repair and new construction of rail and railroad tie track maintenance.

The Racine Railroad Products Tie Drill is a lightweight, high performance, two-stroke engine unit designed for drilling.

Do not use this machine for other than its intended purpose.

Please read these instructions when using this tool, which can only be used for the specified purpose. Failure to do so could result in personal injury or equipment damage. This instruction manual should be kept throughout the life of the tool.

Note: Information in this document is subject to change without notice.

The operator of this tool should:

- Have access to this operation instruction.
- Read and understand this operation instruction.

Environmental Protection



Comply with relevant national waste disposal laws and regulations. Waste electronic devices cannot be treated as household waste.

Equipment, accessories, and packaging shall be recyclable.



Do not throw the discarded equipment in trash cans.

Safety Information

For safe installation and operation of this equipment, carefully read and understand the contents of this manual. Improper operation, handling, or maintenance can result in equipment damage and personal injury.

Only trained and authorized personnel should be allowed to operate this machine. In addition, all personnel at the worksite should be aware of the safety concerns and their individual responsibilities prior to working with this machine.

Please read and comply with all the safety precautions in this manual **before** operating this machine. Your safety is at risk.

Safety Terms



DANGER

DANGER indicates a hazardous operating procedure, practice, or condition. If the hazardous situation is not avoided death or serious injury will occur.



WARNING

WARNING indicates a hazardous operating procedure, practice, or condition. If the hazardous situation is not avoided death or serious injury could occur.



CAUTION

CAUTION indicates a potentially hazardous operating procedure, practice, or condition. If the hazardous situation is not moderate or minor injury could occur.

Note: Indicates an essential operating procedure, practice, or condition. No personal injury is possible.

Machine Use and Safety Precautions



WARNING

Failure to follow safety precautions when operating this equipment can result in serious injury or death to the operator or other persons in the area.

Observe the following precautions whenever you are operating, working on or near this equipment.



WARNING

Always stop the engine when the Tie Drill jams. Do not attempt to remove an object causing a jam if the engine is running. Injury can occur if the jam is removed, and the drill is moving.

Users are at risk of injury to themselves and others if the Tie Drill is used improperly and safety precautions are not followed.

Do not make any modifications without authorization or written approval from Racine Railroad Products. Replace all Racine Railroad Products and OEM parts with genuine Racine Railroad Products and OEM parts. Using non-OEM parts may compromise the safety of the machine.

Do not wear loose clothing, jewelry, radio belts, etc., when operating, working on or near this equipment. They can be caught in moving parts and may result in severe injury.

Always wear appropriate personal protective clothing when operating this equipment: e.g., orange safety vest, hard hat, safety glasses with side shields, hearing protection, steel-toed safety boots, leather gloves, dust respirator, etc.

Make sure other people in your work area are wearing the same personal protective.

Warn others in the area not to come any nearer than 15-feet (4.6 meters) while the drill is in use.

Always lift heavy objects with the knees and legs, not the arms and back.

Always keep hands, arms, feet, head, clothing, etc., out of the operating area and away from all rotating or moving components when operating, working on or near this machine.

Always make sure that all guards, covers, belts, hoses, and operating components are in good working order and that all controls are in the appropriate position before starting the engine.

Always make sure that all safety equipment installed properly and are in good working order. Do not operate the machine until unsafe conditions have been corrected.

Always operate in a well-ventilated area and make sure that the air filters, air filter covers, and muffler are in good condition.

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- Lead from lead-based paints,
- Crystalline silica from bricks and cement and other masonry products, and
- Arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

Always keep the machine clean and free of debris. Operate the machine in a safe and responsible manner. Exercise caution when fueling, working on or near rotating or moving components, hot components, and fuel systems. Be aware of potential fire hazards and prevent sparks, exhaust, etc., from starting fires on the machine and/or work area.

Always comply with all instructions provided on any decals or placards installed on the machine and with any relevant amplifying information provided in this manual or other general operating procedures.

Always disconnect the power source and make sure that all controls are in a safe position and install all appropriate locking and safety devices before doing any of the following:

- Lubricating
- Adjusting
- Installing Tooling
- Making Repairs
- Performing Service

Fueling

Use caution when handling fuel. Put the caps back tightly on both the fuel can and the drill fuel tank.

Move at least 10 feet (3 meters) from the re-fueling point. Make sure fuel is not leaking from the fuel tank cap or the fuel system before starting the engine.

Vibrations and Cold Precautions

Exposure to vibration and cold may cause tingling and burning sensations followed by the loss of color and numbness in the fingers. To reduce the effects of that may be caused by the drill vibration:

- Keep your body warm. Cover the head, neck, feet, and hands.
- Limit the hours of operation.
- If you are experiencing discomfort, redness and swelling of the fingers, and loss of feeling, consult your physician before resuming using the drill.

Section 2: Specifications and Installation

Specifications

Weight [without drill bit]	11.42 lbs (5.18 kg)
Length [without drill bit]	17.2 inch (450 mm)
Width	13.39 inch (340 mm)
Height	11.42 inch (290 mm)
Fuel Tank	19.6 oz (.58 liter)
Drill Size	1.25 – 7 inch (32 – 178 mm)
Drill Speed	610 rpm
Chuck Capacity Speed	0.5 inch (13 mm)

Engine

Air-cooled two stroke single cylinder

Engine Displacement 1.55 cu. inch (25.4 r/min)

Recommended Maximum Engine Speed 10500 rpm

Recommended Engine Idling Speed 2800 rpm

Engine Speed at Beginning of Clutch Engagement..... 3600 rpm

Carburetor Diaphragm Type

Ignition..... Flywheel Magneto - CDI System

Starter..... Recoil Starter

Clutch Automatic Centrifugal

Fuel

Mixture Ratio

50:1 ratio with SO-L-EGD (ISO/CD 13738) and JASO M345-FD two-stroke, air-cooled engine oil.

Gasoline

Use 89 octane unleaded.

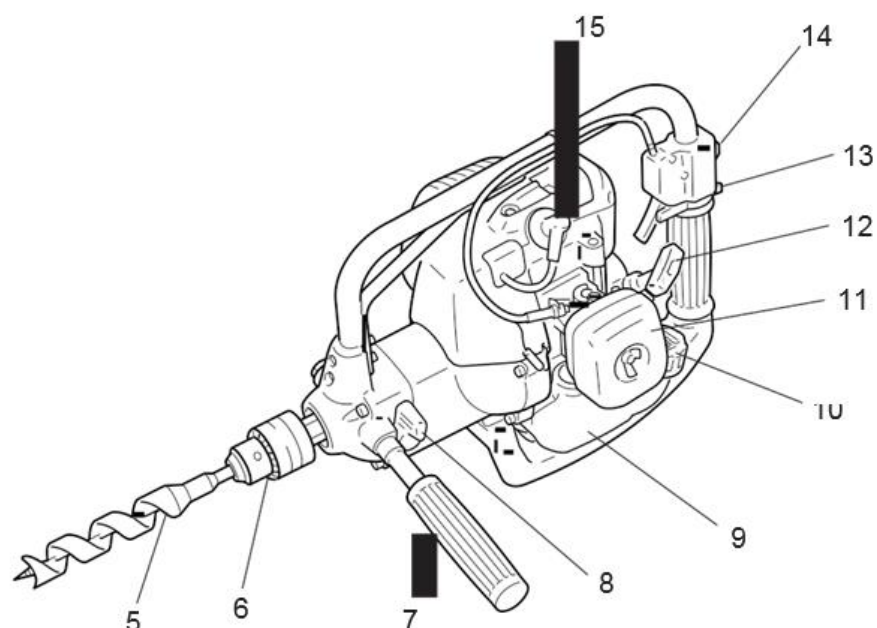
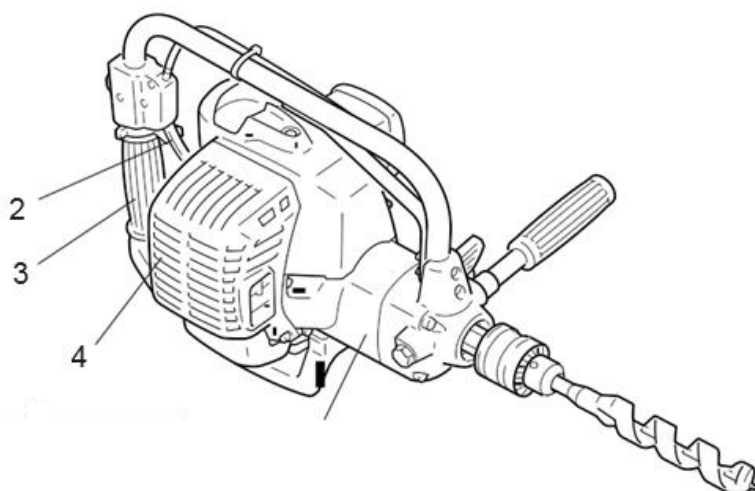
Do not use fuel containing methyl alcohol, more than 10% ethyl alcohol or 15% MTBE.

Do not use alternative fuels such as E-15 or E-85.

Fuel Consumption at Engine Maximum Power 20.97 fl. oz (.62 l/h)

Components

1. Operator's manual [Not shown.]
2. Throttle Trigger [Controls the engine speed.]
3. Rear Handle [Located furthest from the drill bit.]
4. Silencer Cover

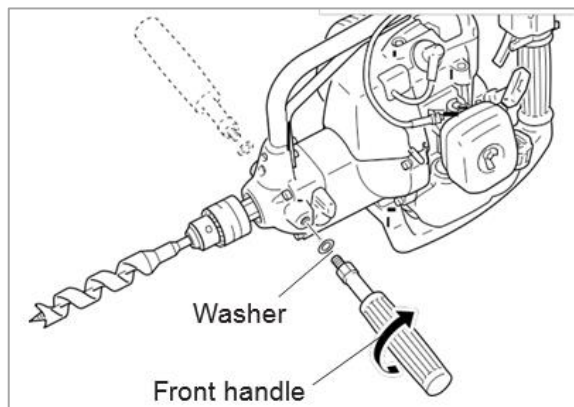


- | | |
|---|---|
| 5. Drill Bit [Not included.] | 11. Air Cleaner Cover |
| 6. Chuck | 12. Starter Handle |
| 7. Front Handle [Located on the front gear case.] | 13. Throttle Trigger Lockout [Prevents the accidental operation of the throttle trigger until manually released.] |
| 8. Shift Lever | 14. Ignition Switch |
| 9. Fuel Tank [Contains the fuel filter.] | 15. Spark Plug |
| 10. Fuel Tank Cap | |

Tool Assembly

Front Handle

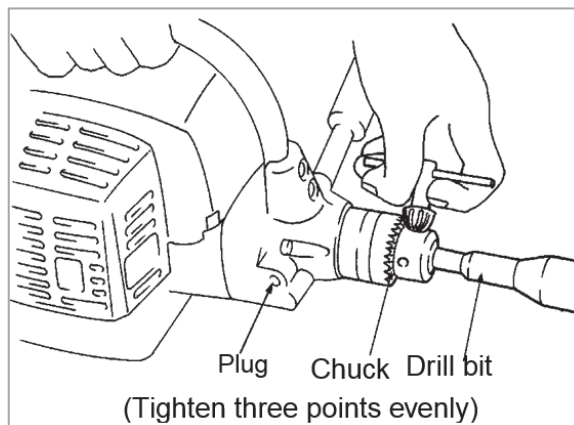
1. Install the Front Handle and washer on to the drill.
Left or right side, depending on the operator.
2. Turn clockwise and firmly tighten.



