



**Model 30 Pavement Router
Model 30 Pavement Router Non-Clutch
Self-Propelled Router
Dust Control Router
Saw Cut Router**

Parts Manual - 21320
Revision H

Fill in appropriate fields that apply to this machine

Machine S/N: _____

1st Hose S/N: _____

2nd Hose S/N: _____

1st Pump S/N: _____

2nd Pump S/N: _____

Engine S/N: _____

Compressor S/N: _____

Gear Box S/N (Patcher): _____

Blower S/N (Magnum): _____



Model 30 Pavement Router Manual

Revisions

Revision	Date
"F" Updated to new format. Updated engine model to PA-CH752-3125, Updated specifications to have ship weight for different machines. Updated Chapter 9 with new illustrations and wiring diagrams. Updated troubleshooting with references to Engine Owner's Manual and checking voltages. Added section 6.12. Added saw cut attachment to Chapter 5 and 9. Table 9-5 changed Item 9 to 20860	11/2018
"G" Added part 31443 to Table 6-9 and Figure 9.1	6/2019
"H" Added warning in section 5.8.2. Added saw blade information in section 5.9. Added section 6.12, 6.12.1, and caution. Added Table 6-9. Added Figure 6-9 and 6-10. Added part # 31334, 31326 and 31327 to Figure 9-1 and Table 9-1. Added part # 24250 and 28693 to Figure 9-3 and Table 9-3. Added Figure 9-16. Modified Table 9-10 to go with Figure 9-16.	8/2019



MODEL 30 PAVEMENT ROUTER
PN 21300



MODEL 30 SELF PROPELLED PAVEMENT ROUTER
PN 21340



MODEL 30 DUST CONTROL ROUTER
PN 21350

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Model 30 Pavement Router Manual

Chapter 1 Introduction

1.0 About This Manual

This manual is supplied with each new Crafco Model 30 Pavement Router. The manual assists your machine operators in the proper use of the melter applicator and provides information about the machine's mechanical functions for trouble-free operation.

Your Crafco Model 30 Pavement Router is specially made to give excellent service and save maintenance expense. However, as with all specially engineered equipment, you get best results at minimum cost if you:

Operate your machine as instructed in this manual.

Maintain your machine regularly as stated in this manual.

1.1 How to use this manual:

This manual is formatted to start each new chapter on the right page. There may be a blank page on the left page if the previous chapter ends on the right page.

If you are viewing this in a digital format (PDF) the following features are available:

1. The Table of Contents, List of Tables, and List of Figures are all hyperlinks, when left mouse clicked on section, table, or figure you will be sent to that page.
2. The blue highlighted text throughout the manual is a hyperlink, when left mouse clicked you will be sent to that page, table, or figure.
3. The panel to the left in the PDF is a bookmarks panel, if you left mouse click on any section/heading in the bookmarks panel you will be sent to that page.



Model 30 Pavement Router Manual

Chapter 2 Safety

2.0 Safety Precautions

For more in-depth safety information, please see Safety Manual (PN 26221) which comes with the machine. Or contact your nearest authorized Crafco Distributor at <https://crafco.com/where-to-purchase/>.

2.1 General Safety

- Crafco, Inc. assumes no liability for an accident or injury incurred through improper use of the machine.
- Read this manual thoroughly before operating the machine.
- Obey all CAUTION and WARNING signs posted on the machine.
- Make sure an operator fully knows how to operate the machine before using the machine.

2.2 Personal Safety

- Eye and ear protection devices along with a dust mask are required when operating the machine.
- Wear long pants, work gloves and heavy leather boots or shoes.
- When cleaning cracks and joints near moving traffic, always move in a direction away from traffic to protect the operator.
- Never allow fatigued operators to run the machine. Due to the nature of running this machine, the crew leader should rotate operators as they see fit according to their performance.
- Keep hands, feet, and clothing away from all moving parts.

Chapter 2 Safety

2.3 Equipment or Operational Safety for All Routers

- Do not operate the machine in buildings or work areas that do not have sufficient airflow.
- Always keep a correctly maintained fire extinguisher near the machine and know how to use it.
- Tighten all bolts and screws every 100 hours of machine operation.
- Care should be taken when operating machine on grades. It is usually best to operate the machine going uphill, rather than downhill.
- To stop or slow machine, push down on handle and/or release the clutch handle.
- When cleaning cracks and joints near moving traffic, always move in a direction away from traffic to protect the operator.
- Tires should be inflated to 45 psi to allow machine to roll easily.
- Never operate the router without belt guard in place.
- Never transport the router with the engine running.
- Never exceed maximum recommended engine RPM.
- Never leave router unattended while engine is running.
- Never stand on any part of the machine.
- The only operating position is behind the pavement cutter with both hands on the handle.

2.3.1 Operational Safety for Dust Control Router

- Do not operate router without hose attached to blower.
- Do not operate router without hose attached to Cutter Head Dust Shroud.
- Do not route without Cutter Head Dust Shroud in place.

2.4 California Proposition 65

The state of California currently maintains a list of chemicals that can cause cancer, birth defects or other reproductive harm. Your Crafco, Inc. equipment comes with the following warnings:

2.4.1 All Crafco, Inc. Equipment

 **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov

26471N

2.4.2 All Crafco, Inc. Equipment using a gasoline engine

 **WARNING:** Breathing engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information go to www.P65warnings.ca.gov/diesel.

26157

Chapter 2 Safety

2.5 Safety Symbols and Notices

Important safety symbols and notices are marked on the machine and in this manual. Failure to comply could result in equipment damage, operational malfunction, serious injury, or death. Please read and comply with all symbols and notices. The table below includes the most commonly used symbols and notices.

Table 2-1 Safety Symbols and Notices

Symbol	Item	Remarks
WARNING	Warning	Refers to possible bodily injury or death.
CAUTION	Caution	Refers to possible equipment damage or operational malfunction.
	Severe Burn Hazard	Hot material can cause severe burns.
	Protective Shoes	Wear hard-soled work shoes.
	Protective Gloves	Wear heat resistant gloves.
	Protective Face or Eye Wear	Wear face shield or safety glasses.
	Body Crush Hazard	Do not stand between trailer and hitch when hooking melter to truck.

Chapter 2 Safety

Table 2-2 Safety Symbols and Notices (continued)

Symbol	Item	Remark
	Crush Hazard	Keep feet and legs clear.
	Pinch Hazard	Keep hands and feet clear.
	Exhaust Hazard	Avoid breathing engine exhaust.
	Read Manual	Read and understand operator and safety manuals before operating machine.

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Model 30 Pavement Router Manual

Chapter 3 Warranty Information

3.0 Limited Warranty

Crafco, Inc. (Manufacturer), or one of its affiliated distributors, will replace for the original purchaser free of charge any parts found upon examination by the Manufacturer, to be defective in material or workmanship. This warranty is for a period **two years** from the invoice date, but excludes engine or components, tires, and battery as these items are subject to warranties issued by their manufacturers.

Crafco, Inc. shall not be liable for parts that have been damaged by accident, alteration, abuse, improper lubrication/maintenance, normal wear, or other cause beyond our control.

The warranty provided herein extends only to the repair and/or replacement of those components on the equipment covered above and does not cover labor costs. The warranty does not extend to incidental or consequential damages incurred as a result of any defect covered by this warranty.

All transportation and labor costs incurred by the purchaser in submitting or repairing covered components must be borne by the purchaser. Crafco, Inc. specifically disavows any other representation, warranty, or liability related to the condition or use of the product.

CAUTION

Use of replacement parts other than genuine Crafco parts may impair the safety or reliability of your equipment and nullifies any warranty.



Model 30 Pavement Router Manual

Chapter 3 Warranty Information

3.1 Warranty Claim Instructions

Crafco, Inc. warrants parts and machinery purchased through Crafco or one of its affiliated distributors for two years from the invoice date. Wear items are not covered under the Crafco, Inc. limited warranty. A wear item is defined as but not limited to: cutters, cutter pins, tires, etc.

If parts fail to function within two years of invoice date, a return authorization number (RA) must be obtained. If the part was purchased through Crafco, Inc., please contact Crafco returns department at [Returns@Crafco.com](mailto>Returns@Crafco.com) for an RA number or if purchased through a Crafco distributor please contact your distributor.