Drill Bit

1. Insert the drill bit until it reaches the bottom of the chuck.
2. Back it out slightly and firmly tighten the chuck jaws evenly

Note: Use drill bits suited for the material being drilled and for the depth of hole required.



WARNING

Moving parts can amputate fingers or cause severe injuries. Keep hands, clothing, and loose objects away from all openings. Always stop engine, disconnect spark plug, and make sure all moving parts have come to a complete stop before removing obstructions, clearing debris, or servicing unit.



WARNING

Engine exhaust is hot and contains Carbon Monoxide (CO), a poison gas. Breathing CO can cause unconsciousness, serious injury, or death. Exhaust can cause serious burns. Always blow exhaust away from your face and body.

Fuel

Use 89 Octane (mid-grade or higher) gasoline known to be good quality. Gasoline may contain up to 10% ethanol or 15% MTBE (methyl tertiary-butyl ether).

Gasoline containing methanol (wood alcohol) is **NOT** approved.

Two-Stroke Oil

A two-stroke engine oil meeting ISO-L-EGD (ISO/CD 13738) and J.A.S.O. FD Standards must be used. Engine problems due to inadequate lubrication caused by failure to use an ISO-LEGD (ISO/CD 13738) and J.A.S.O. M345-FD certified oil will void the two-stroke engine warranty.

Note: Alternative fuels such as E-15 (15% ethanol). E-85 (85% ethanol) are not approved for the RRP Tie Drill 2-stroke gasoline engine.

Use of alternative fuels may cause performance problems, loss of power, overheating, fuel vapor lock and unintended machine operation. Including but not limited to improper clutch engagement. Alternate fuels may also cause premature deterioration of fuel lines, gaskets, carburetor, and other engine components.

Use of unmixed, improperly mixed, or fuel older than 90 days, (stale fuel), may cause hard starting, poor performance, or severe engine damage and void the product warranty.

Fuel Ratio: 50 :1

US	
Gasoline (Gallons)	Oil (fl. oz)
1	2.6
2	5.2
5	13

METRIC	
Gasoline (Liters)	Oil (mL)
5	100
10	200
25	5000

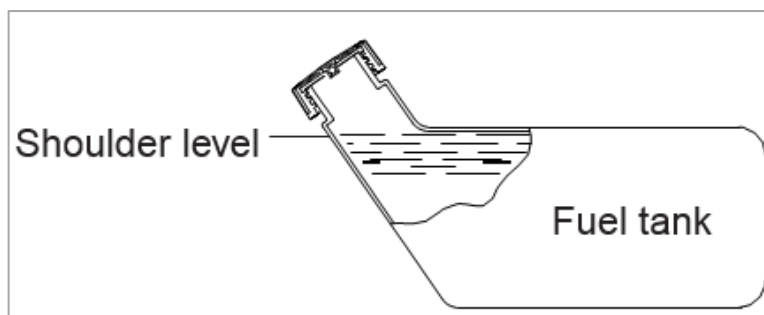
Mixing Instructions

1. Fill an approved fuel container with half of the required amount of gasoline.
2. Add the proper amount of two-stroke oil to gasoline.
3. Close container and shake to mix oil with gasoline.
4. Add remaining gasoline, close the fuel container and remix.

Do not overfill the fuel tank.

Do not fill fuel above the shoulder level of the fuel tank.

Wipe up spills immediately.





Fuel is very flammable. Use extreme caution when mixing, storing, or handling. Serious personal injury may result.

- Use an approved fuel container.
- Do not smoke near fuel.
- Do not allow flammers or sparks near fuel.
- Fuel tanks / cans may be under pressure. Always loose fuel caps slowly allowing pressure to equalize.
- Never refuel the drill when the engine is hot.
- Never refuel the dill with the engine running.
- Do not fill fuel tanks indoors.
- Always fill fuel tanks outdoors over bare ground.
- Do not overfill the fuel tank. Do not fill fuel above the shoulder level of the fuel tank. Wipe up spills immediately.
- Securely tighten the fuel cap after refueling.
- Inspect for fuel leakage. If a leak is found, do not start, or operate the drill until the leak is repaired.
- Move at least 10 feet (3 meters) from the refueling location before starting the engine.



Spilled fuel is a leading cause of hydrocarbon emissions. Some states may require the use of automatic fuel shut-off containers to reduce fuel spillage.

- Do not mix more fuel than you expect to use in thirty (30) days, ninety (90) days when a fuel stabilizer is added.
- Stored two-stroke fuel may separate.
- Always shake fuel container thoroughly before each use

After Use

Do not store a drill with fuel in its tank. Leaks can occur. Return unused fuel to an approved fuel storage container.

Storage

Fuel storage laws vary by locality. Contact your local government about the laws affecting your area.

As a precaution, store fuel in an approved, airtight container. Store in a well-ventilated, unoccupied building, away from sparks and flames.

Section 3: Tool Operation

Personal Protective Equipment



Before operating this machine, make sure that all general safety precautions are observed, and that proper personal protective clothing is worn as described below.

At a minimum, operators should wear the following Personal Protective Equipment:

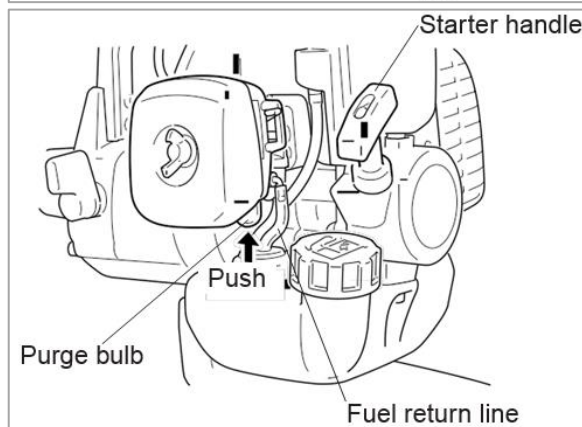
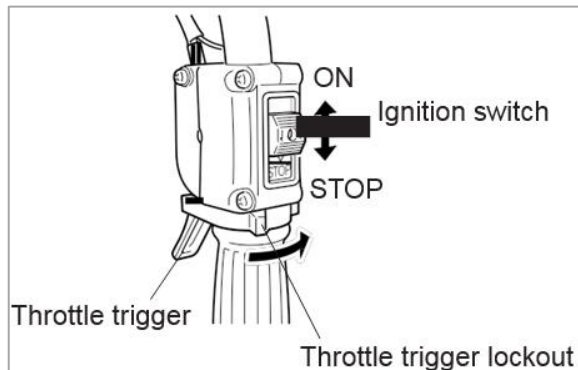
1. Safety Glasses
2. Hearing Protection
3. Hard Hat
4. High Visibility Safety Vest
5. Leather Work Gloves
6. Steel Toed Safety Shoes

Pre-Start Check

- Check for loose nuts, bolts, and screws before using the unit every day.

Starting the Engine (Cold)

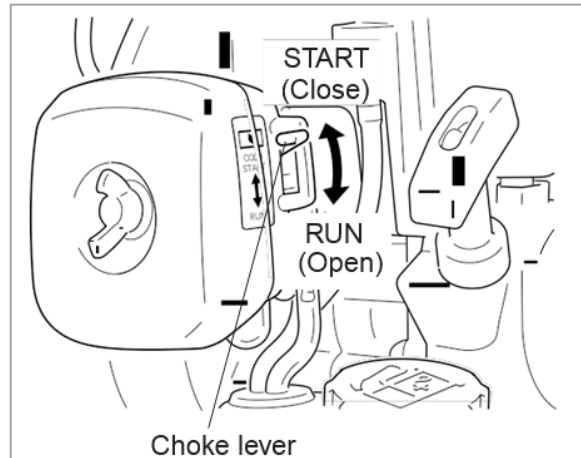
1. Start the drill on the ground with the throttle set at idle. Do not start if the drill is obstructed by the ground or any other object.
2. Stand the engine upright on a level surface
3. Move the ignition switch to the ON position.
4. Push the purge bulb 3 to 4 times or until fuel is visible in fuel return line.
5. Move the choke lever to the CLOSE (START) position.
6. Pull the starter handle until the engine starts.



7. Move the choke lever to the Open (RUN) position.
8. If necessary, start the engine again and allow it to warm up before using.

Warm Engine Start

1. Move the ignition switch to the ON (START/RUN) position.
2. Pull the starter handle until the engine starts.
3. Do not use the choke.



Drill Use

- Keep a firm grip on the drill with both hands, one hand on the front handle, the other hand on the rear handle.
- When starting to drill, run the engine at full throttle.
- Do not force the drill and only move as quickly as the drill will allow.
- Stop the engine and disconnect the ignition cable before cleaning or when clearing a blockage, checking, maintenance or working on the machine.
- Make sure all handles and guards are installed when using the machine. Never attempt to use an incomplete machine or one installed with an unauthorized modification.
- Always remove the drill bit when transporting or storing the drill.

Stopping the Engine

1. Move the throttle trigger to the idle position.
2. Move the ignition switch to the STOP position.

Note: If the engine does not stop, move the choke lever to the close position. Check and repair the ignition switch before starting the engine again.

Reverse Rotation

This drill is equipped with a reverse rotation mechanism.

When drilling, move the shift lever to the clockwise (CW) rotation position.

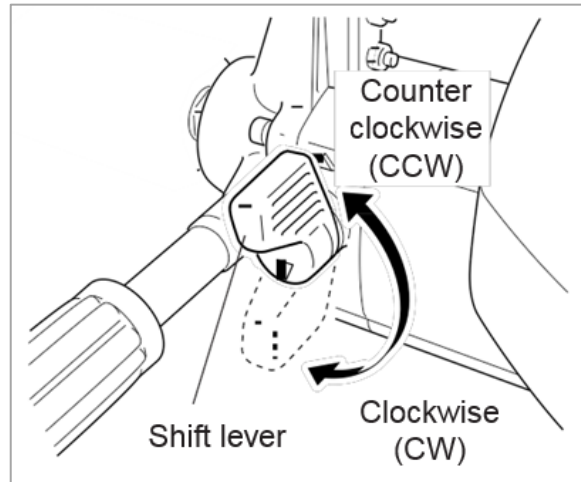
If bit is locked due to deep penetration during drilling operation, move shift lever up to counter-clockwise (CCW) rotation position and operate in reverse for easy pulling-out.

To change drill rotation direction:

1. Return the engine to idle.
2. Move the shift lever to CW or CCW position with a slight acceleration of the throttle trigger.

Do not force the shift lever when changing rotation direction.

Do not shift directions while the chuck is rotating. Damage to the drill can occur.



WARNING If the drill is stuck, do not try to pull out the drill by force. Put the drill in reverse to remove the bit from the material.

After a job, the bit and gear casing may be heated. Do not touch them with bare hands.

Section 4: Maintenance

It is highly recommended to practice regular check-ups and maintenance in accordance with the usage and frequency to keep the drill in good working condition.



Do not perform maintenance on the tool while the engine is running.

Moving parts can amputate fingers or cause severe injuries. Keep hands, clothing, and loose objects away from all openings. Always stop the engine, disconnect spark plug, and make sure all moving parts have come to a complete stop before removing obstructions, clearing debris, or servicing unit.

Allow unit to cool before performing service. Wear gloves to protect hands from sharp edges and hot surfaces.

Engine Maintenance

Maintain the engine in accordance with the engine operator's manual.

- Do not attempt to repair the machine unless you are qualified to do so.
- Do not operate the machine with a damaged or excessively worn drill bit.

Cleaning and Maintenance Recommendations

- Wipe all external surfaces after each use with a clean, lint free cloth to remove surface contaminants from the tool.
- Store all tools in an enclosed area to prevent the weather from contaminating their systems.