Note: if the part has a serial number associated with it, for example; a machine or electric hose or wand, this must be furnished when requesting the RA number. The customer will be emailed or faxed an RA form with all instructions to return the item to Crafco, Inc. See example. If the part is found to be within the two year warranty period and has not been abused or modified, a credit will be issued to the customer's account or credit card. The customer may request the part be replaced instead of a credit, if desired.

Note: All engine warranties are covered through the engine manufacturer. If you need information for a distributor in your area please contact us and we will direct you to the closest engine distributor.

All parts returned are tested and evaluated. If the part has been modified in any way without prior consent from a Crafco, Inc. representative, warranty is void.

Please follow the instructions stated below when calling in a Warranty Claim. Failure to follow these procedures may be cause to void the warranty.

Call your local Crafco Distributor. If you do not know who your local distributor is, call a Crafco Customer Service Representative, (Toll Free 1-800-528-8242) for name, location and telephone number.

On contacting the distributor, be prepared to identify the serial number, model number, engine number, engine manufacturer, and the date of purchase if available.

Should the cause of the malfunction be a defective part, the Distributor will advise you of the procedure to follow for a replacement.

The warranty is valid only for parts, which have been supplied or recommended by Crafco, Inc.

If you have any additional questions regarding warranty repairs and parts, please do not hesitate to call toll free 1-800-528-8242.

For Warranty:

Crafco, Inc.
25527 South Arizona Avenue, Chandler, AZ
85248
Phone: (480) 655-8333 or (800) 528-8242
Fax: (480) 655-1712

For all other inquiries:

Crafco, Inc.
6165 W Detroit St,
Chandler, AZ 85226
Phone: (602) 276-0406 or (800) 528-8242
Fax: (480) 961-0513
CustomerService@crafco.com

Chapter 4 Machine Specifications**4.0 Machine Specifications****Table 4-1 Machine Specifications**

Specification	PN 21300, 21330 ROUTER WITH CLUTCH AND NON-CLUTCH	PN 21340 SELF PROPELLED ROUTER	PN 21350 DUST CONTROL ROUTER	PN 21360 SELF PROPELLED WITH DUST CONTROL		
Engine	2 Cylinder – Kohler PA-CH752-3125 (27HP) (20 Kw)					
Fuel	Unleaded Gasoline					
Fuel Tank Capacity	6 Gallons (22.7 Liters)					
Approximate Shipping Weight	550 Lbs. (249.5 Kg)	600 Lbs. (272 Kg)	650 Lbs. (295 Kg)			
Maximum Depth of Cut	1-5/8" (41.3 mm)		1-1/2" (38.1mm)			
Safety Features	Braking system, Safety guards, Electric clutch (excluding PN 21330 non-clutch)					
Depth Control	Electric actuator for fingertip depth control, Depth gauge for precise depth control.					
Cutter Design	6 radially located sprocket shaped cutters on 11-3/4" (298.5 mm) diameter cutter head					
Cutter Style	Hardened steel with carbide cutter tips					
Crack Cleaning	Up to 1500 Liner Feet (457 Linear Meters) per hour					

Chapter 5 Operating Instructions

5.0 Operating Instructions

The CRAFCO Model 30 Pavement Router was designed specifically to widen and clean joints and cracks in asphalt and concrete surfaces. The Crafco Model 30 Pavement Router is NOT intended to be used to clean old sealant from joints and cracks.

The CRAFCO Model 30 Pavement Dust Control Router is a self-contained unit; no external power source is needed to operate the dust collection system. It was designed to reduce the amount of fugitive dust particles being introduced into the air when widening and cleaning joints and cracks in asphalt surfaces. The CRAFCO Model 30 Pavement Dust Control Router was not intended to pick up all dirt and debris from the joint or crack after routing.

The CRAFCO Model 30 Pavement Self-Propelled Router is a self-contained unit; no external power source is needed to operate the drive system. It was designed to reduce worker fatigue from moving from one distressed area to another. The Crafco Model 30 Pavement Self-Propelled Router was not intended to drive forwards and route cracks at the same time. The handle bar has two separate drive handles, standing at the operators position the drive handle on the left works the electric clutch and the drive handle on the right works the drive wheels.

The CRAFCO Crack Saw Attachment is designed to offer a secondary use for our Model 30 Pavement Router. This tool will allow the transformation of the standard Model 30 to a random crack saw for use on concrete or asphalt pavement in less than 1 hour. Diamond or abrasive blade (not included) may be used wet or dry on the Model 30. Crafco part number 31350, Random Crack Saw Cutting Kit, may be ordered for the Model 30 Router with the initial order, or as an add on kit. The kit includes all parts necessary to transform a Crafco Model 30 Pavement Router into a saw. Instructions for installing this kit are included in Section 5.9

CRAFCO, Inc. and its Distributors assume no liability for accident or injury incurred through improper use of this machine.

DO NOT operate machine without reading operator's manual and being thoroughly familiar with controls:

Note: DO NOT attempt to operate the machine without using these and all other instructions.

Chapter 5 Operating Instructions

5.1 Preparing the Machine for Start Up

Table 5-1 Preparing the Machine for Start Up

Step	Action
1	Check engine crankcase oil. Add oil if low. Refer to Engine Operators Manual.
2	Fill engine gas tank with clean, fresh, unleaded gasoline. See "Fuel Recommendations" in Engine Operators Manual.
3	Check tire inflation. Proper tire inflation is 45 psi. Machine will be difficult to roll with under-inflated tires.
4	Check engine cooling air intake and external surfaces of engine. Clean if dirty or obstructed.
5	Check that the air cleaner components and all shrouds, equipment covers, and guards are in place and securely fastened.
6	Check and/or open the fuel valve on the bottom of the fuel tank so that the engine will get fuel.
  	WARNING The safe operation of this machine is the operator's responsibility. Use extreme care when operating this machine; safety is the result of being careful and paying attention to details. Always put on protective clothing, long pants, gloves, hard-soled shoes, safety glasses, dust mask, and ear protection. Tighten all bolts, nuts, and screws every 100 hours.

Chapter 5 Operating Instructions

5.2 Starting

It is recommended that you read the Engine Operators Manual before starting the engine.

Table 5-2 Engine Starting Instructions

Step	Action
1	<p>To start engine, place the throttle control midway in the “slow” position, and place the choke control into the “on” position.</p> <p>Note: With non-electric clutch you must pull and hold the engine stop switch at the operator’s position for the engine to start and run.</p>
2	<p>Start the engine by activating the key switch. Release the switch as soon as the engine starts.</p> <p>Note: Do not crank the engine continuously for more than 10 seconds at a time. If the engine does not start, allow a 60 second cool down period between starting attempts. Failure to follow these guidelines can burn out the starter motor.</p> <p>Note: Upon start-up a metallic ticking may occur. This is caused by the hydraulic lifter leak down during storage. Run the engine for 5 minutes. The noise will normally cease in the first minute. If noise continues, run the engine at mid throttle for 20 minutes. If noise persists, take the engine to your local Kohler Service Engine Dealer.</p> <p>Note: If the engine develops sufficient speed to disengage the starter, but does not keep running (a false start), the engine rotation must be allowed to come to a complete stop before attempting to restart the engine. If the starter is engaged while the flywheel is rotating, the starter pinion and flywheel ring gear may clash, resulting in damage to the starter.</p>
	<p>CAUTION</p> <p>If the starter does not turn the engine over, shut off starter immediately. Do not make further attempts to start the engine until the condition is corrected. Do not start using another battery. See your Kohler Engine Service Dealer for trouble analysis.</p>
3	For a Cold Engine: Gradually return the choke control to the “off” position after the engine starts and warms up. The engine/equipment may be operated during the warm-up period, but it may be necessary to leave the choke partially on until the engine warms up.
4	For a Warm Engine: Return the choke to “off” position as soon as engine starts.
5	Black smoke from the exhaust and a rough running engine usually indicate over-choking.

Chapter 5 Operating Instructions

5.3 Cold Weather Starting

Table 5-3 Cold Weather Starting Hints

Step	Action
1	Be sure to use the proper engine oil for the temperature expected. See Engine Operators Manual for recommended SAE Viscosity Grades.
2	Set speed control at part throttle position.
3	A warm battery has much more starting capacity than a cold battery.
4	Use fresh winter grade fuel.
	CAUTION
	Winter grade gasoline has a higher volatility to improve starting. Do not use gasoline leftover from summer.