Storage Preparation

- Store in the upright position. Secure tool to prevent it from being knocked over.
- Store the machine on a smooth level surface.
- The tool should be stored in a cool, dry environment which is not subjected to rapid temperature changes.

Daily

- Wipe all tool surfaces, fittings, and couplings free of grease, dirt, and foreign materials.
- Inspect the tool, hoses, and fittings for signs of leaks, cracks, wear, and/or damage. Replace if necessary.
- Inspect machine for damage and wear, replace as required.

Maintenance Chart

Component	Maintenance	Skill Level	Daily or Before Use	Every Refuel	3 Months or 90 Hours	Yearly or 600 Hours
Air Filter	Inspect/Clean	1	Inspect/Clean **		Replace **	
Choke Shutter	Inspect/Clean	1	Inspect/Clean			
Fuel Filter	Inspect/Replace	1			Inspect **	Inspect/Replace **
Fuel Cap Gasket	Inspect/Replace	1			Inspect **	Replace
Fuel System	Inspect/Replace	1	Inspect *	Inspect*		
Spark Plug	Inspect/Clean/Replace	1			Inspect/Clean / Replace **	
Cooling System	Inspect/Clean	2	Inspect/Clean			
Muffler Spark Arrestor	Inspect/Clean/Replace	2			Inspect/Clean / Replace **	
Cylinder Exhaust Port	Inspect/Clean/Decarbon	2			Inspect/Clean	
Recoil Starter Rope	Inspect/Clean	1	Inspect/Clean **			
Screws/Nuts/Bolts	Inspect/Tighten/Replace	1	Inspect **			

Level 1 = Common tools may be required.

Level 2 = Some specialized tools may be required.

Note: Time intervals shown are maximum. Actual use and experience will determine the frequency of required maintenance.

*Low evaporative fuel tanks **do not** require maintenance to maintain emission integrity.

**All recommendations to replace are based on the finding of damage or wear during inspection.

Record dates of monthly and yearly inspections.

Emissions Data

EPA 2010 and Later and/or C.A.R.B. TIER III

The emission control system for the engine is EM (engine modification) and, if the second to last character of the Engine Family on the Emission Control Information label (sample below) is "C", "K", or "T". The emission control system is EM and TWC (3-way catalyst).

The fuel tank/fuel line emission control system is EVAP (evaporative emissions). Evaporative emissions for California models may only be applicable to fuel tanks.

Product Emission Durability (Emission Compliance Period)

The 300 hours emission compliance period is the time span selected by the manufacturer certifying the engine emissions output meets applicable emissions regulations, provided that approved maintenance procedures are followed as listed in the Maintenance Section of this manual.

An Emission Control Label is located on the engine. (This is an example only, information on label varies by engine family).

EMISSION CONTROL INFORMATION

ENGINE FAMILY : 4EHS. ***** DISPLACEMENT : 3300cc

EMISSION COMPLIANCE PERIOD : 300Hours

THIS ENGINE MEETS U.S.EPA ENGINE EMISSION

REGULATIONS FOR MODEL YEAR *** REFER TO OWNER'S MANUAL
FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS.

YAMABIKO CORP. *****



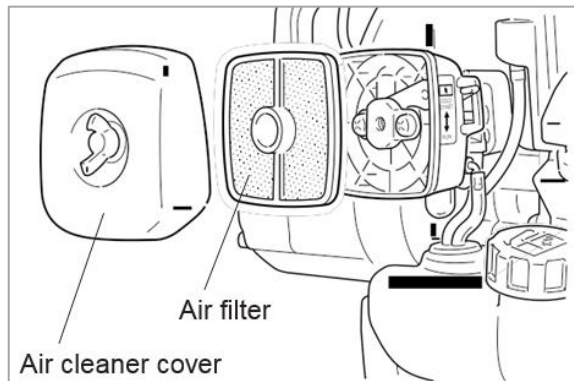
Troubleshooting

Problem	Possible Cause	Resolution
No fuel at carburetor.	Fuel filter clogged.	Clean or replace.
	Fuel line clogged.	Clean.
	Carburetor.	Contact RRP for service.
No fuel at cylinder.	Carburetor.	Contact RRP for service.
Silencer wet with fuel.	Fuel mixture is too rich.	Open choke. Clean/replace air filter. Adjust carburetor. Contact RRP for service.
No Spark at end of plug wire.	Ignition switch off.	Turn switch on.
	Electrical problem.	Contact RRP for service.
No spark at end of plug.	Spark gap incorrect.	Adjust to 0.024 to 0.028 in. (0.6 to 0.7 mm).
	Covered with carbon.	Clean or replace.
	Fouled with fuel.	Clean or replace.
	Spark plug defective.	Replace plug.
Engine does not turn over.	Internal engine problem	Contact RRP for service.
Engine dies or accelerates poorly.	Air filter dirty.	Clean or replace.
	Fuel filter dirty.	Clean or replace.
	Fuel vent blocked.	Clean.
	Spark plug.	Clean and adjust/replace.
	Carburetor.	Adjust.
	Cooling system blocked.	Clean.
	Exhaust port/spark rest screen blocked.	Clean.

Air Filter

Clean before use.

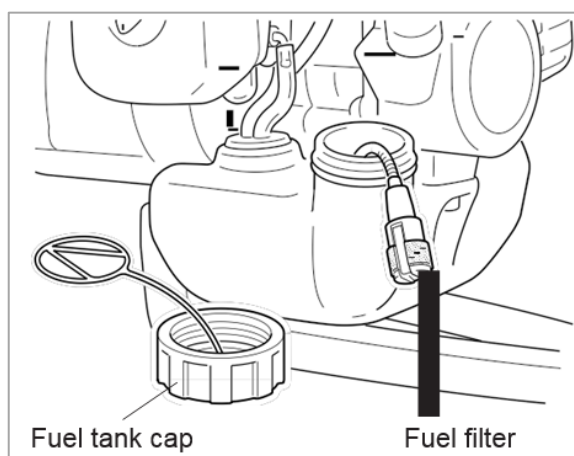
1. Remove the air cleaner cover and pull out the air filter.
2. Lightly brush off dust or wash it in water and detergent.
3. Dry completely before putting it back in place.



Fuel Filter

Check periodically.

- Do not allow dust to enter the fuel tank.
- Clogged filter will cause difficulty in starting engine or poor engine performances.
- Pick up fuel filter through fuel inlet port with tweezers.
- Replace with filter is dirty.



Fuel System

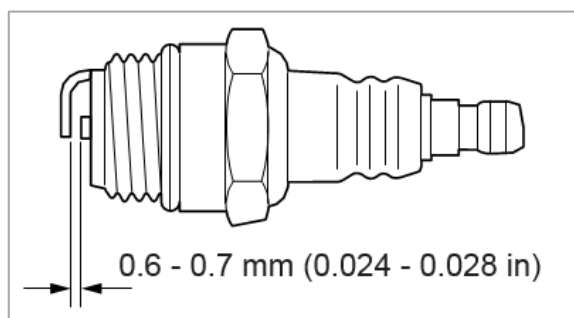
Check before every use.

- After refueling, make sure fuel does not leak around the fuel pipe, fuel grommet or fuel tank cap.
- In case of fuel leakage or exudation there is a danger of fire. Stop using the machine immediately and request your dealer to inspect or replace

Spark Plug

Check periodically.

- The standard spark gap is 0.024 to 0.028 in. (.0.6 to 0.7 mm).
- Correct the spark gap if it is wider or narrower than the standard gap.
- If the electrodes are coated with carbon deposits replace with a new spark plug.



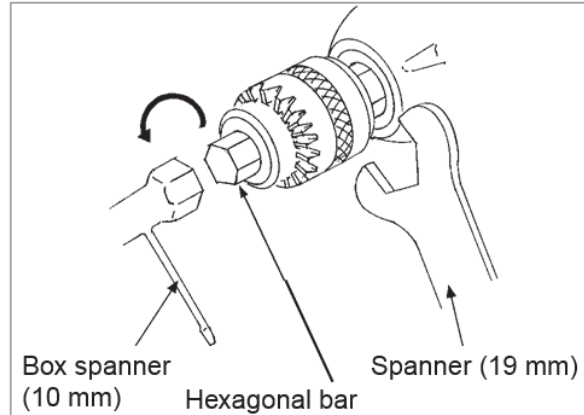
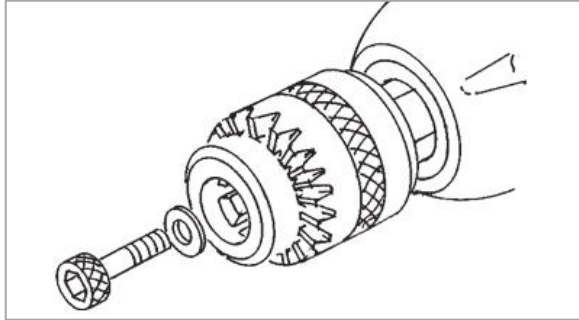
Do not sandblast to clean. Remaining sand will damage the engine.

- Fastening torque = 130 to 145 in/lbs (15 to 17 N/m)

Note: Do not over tighten the spark plug.

Replacing the Chuck

1. Remove the bolt with the hexagonal hole fixed in the driving axle.
1. Insert the accessory hexagonal bar into chuck and install.
2. Install the 19 mm spanner onto the driving axle and keep it installed.
3. Install the 10 mm box spanner onto the hexagonal bar and turn it into the direction indicated by an arrow to remove chuck.

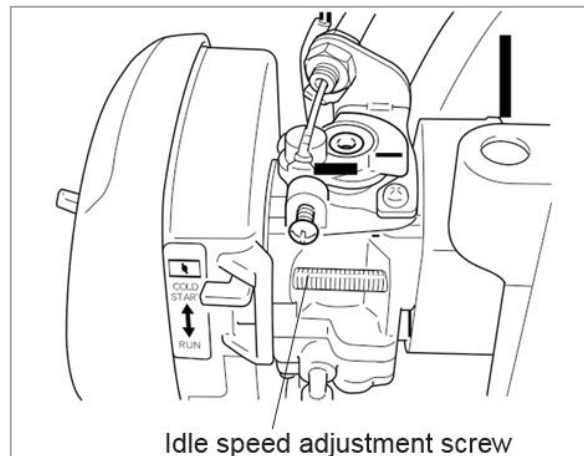


Adjusting the Carburetor

The engine idle speed adjustment screw controls the throttle opening in the idle position.

Engine Idle Adjustment

1. Start engine and run it at high idle until warm.
2. Turn the idle speed screw clockwise until drill bit begins to move.
3. Turn idle screw counter-clockwise 1 and 1/2 to 2 turn or until the drill bit stops (2700 to 3300 rpm).



High Altitude Operation

This engine has been factory adjusted to maintain satisfactory starting, emission, and durability performance up to 1100 feet above sea level (96.0 kPa). To maintain proper engine operation and emission compliance above 1100 feet above sea level the carburetor may need to be adjusted by a Racine Railroad Products Service Department.