5.4 Battery

A 12 volt battery is used. If the battery charge is not sufficient to crank the engine, recharge the battery. See Section [6.3.1](#) for battery charging instructions.

5.5 Stopping the Engine

Table 5-4 Stopping the Engine

Step	Action
1	Place the throttle control midway between the "slow" and "fast" positions.
2	Allow the engine to run a minimum of 15 seconds.
3	Stop the engine by turning off the key switch.
4	If not using the router for longer periods, turn off the fuel valve under the fuel tank to avoid flooding the carburetor when not in use.

5.6 Operation Guidelines

Follow these guidelines to ensure proper operation of your CRAFCO Model 30 Pavement Router.

5.6.1 Angle of Operation

The engine will operate continuously at angles up to 25 degrees. Check oil level to assure crankcase oil level is at the "F" mark on the dipstick. Do not operate the engine continuously at angles exceeding 25 degrees in any direction. Engine damage could result from insufficient lubrication.

Chapter 5 Operating Instructions

5.6.2 Cooling

	WARNING
	<p>Hot Parts!</p> <p>Engine components can get extremely hot from operation. To prevent severe burns, do not touch these areas when the engine is running or immediately after it is turned off. Never operate the engine with heat shields or guards removed.</p> <p>Note: If debris builds up on the screen or other cooling air intake areas, stop the engine immediately and clean. Operating the engine with blocked or dirty air intake and cooling areas can cause extensive damage due to overheating.</p>

5.6.3 Engine Speed

The high idle speed for this engine is 3750 RPM, no load.

	CAUTION
	<p>Do not tamper with the governor setting or increase the maximum engine speed. Over speed is hazardous, may hinder cutter action, and will void the warranty.</p>

	WARNING
	<p>Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide is odorless, colorless, and can cause death if inhaled. Avoid inhaling exhaust fumes, and never run the engine in a closed building or confined area.</p>

Chapter 5 Operating Instructions

5.7 Attaching Cutter Head Dust Shroud

For Model 30 Pavement Dust Control Router, follow these procedures to attach all dust control mechanisms before starting or operating the machine.

Table 5-5 Attaching Cutter Head and Dust Shroud

Step	Action
1	To make attaching the cutter head dust shroud more accessible, raise the front of the router. To raise the front of the router, push down on the handle bars until the router is resting on the handle and the corner of the frame assembly. See Figure 5.1
2	Remove cutter head dust shroud from the storage bracket and bring around to front of router.
3	Bring the shroud up from the bottom of the housing and align the pin hole with the slots in the mounting brackets.
4	Install the pin and secure with washer and 5/16" x 3/8" hairpin.
5	Use the Brush Manipulation Tool to push the Seal Brushes on both sides of shroud up above the cutter housing. The brushes should be in an upward position. See Figure 5.2
6	Lower the router back onto its wheels.
7	Make sure the large particle dust collection bin is empty and is securely attached to mounting bracket before beginning your routing operation.
8	Make sure the dust collection bag is clean and securely clamped to filter mounting bracket with adjustable quick release gear clamp. The quick release gear clamp is adjustable and should be adjusted so that it holds the dust collection bag securely in place. Do not over-tighten the clamp as this may damage the dust collection bag. The support rod was designed so it could be slid into a rearward position for transportation of router where space is limited. The support rod should be fully extended in its forward position before routing begins.
9	Raise the cutter mechanism by pushing the rocker switch to the up position.
10	Open fuel valve on bottom of fuel tank.

Chapter 5 Operating Instructions

Figure 5-1 Model 30 Router Raised for Dust Shroud Installation

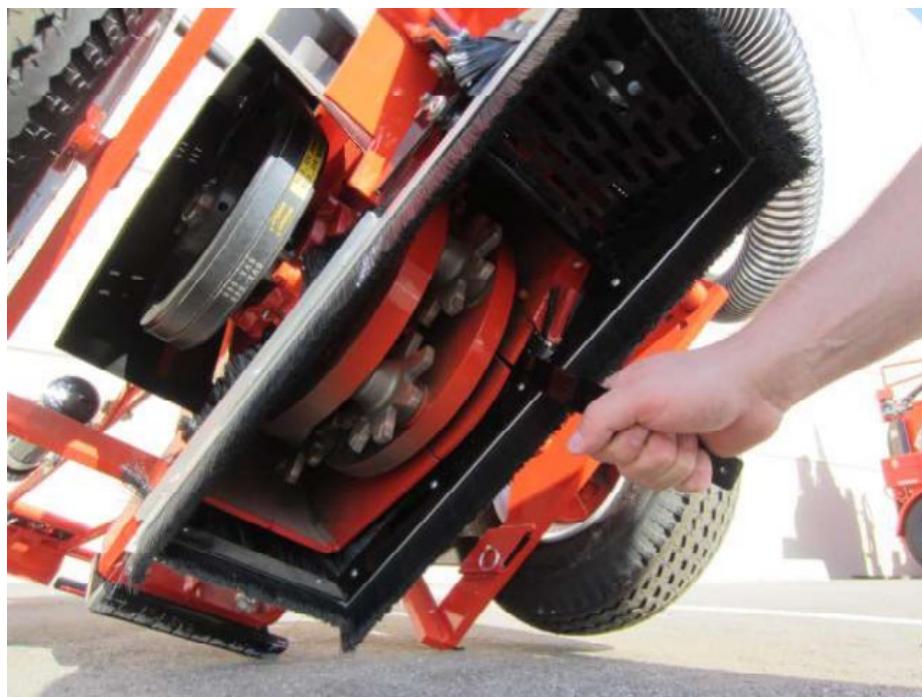


Figure 5-2 Using the Brush Manipulation Tool

Chapter 5 Operating Instructions

5.8 Cleaning Joints and Cracks

Once your machine is ready to begin operation, start the engine as in [Table 5-2 Engine Starting Instructions](#), and then use these instructions to begin cleaning joints and cracks.

Table 5-6 Cleaning Joints and Cracks

Step	Action
1	Open throttle for maximum engine speed.
2	Position machine over joint and line up pointer with joint.
3	Engage electric clutch by pulling up on "Clutch" handle (Figure 5.4)
4	Machine is operated by manually guiding the machine while walking backwards . The stabilizer mechanism is designed to stabilize the machine and to act as a brake.
5	Always engage electric clutch before lowering cutter head into the joint.
WARNING	
The CRAFCO Model 30 Pavement Router pushes toward the operator when routing. Tightly compacted surfaces, deep or wide cuts, or hard aggregate may cause sudden machine movement toward operator. This "kickback" could cause the operator to lose balance or control of the machine resulting in serious personal injury. When operating, keep wear plate in contact with pavement and hold handle with both hands. For Emergency Stop, push down firmly on machine handle or release safety "Clutch" handle, which disengages the electric clutch. Push machine handle away.	
6	Engage electric clutch by pulling up on "Clutch" handle.
7	Lower cutter head, using Actuator switch (Figure 5.4), until cutters slightly touch the surface.
8	Notice shade and number on the depth indicator (Figure 5.3). Each shade represents approximately 1/4 inch (6.35 mm) depth variation.
CAUTION	
Do not try to go too fast. Do not overload the engine. Overloading the engine will slow cutting action and cause damage to engine and drive components. A bouncing or hammering action usually indicates the machine is moving too fast or the cutters have worn out of round (refer to troubleshooting on page 8-1).	
9	Let the machine thoroughly clean the joint. For deep cuts (deeper than 3/4 inch (19 mm)) it may be necessary to make two passes.
10	A stabilizer mechanism (Figure 5.5) is used on the Crafco Pavement Router to improve the stability of the machine and to act as a brake.
11	TO SLOW OR STOP THE ROUTER , simply push down on the handle or release safety "clutch" handle which disengages the electric clutch.
12	For normal operation, let skid plate drag on paved surface while machine is in operation. Skid plate (Part No. 20919) should be replaced before wear reaches the vertical leg of the bent angle.
13	As cutters wear, depth of cut will change. To compensate for cutter wear, repeat step #7 as often as necessary to reset depth.