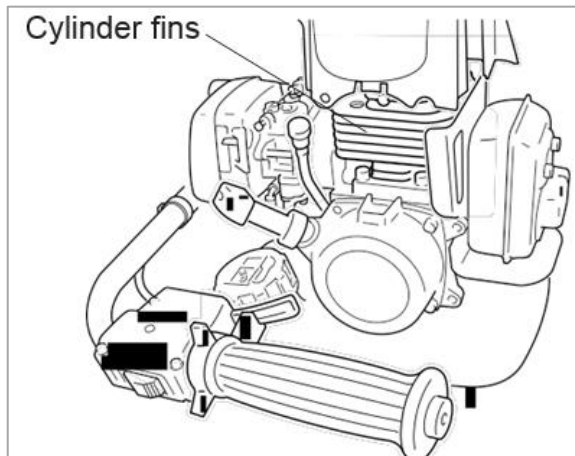
If the engine is adjusted for 1100 feet above sea level, the carburetor must be readjusted when operating the engine below 1100 feet above sea level, otherwise severe engine damage may result.

Cleaning Cylinder Fins

Check Periodically.

Clogged fins will cause poor engine cooling.

1. Carefully remove the housing and clean the dirt and dust from the fins.
2. Reinstall the housing.

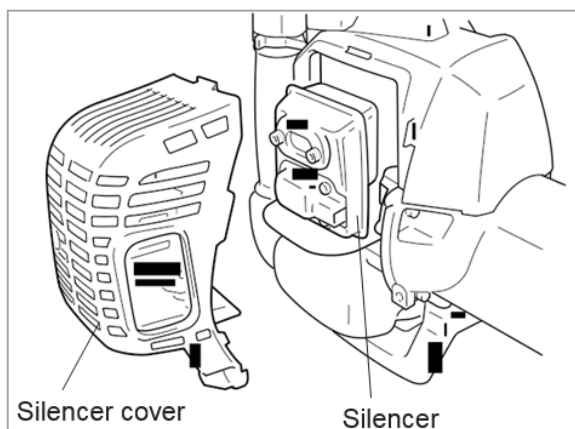


Cleaning the Silencer and Exhaust Port

Check Periodically.

1. Carefully remove the housing halves.
2. Remove and disassemble the silencer.
3. Clean the deposits from cylinder exhaust port and silencer.

Note: Do not scratch the cylinder or piston when cleaning the cylinder exhaust port.

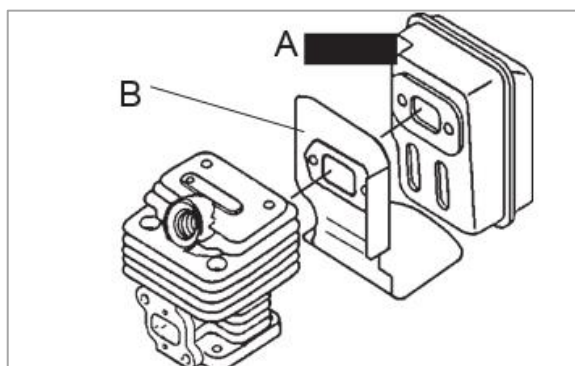


Exhaust Port Cleaning

Tools Required: 4 mm Hex Wrench, Wood or plastic scraper

Parts Required: Heat Shield

1. Remove the sparkplug lead from the spark plug and remove the engine cover.
2. Place the piston at the top dead center.
3. Remove the muffler (A) and heat shield (B).

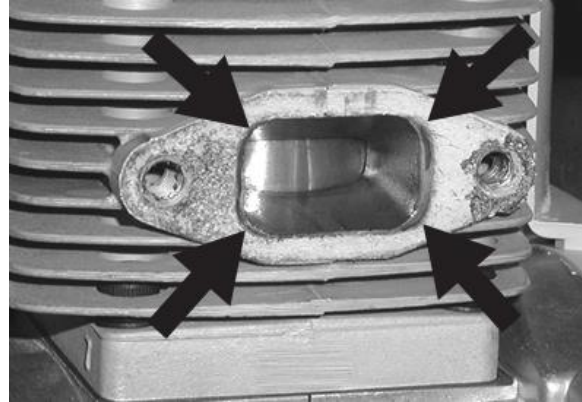


4. Use a wood or plastic scraping tool to clean the deposits from cylinder exhaust port.

Never use a metal tool to scrape carbon from the exhaust port.

Do not scratch the cylinder or piston when cleaning the exhaust port. Do not allow carbon particles to enter the cylinder.

5. Inspect the heat shield and replace if damaged.
6. Install the heat shield and muffler.
7. Tighten the muffler mounting bolts to 80-95 in/lbf (90-110 kgf/cm).
8. Start the engine and warm to operating temperature.
9. Stop the engine and re-tighten the mounting bolts to specifications.
10. Install the engine cover and attach the sparkplug lead.



Storage

Long Term – Over 30 Days



Do not store the drill in an enclosure where fuel fumes may accumulate or reach an open flame or spark.

Do not store the drill for a prolonged period of time without performing protective storage maintenance.

1. Store the drill in a dry, dust free place, out of the reach of children and other unauthorized persons.
2. Move the ignition switch to the STOP position.
3. Remove the accumulation of grease, oil, dirt, and debris from the exterior of the unit.
4. Perform all periodic lubrication and services that are required.
5. Tighten all the screws, bolts, and nuts.
6. Drain the fuel tank completely and pull the recoil starter handle several times to remove fuel from the carburetor.
7. Remove the sparkplug and pour 1/2 tablespoon (1/4 oz) of fresh, clean, 2-stroke engine oil into the cylinder through the sparkplug hole.
 - a. Place a clean cloth over the sparkplug hole.
 - b. Pull the recoil starter handle 2 or 3 times to distribute the oil inside the engine.
8. Observe the piston location through the sparkplug hole. Pull the recoil starter handle slowly until the piston reaches the top of its travel and leave it there.
9. Install the sparkplug (do not connect ignition cable).
10. Lubricate the drill bit with a heavy coat of oil to prevent rust.

Section 5: Parts and Service Support

Technical Support & Service

Telephone and web-based technical support is available for current production models through our Customer Service Department. Service Manuals and limited technical support may be available for models that are no longer in production.

Telephone and E-mail Technical Support

Telephone and e-mail technical support is available on normal U.S. business days from 8:00 AM to 5:00 PM U.S. Central Time Zone (GMT +6 (+5 Daylight Savings Time)).

Phone: (262) 637-9681

Email: custserv@racinerailroad.com

Racine Railroad Products
1955 Norwood Court
Mount Pleasant, WI 53403

Non-Warranty Technical Support

Depending upon the circumstances and availability of technical service personnel, we may provide technical assistance and/or field service support, *at the customer's expense*, to assist in the correction of non-warranty related problems. Contact our Customer Service Department to coordinate Non-Warranty Technical or Field Service Support.

Warranty Support Technical Support

Depending upon the circumstances and availability of technical service personnel, we may provide technical assistance and/or field service support, *at no charge to the customer*, to assist in the correction of warranty related problems. Contact our Customer Service Department to coordinate Warranty Technical or Field Service Support.

Warranty Parts Claims

Material claimed to be defective must be returned to our factory for evaluation. Defective materials will be replaced, or your account will be credited if replacement materials have already been purchased. Please contact our Customer Service Department at the address provided below if you have any questions or problems.

Warranty Service Support

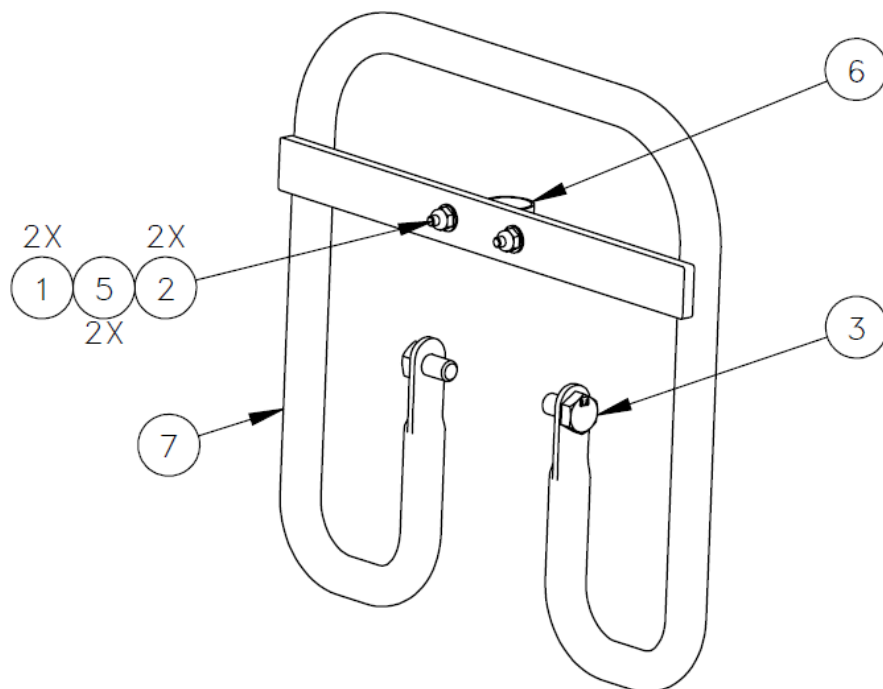
Depending upon the circumstances and availability of technical service personnel, we may provide technical assistance and/or field service support, *at no charge to the customer*, to assist in the correction of warranty related problems. Contact our Customer Service Department at the address provided above to coordinate Warranty Service Support.

Service Parts

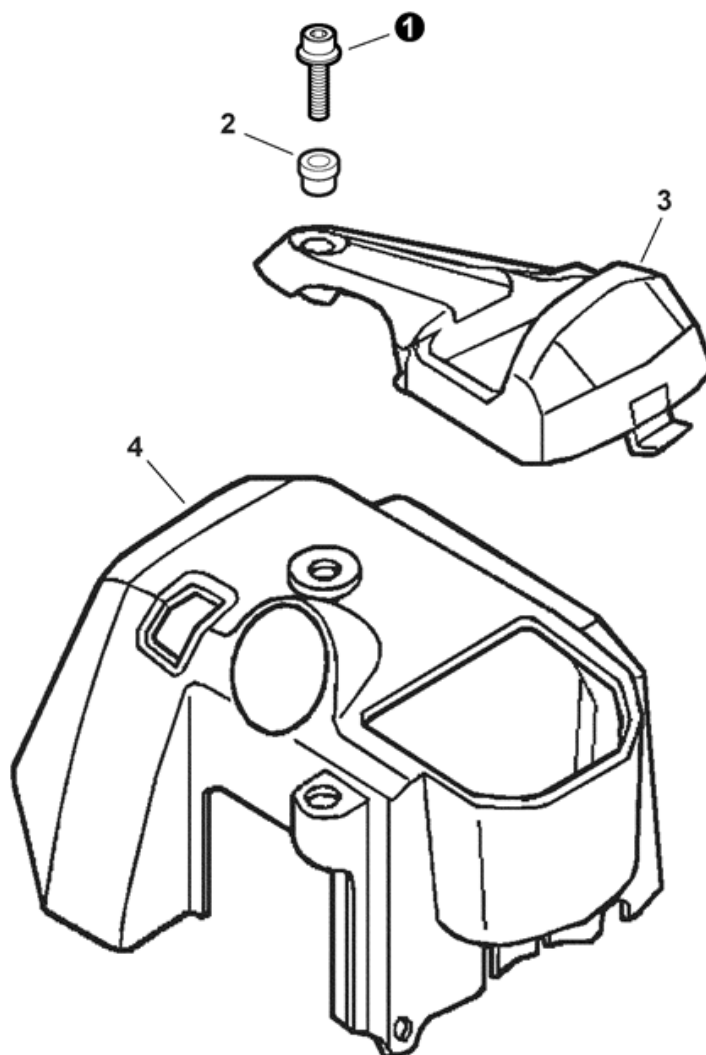
NO.	QTY	DESCRIPTION	PART NO.
1	REF	BOLT, SHAFT	475868
2	REF	CARBURETOR	474491
3	REF	CASE, AIR CLEANER	475966
4	REF	CHUCK, KEYED	474493
5	REF	COVER, AIR CLEANER	475965
6	REF	DRUM, CLUTCH	475866
7	REF	FILTER, AIR	474494
8	REF	FILTER, FUEL	476802
9	REF	KEY, CHUCK	474492
10	REF	LEVER, CLUTCH	474999
11	REF	PIPE, 3 X 6 X 80 – CLEAR	476803
12	REF	PIPE, 3 X 6 X 115 – BLACK	476804
13	REF	PIPE, 3 X 6 X 170 – BLACK	476805
14	REF	PLUG, SPARK	476801
15	REF	SCREW, THUMB	475964
16	REF	SHOE, CLUTCH	475872
17	REF	SPRING, CLUTCH	475871
18	REF	STARTER	474495
19	REF	WASHER, SPRING	475869
20	REF	WASHER-6	475870

Anti-Vibration Handle for Gas Tie Drill / RRP # 719213 (Rev 2 (7.2019))

NO.	QTY	DESCRIPTION	PART NO.
1	2	SCR, HEX: 10-24 X .75	408130
2	2	NUT, HEX ES: 10-24	456470
3	2	SCR, HEX: M10-1.5 X 18	471930
4	1	DRILL, GAS TIE	474490
5	2	WASHER, FLT: #10	491646
6	1	STRAP, PIPE: .81 ID	491795
7	1	BAR, ROLL	781750

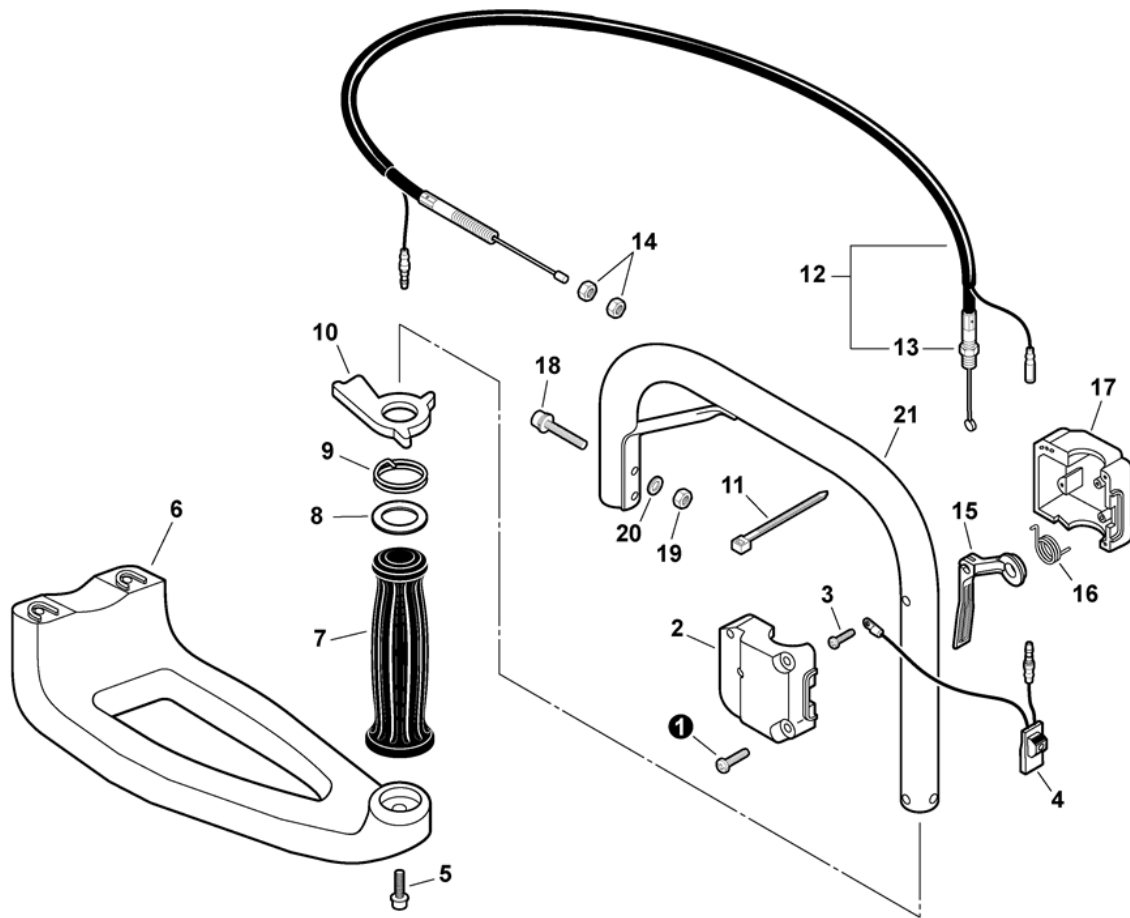


Engine Cover



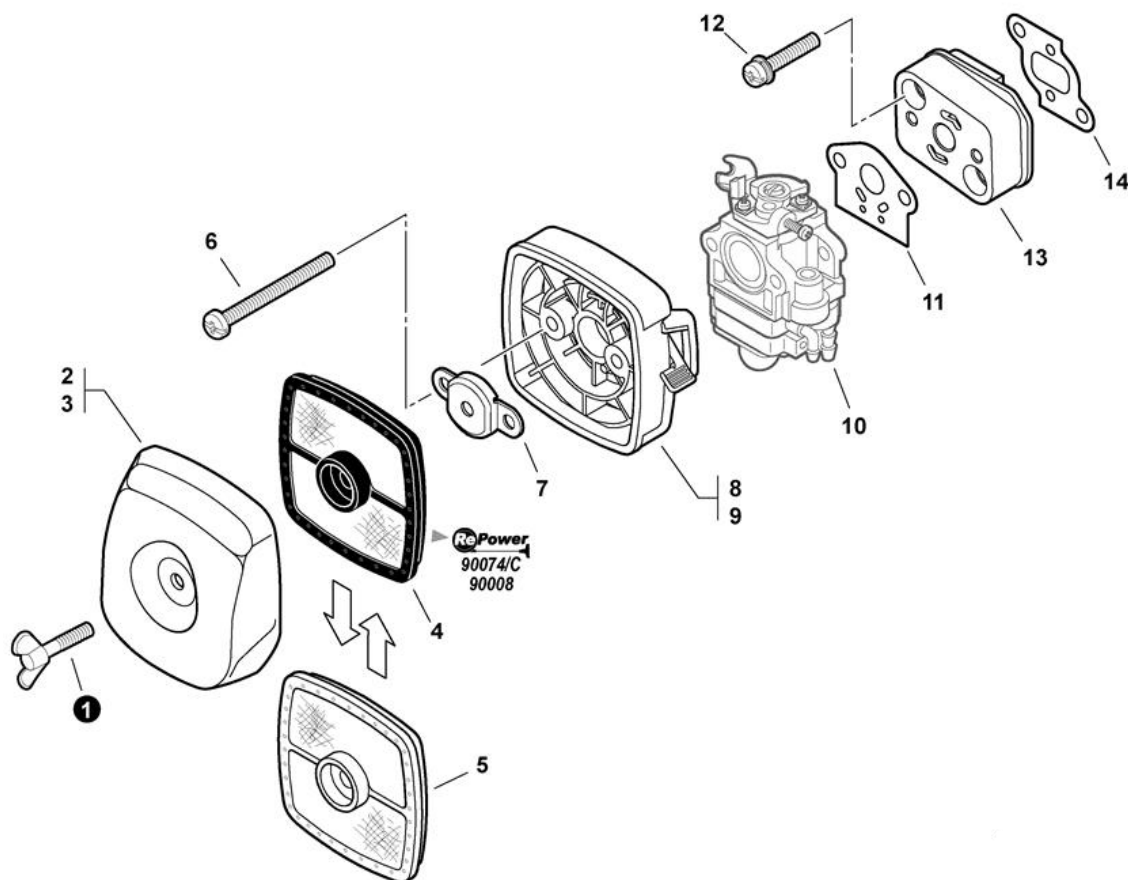
Part #	Qty	Description	RRP Part#
1	1	SCREW, 5 X 16	
2	1	COLLAR, 55	
3	1	DUCT, AIR GRAY	
3	1	DUCT, AIR ORANGE	
4	1	COVER, ENGINE GRAY	
4	1	COVER, ENGINE ORANGE	

Handles, Throttle Control



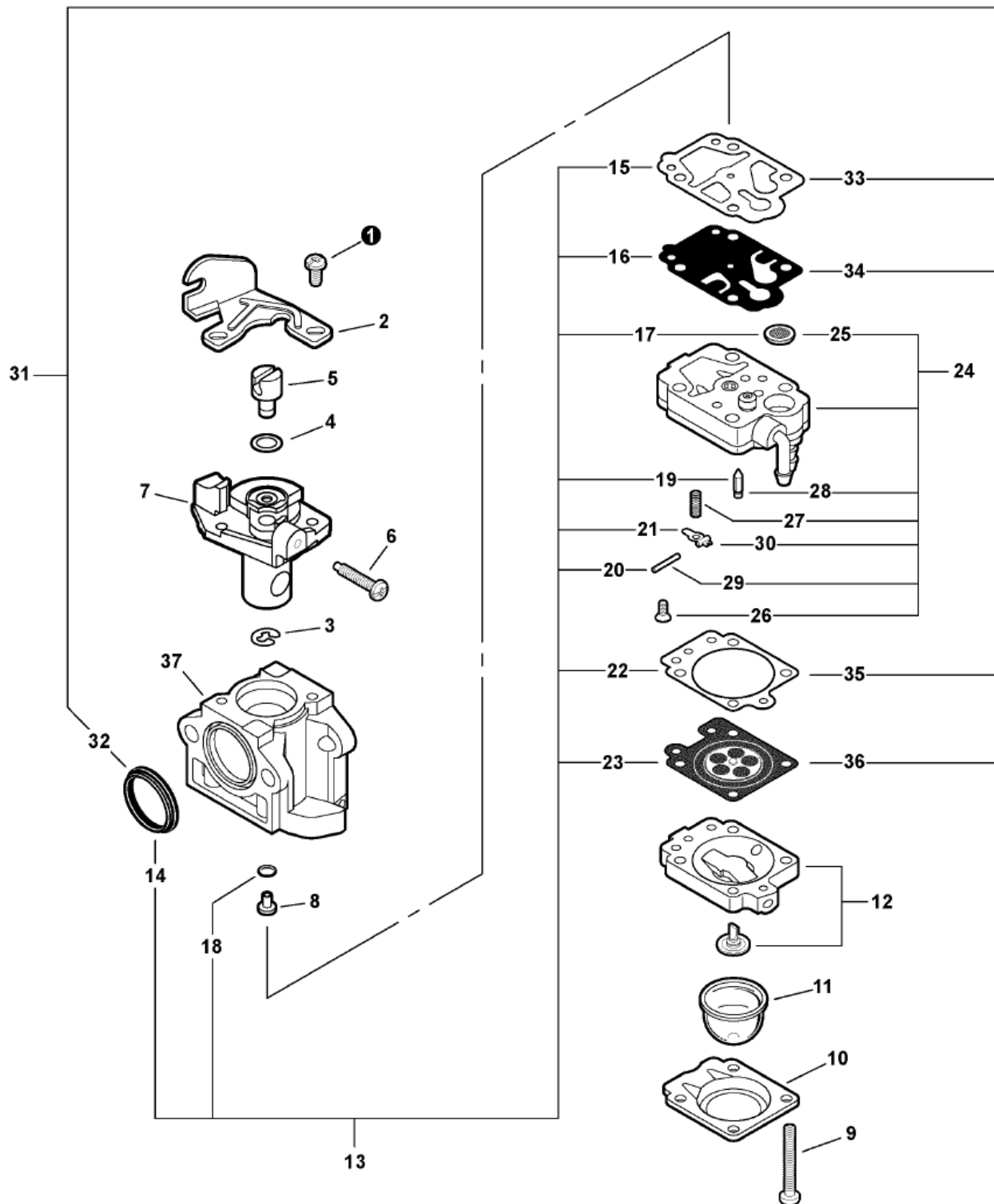
Part #	Qty	Description	RRP Part#	Part #	Qty	Description	RRP Part#
1	4	SCREW, 4 X 25		12	1	CONTROL CABLE ASY	
2	1	BRACKET, THROTTLE CONTROL LEFT		13	1	NUT, 6	
3	1	SCREW, 4 X 30		14	2	NUT, 6	
4	1	IGNITION SWITCH ASY		15	1	TRIGGER, THROTTLE	
5	3	SCREW, 5 X 16		16	1	SPRING, TRIGGER	
6	1	STAND		17	1	BRACKET, THROTTLE CONTROL RIGHT	
7	1	GRIP, HANDLE, RIGHT		18	2	SCREW, 5 X 35	
8	1	SPACER		19	2	LOCKNUT, 5	
9	1	SPRING, THROTTLE LOCK		20	2	WASHER, 5	
10	1	LOCKOUT, TRIGGER		21	1	HANDLE, REAR	
11	1	TIE, CABLE					