Chapter 5 Operating Instructions**Figure 5-3 Depth Indicator****Figure 5-4 Model 30 Router Handle**

Chapter 5 Operating Instructions**Figure 5-5 Stabilizer Mechanism**

Chapter 5 Operating Instructions

5.8.1 Routing with Dust Control

The following applies to the Router's with the Dust Control Router. As you begin to route, the dust that is sucked up from the cutter head shroud enters the cyclone where a majority of the debris is spun out of the air stream and deposited in the large particle dust collection bin. The amount of time or distance that can be routed before the large particle dust collection bin will need to be emptied will vary depending on the condition of the asphalt, approximately 500 to 1000 feet (150 to 300 meters). If you have ordered the Dust Control Retrofit Kit (PN 31550K) please see the separate installation instructions provided.

Table 5-7 Routing with Dust Control Router

Step	Action
	WARNING
	Never operate the unit without all the dust control components attached, in particular the cutter head dust shroud. This could cause injury or damage from flying debris.
1	When beginning a routing operation, check the large particle dust collection bin frequently to gauge the distance that can be routed before emptying the large particle dust collection bin. The large particle dust collection bin should be emptied at approximately 3/4 to 7/8 full.
	CAUTION
	If the large particle dust collection bin becomes overfilled the debris will be sucked up through the cyclone and deposited in the dust collection bag, reducing the run time of the dust collection bag.
2	To empty the large particle dust collection bin, reduce engine speed to idle.
3	Support the bottom of the large particle dust collection bin with one hand, keeping the bin pressed up firmly against the mounting bracket.
4	With your other hand, unlatch the rubber latches on the large particle dust collection bin.
	CAUTION
	The large particle dust collection bin weighs approximately 30 lbs. when full
5	Dump the large particle dust collection bin in a larger receptacle where it can be disposed of properly at a later time.
6	Reattach the large particle dust collection bin to the mounting bracket.
7	Lightly tap sides of the dust collection bag with your hands. Note: During router operation, what dust isn't spun out by the cyclone, enters the dust collection bag. This dust forms a "Dust Cake" on the inside wall of the dust collection bag and will restrict the amount of air that can escape through the dust collection bag, reducing the overall suction of the system. Tapping on the side of the dust collection bag will knock this dust cake loose from the sides of the dust collection bag, increasing the amount of time that can be routed before the dust collection bag will need to be serviced. (see Section 6.11)
8	Return engine to high speed and continue routing.

Chapter 5 Operating Instructions

Table 5-8 Routing with Dust Control Router (continued)

Step	Action
9	At the end of the day remove the cutter head dust shroud and store on the Shroud Storage Bracket located on top of the cyclone.
	<p>WARNING</p> <p><u>DO NOT</u> leave the router resting on the seal brushes as they will deform. Excessive deformation of the seal brushes will hinder the shrouds ability to trap dust behind the shroud, reducing the efficiency of the dust collector.</p>

5.8.2 Moving the Self Propelled Router

Use the self-propelled function only for ease of moving the router from one distressed area to another.

Table 5-9 Moving the Self Propelled Router

Step	Action
1	Reduce engine speed to idle
2	Stand at the operators position
3	Raise the handle slightly so the router is not resting on the skid plate.
4	Pull up on the right hand drive handle to engage the self-propelled drive system and walk behind the router towards the next distressed area.
5	Release the drive handle when you are ready to stop moving.

WARNING

The function of the self-propelled mechanism is to drive the router from one distressed area to another. It is not to be used to drive the router forward when the cutter is engaged. Doing so can damage the drive mechanism or other parts of the router. To help prevent this, an electric switch is installed at the control handle that will prevent the electric clutch from engaging the cutter when the self-propelled drive handle is pulled. This switch must be in good working order and properly adjusted to prevent the cutter from engaging when the drive mechanism is engaged. Replace or adjust this switch if it is not functioning properly. DO NOT bypass this switch.

Chapter 5 Operating Instructions

5.9 Saw Cut Attachment

The Crafco Random Crack Saw Attachment is designed to offer a secondary use for our Model 30 Pavement Router. This tool will allow the transformation of the standard Model 30 Pavement Router to a random crack saw for use on concrete or asphalt pavement in less than 1 hour. The Saw Cut Attachment may also be used on a Dust Control Router, though the dust control feature does not work with the saw cut attachment. Ask your Crafco customer service representative for Part Number 31350. This kit includes all parts necessary to transform a Crafco Model 30 Pavement Router into a saw.