Intake



Part #	Qty	Description	RRP Part#	Part #	Qty	Description	RRP Part#
1	1	THUMBSCREW		9	1	CASE, AIR CLEANER BLACK	
2	1	COVER, AIR CLEANER GRAY		10	1	CARBURETOR	
3	1	COVER, AIR CLEANER BLACK		11	1	GASKET, INTAKE	
4	1	FILTER, AIR DOUBLE LAYER		12	2	SCREW, 5 X 25	
5	1	FILTER, AIR SINGLE LAYER		13	1	INSULATOR, INTAKE	
6	2	SCREW, 5 X 60		14	1	GASKET, INTAKE	
7	1	PLATE, PREVENT		15		TUNE-UP KIT	
8	1	CASE, AIR CLEANER GRAY		16		FILTER KIT	

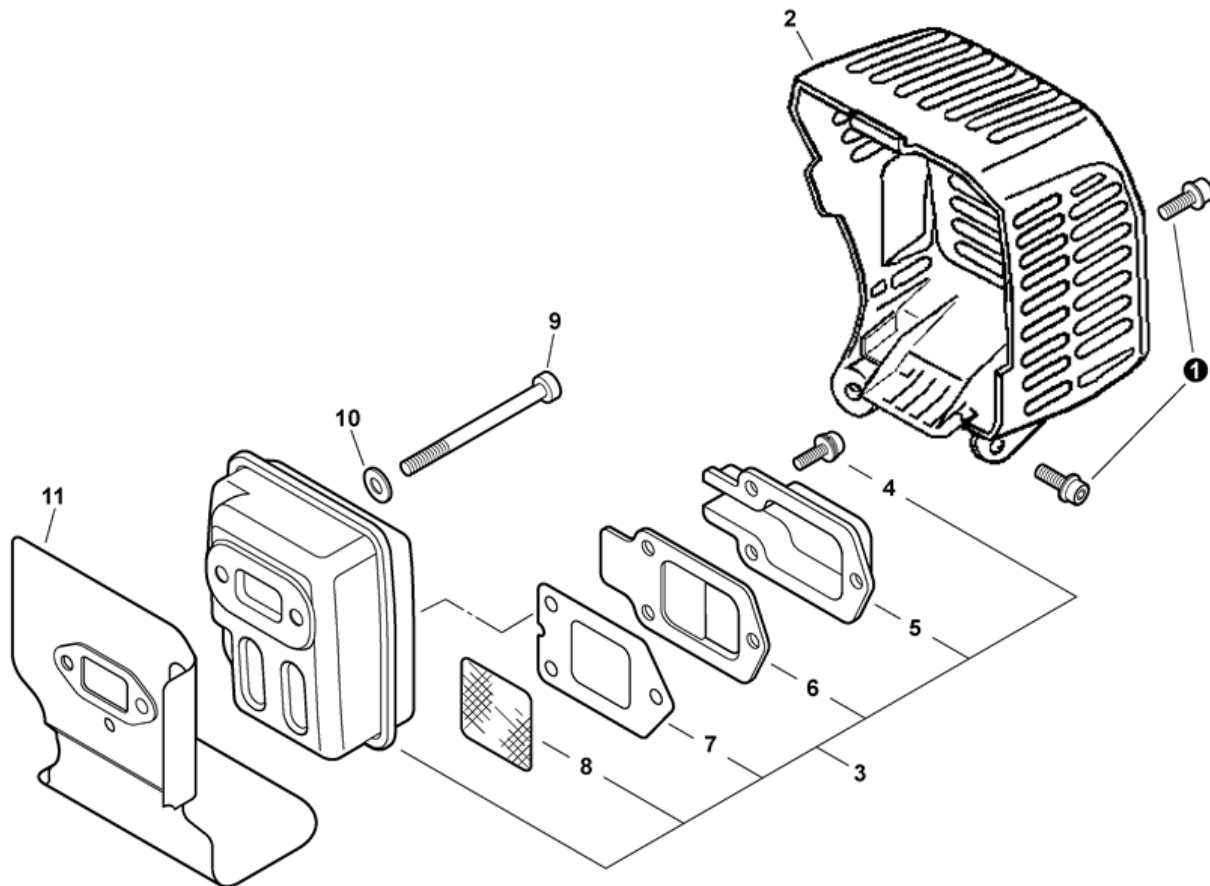
Carburetor



Carburetor Parts List

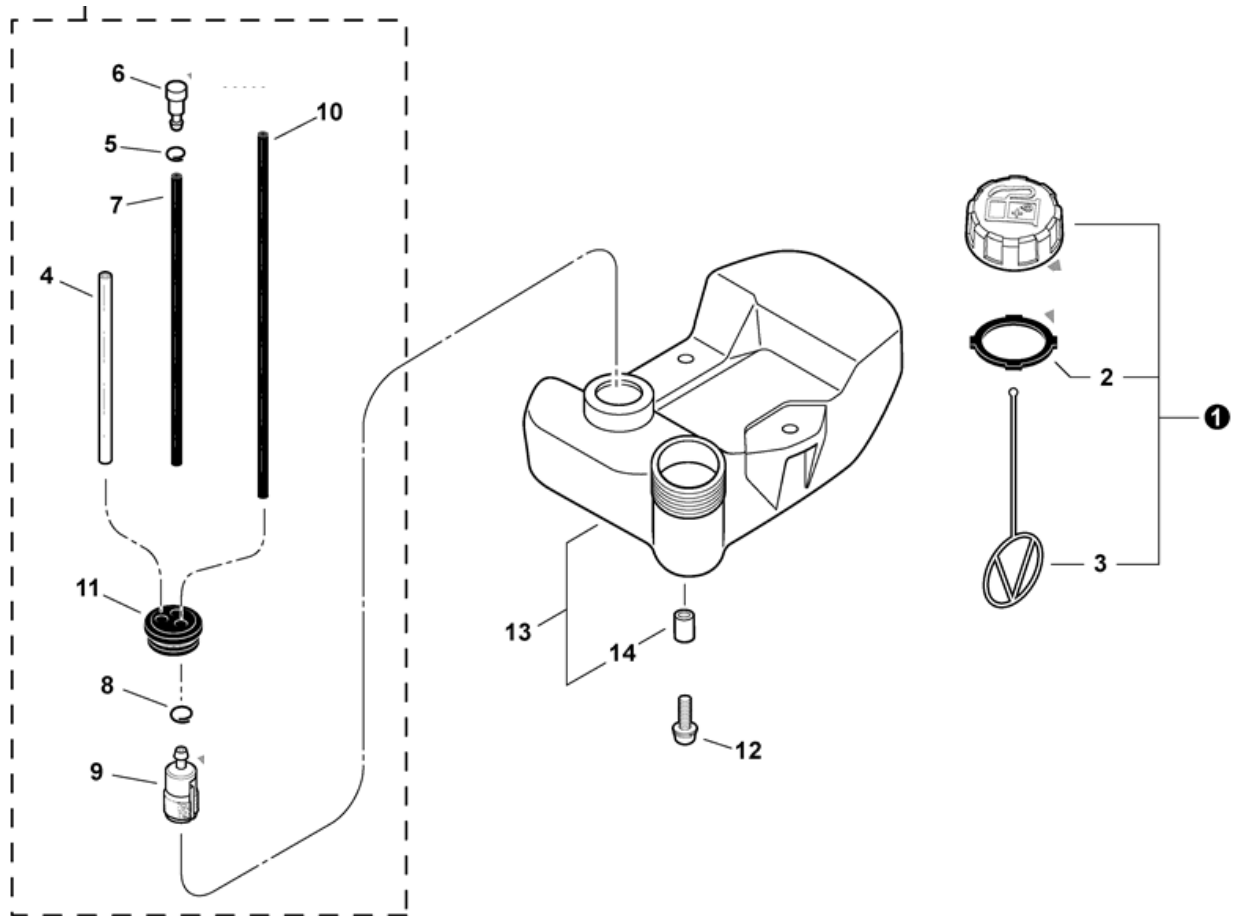
Part #	Qty	Description	RRP Part#	Part #	Qty	Description	RRP Part#
1	2	SCREW		20	1	PIN, METERING LEVER	
2	1	BRACKET, CABLE		21	1	LEVER, METERING	
3	1	RING, RETAINING		22	1	GASKET, METERING	
4	1	WASHER		23	1	DIAPHRAGM, METERING	
5	1	SWIVEL		24	1	PUMP BODY ASY	
6	1	SCREW, IDLE ADJUST		25	1	STRAINER	
7	1	THROTTLE VALVE ASY		26	1	SCREW, METERING LEVER PIN	
8	1	JET, MAIN		27	1	SPRING, METERING LEVER	
9	4	SCREW, PUMP COVER		28	1	VALVE, INLET NEEDLE	
10	1	RETAINER, PURGE BULB		29	1	PIN, METERING LEVER	
11	1	BULB, PURGE		30	1	LEVER, METERING	
12	1	PURGE BASE ASY		31	1	DIAPHRAGM/GASKET KIT	
13	1	REPAIR KIT		32	1	RING, PACKING	
14	1	RING, PACKING		33	1	GASKET, PUMP	
15	1	GASKET, PUMP		34	1	DIAPHRAGM, PUMP	
16	1	DIAPHRAGM, PUMP		35	1	GASKET, METERING	
17	1	STRAINER		36	1	DIAPHRAGM, METERING	
18	1	O-RING		37	1	BODY, CARBURETOR	
19	1	VALVE, INLET NEEDLE					

Exhaust



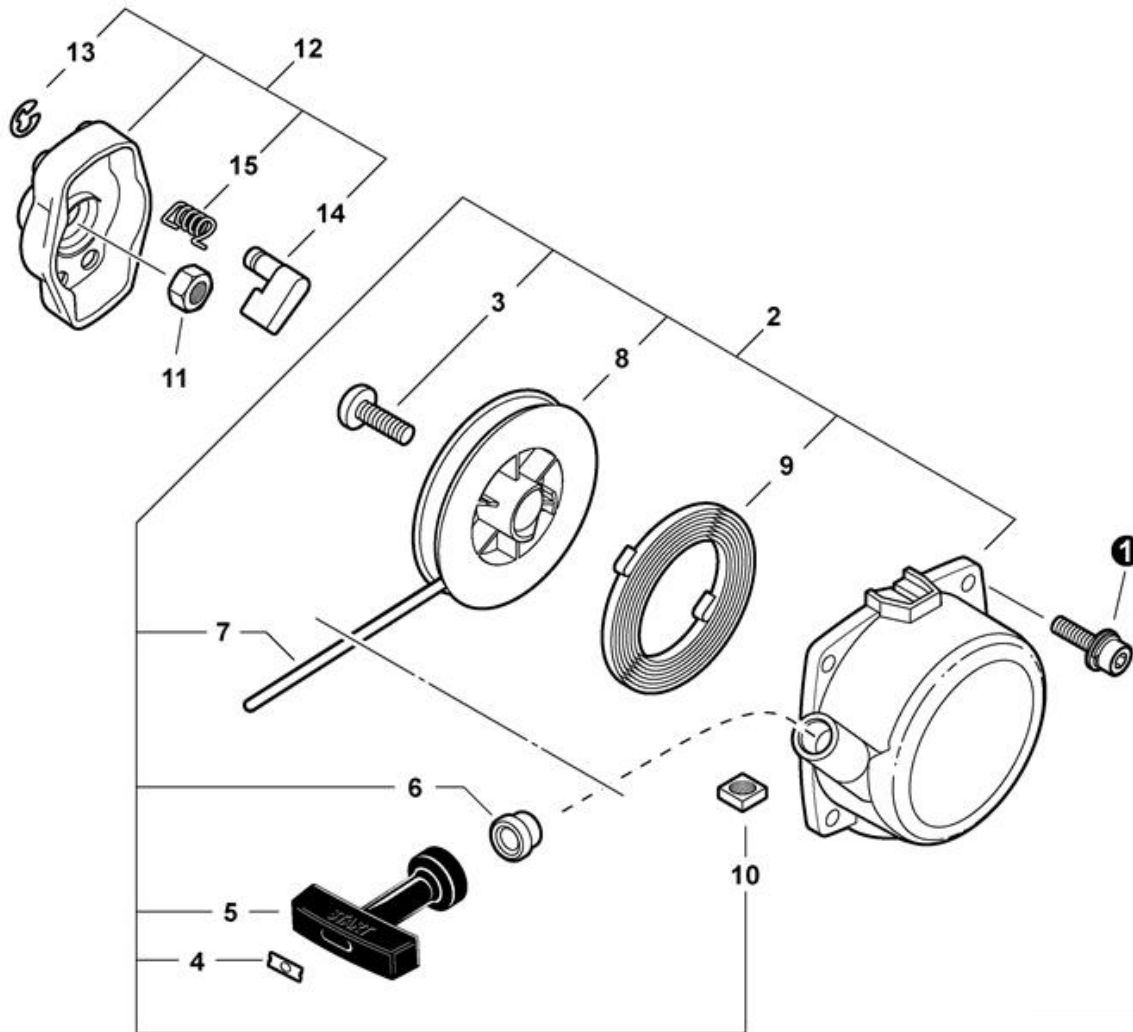
Part #	Qty	Description	RRP Part#	Part #	Qty	Description	RRP Part#
1	1	COVER, EXHAUST		7	1	GASKET, EXHAUST	
2	2	SCREW, 5 X 12		8	1	SCREEN, SPARK ARRESTER	
3	1	MUFFLER ASY		9	2	SCREW, 5 X 55	
4	3	SCREW, 4 X 10		10	2	WASHER, 5	
5	1	GUIDE, EXHAUST OUTER		11	1	SHIELD, EXHAUST	
6	1	GUIDE, EXHAUST INNER					

Fuel System



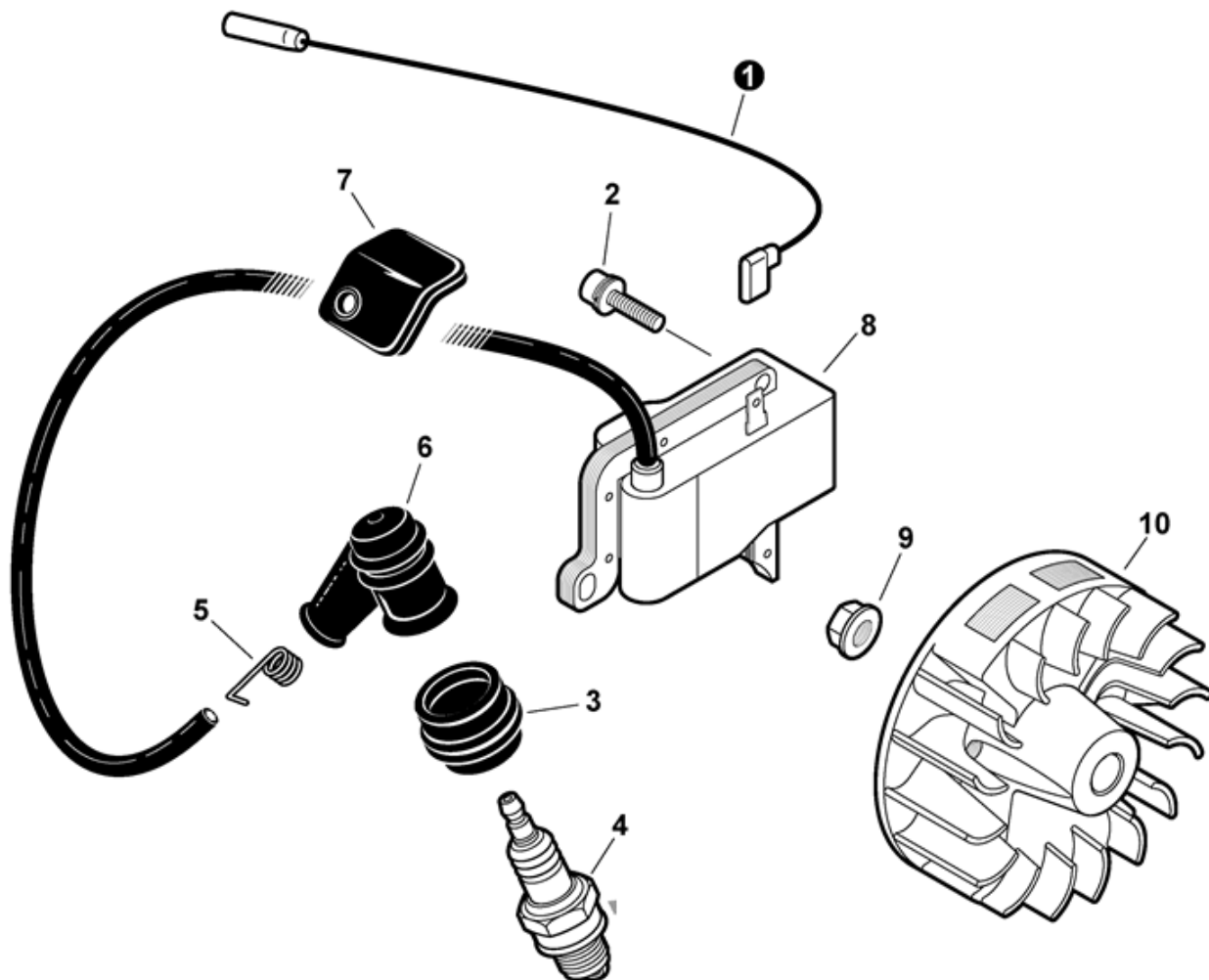
Part #	Qty	Description	RRP Part#	Part #	Qty	Description	RRP Part#
1	1	CAP ASY, ORANGE		10	1	PIPE, 3 X 6 X 170 BLACK	
2	1	GASKET		11	1	GROMMET	
3	1	CONNECTOR, CAP		12	2	SCREW, 5 X 16	
4	1	PIPE, 3 X 6 X 80 CLEAR		13	1	FUEL TANK ASY	
5	1	CLIP, 6.5		14	2	SLEEVE	
6	1	VENT, FUEL TANK		15		FUEL SYSTEM KIT	
7	1	PIPE, 3 X 6 X 115 BLACK		16		TUNE-UP KIT	
8	1	CLIP, 6.5		17		FILTER KIT	
9	1	FILTER, FUEL		18		CAP/VENT KIT	

Starter



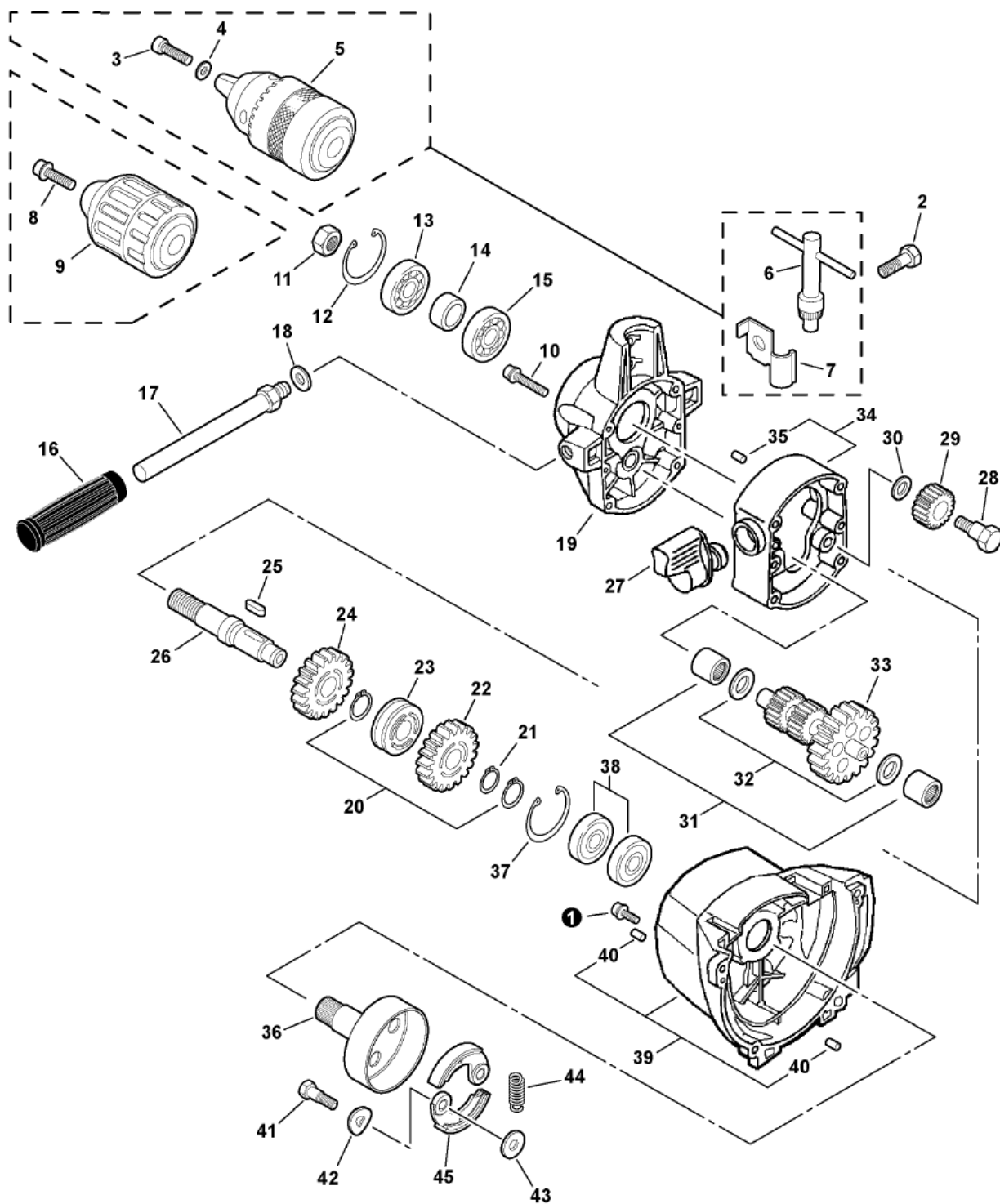
Part #	Qty	Description	RRP Part#	Part #	Qty	Description	RRP Part#
1	4	SCREW, 4 X 12		9	1	SPRING, REWIND	
2	1	STARTER ASY		10	1	NUT, 5 SQUARE	
3	1	SCREW		11	1	NUT, 8	
4	1	RETAINER, ROPE		12	1	STARTER PAWL ASY	
5	1	GRIP, STARTER		13	2	RING, RETAINING 4	
6	1	GUIDE, ROPE		14	2	PAWL, STARTER	
7	1	ROPE, STARTER, 3.5 X 850		15	2	SPRING, RETURN	
8	1	REEL, ROPE					

Ignition



Part #	Qty	Description	RRP Part#	Part #	Qty	Description	RRP Part#
1	1	LEAD, IGNITION		7	1	COVER, IGNITION	
2	2	SCREW, 5 X 16		8	1	COIL, IGNITION	
3	1	COVER, SPARK PLUG CAP		9	1	NUT, 8 FLANGE	
4	1	SPARK PLUG		10	1	FLYWHEEL	
5	1	TERMINAL, SPARK PLUG CAP		11		TUNE-UP KIT	

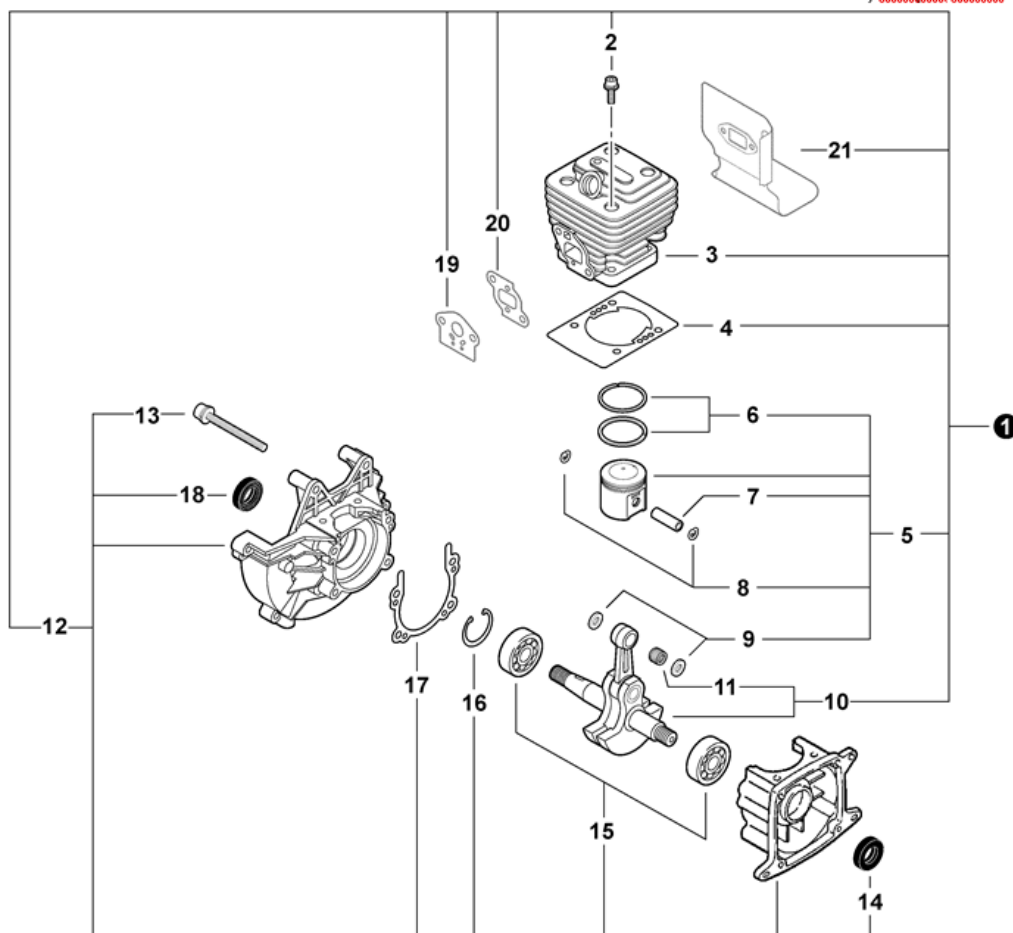
Chuck, Clutch, Gear Case



Chuck, Clutch, Gear Case Part Number

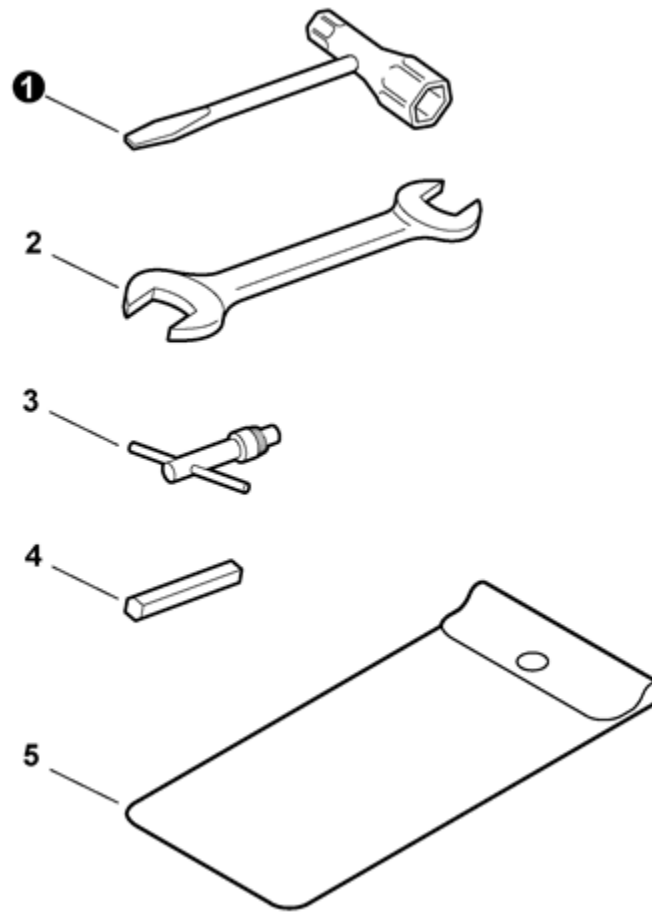
Part #	Qty	Description	RRP Part#	Part #	Qty	Description	RRP Part#
1	4	SCREW, 5 X 18		24	1	GEAR, SPUR	
2	1	BOLT, 10 X 15		25	1	KEY, 4 X 16	
3	4	SCREW, 5 X 18		26	1	SHAFT, GEAR	
4	1	WASHER, 6		27	1	LEVER, CLUTCH	
5	1	CHUCK, KEYED		28	1	BOLT, SHAFT	
6	1	KEY, CHUCK		29	1	GEAR, SPUR	
7	1	CLAMP, CHUCK KEY		30	1	WASHER	
8	1	BOLT, 6 X 20		31	2	BEARING, NEEDLE	
9	1	CHUCK, KEYLESS		32	2	WASHER	
10	4	SCREW, 5 X 55		33	1	GEAR ASY	
11	1	NUT, 12		34	1	GEAR CASE ASY	
12	1	RING, RETAINING 32		35	2	PIN, LOCATING	
13	1	BEARING, BALL		36	1	DRUM, CLUTCH	
14	1	COLLAR		37	1	RING, RETAINING 32	
15	1	BEARING, BALL		38	2	BEARING, BALL	
16	1	GRIP, HANDLE		39	1	FAN CASE ASY	
17	1	HANDLE, LEFT		40	4	PIN, LOCATING	
18	1	WASHER, 10		41	2	BOLT, SHAFT	
19	1	CASE, GEAR		42	2	WASHER, SPRING	
20	2	RING, RETAINING 15		43	2	WASHER	
21	1	RING, RETAINING 12		44	1	SPRING, CLUTCH	
22	1	GEAR, SPUR		45	2	SHOE, CLUTCH	
23	1	CAM, CLUTCH ADJUSTER					

Engine, Short Block



Part #	Qty	Description	RRP Part#	Part #	Qty	Description	RRP Part#
1	1	SHORT BLOCK		12	1	CRANKCASE KIT	
2	4	SCREW, 5 X 22		13	4	SCREW, 5 X 25	
3	1	CYLINDER		14	1	SEAL, OIL 12	
4	1	GASKET, CYLINDER		15	2	BEARING, BALL	
5	1	PISTON KIT		16	1	RING, RETAINING 28	
6	2	RING, PISTON		17	1	GASKET, CRANKCASE	
7	1	PIN, PISTON		18	1	SEAL, OIL	
8	2	RING, RETAINING		19	1	GASKET, INTAKE	
9	2	SPACER, PISTON		20	1	GASKET, INTAKE	
10	1	CRANKSHAFT ASY		21	1	SHIELD, EXHAUST	
11	1	BEARING, NEEDLE					

Tools



Part #	Qty	Description	RRP Part#
1	1	T-WRENCH, 10 X 19 mm	
2	1	SPANNER, 17 X 19 mm	
3	1	KEY, CHUCK	
4	1	BAR, HEX	
5	1	BAG, TOOL	

Section 6: Warranty Terms and Conditions

Warranty Period

Each new machine and new parts of our manufacture are warranted against defects in material and workmanship for one year from the date of shipment from our factory.

When contacting customer service for factory parts, service or warranty support please provide the:

- Racine Railroad Products Model
- Serial Number
- Any locally assigned identification

Vendor Parts Warranty Period

Other equipment and parts used, but not manufactured by Racine Railroad Products, Inc., are covered directly by the manufacturer's warranty for their products.

Warranty Parts and Service

We will repair or replace, without charge, F.O.B. factory, Racine, Wisconsin, USA, any part Racine Railroad Products manufactures which is proven to be defective during the warranty period.

Material claimed defective must be returned, if requested, to the factory within 30 days from the date of the claim for replacement. Ordinary wear and tear, abuse, misuse, and neglect are not covered by this warranty. Depending upon the circumstances, we may provide technical assistance and/or technical service support, without charge, to assist in the correction of warranty related problems.

Non-Warranty Parts and Service

Material damaged through normal wear and tear, abuse, misuse and/or neglect are not covered by our warranty and should be ordered directly from Customer Service.

Note: Parts for models that are no longer in production may not be available.

Non-Warranty Parts Orders

When placing a parts order please provide the following information:

- Company Name and Billing Address
- Purchase Order Number and Issuing Authority
- Shipping Address
- Special Handling Instructions
- Contact Phone Number
- Machine Model and Serial Number
- Part Numbers and Quantities Being Ordered

Note: *Please use Racine Railroad Products part numbers when ordering parts.* Racine Railroad Products part numbers are shown in the parts lists and drawings of this manual and have only six (6) numbers.

Any part number with other than six numbers (e.g., contains alpha-numeric characters) is a Vendor Part Number and **not** a Racine Railroad Products part number.