Diamond or abrasive blade (not included) may be used wet or dry. The Saw Cut Attachment was designed to use an 8 inch diameter blade with a 1 inch center bore with a cut width from 1/4 inch up to 1/2 inch. Contact your local concrete or pavement supply store for saw blades.

Operate the Model 30 Router with the Saw Cut Attachment in the same way as described in Sections [5.2](#), and [5.8](#). To perform wet cuts, attach a hose to the hose connector, turn on water supply, and open the ball valve. Then cut as normal.

CAUTION

The Saw Cut Attachment will still cut while moving backward, with the saw blade spinning in the same direction as the router cutters. It is important to make sure that the saw blade is oriented in the correct direction to cut while the machine moves backwards.

The Saw Cut Attachment may be installed by Crafco at the Chandler AZ manufacturing plant, or installed by the operator. If you choose to install it yourself follow the instructions in Table 5-10, Table 5-11, and Table 5-12.

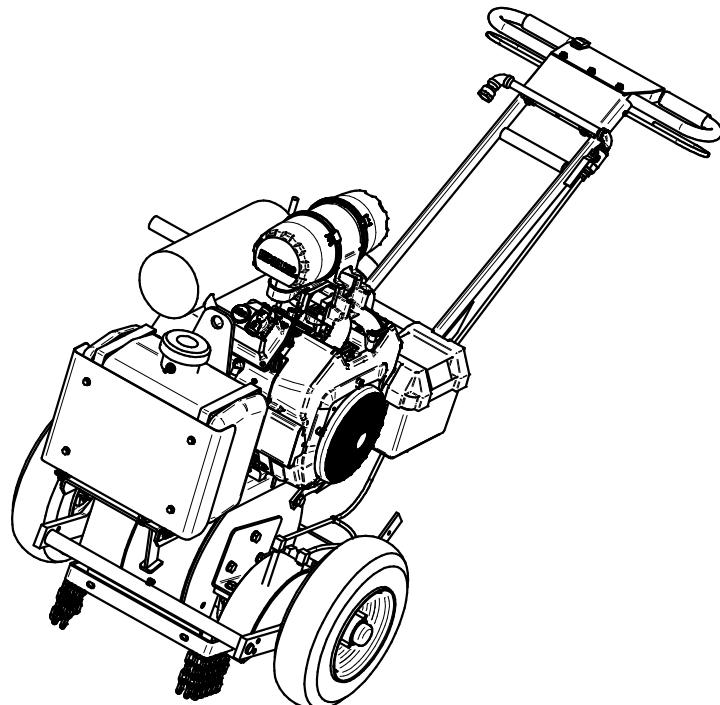


Figure 5-6 Model 30 with Saw Cut Attachment

Chapter 5 Operating Instructions

Table 5-10 Removing Cutter Head

Step	Action
1	Turn the key to the on position, use the up/down toggle switch to lower the cutter head until it is resting on the ground then turn the key back to the off position.
2	Remove power from unit by disconnecting negative battery cable to prevent accidental startup.
3	Remove 4 bolts holding the belt guard in place and set belt guard aside.
4	Back off belt tension by backing off adjusting nuts on belt adjuster located under the engine mounting channel. Remove the belts and retain for later use. (If belts are showing signs of wear, replace with a new set of belts).
5	Remove the top 3 bolts in each of the two main shaft bearings. It is not necessary to remove the bottom bolt from the main shaft bearings, they can be left intact. This will retain the filler plates. It is also not necessary to remove or loosen the set screws holding the bearings to the main shaft, nor is it necessary to remove the belt sheave.
6	Once the 6 main shaft bearing bolts have been completely removed, slowly lift up on the handle to raise the back of the router. Do not raise the cutter head assembly more than a $\frac{1}{2}$ " off of the ground without verifying that the cutter head assembly has broken free of the housing and will easily slid out. This will prevent the cutter head assembly from having a "long fall" to the ground, preventing damage to the cutters or the cutter head itself.
7	If the cutter head fails to immediately slide out of the housing lower the handle back down to the ground. Loosen the set screws on one shaft bearing only. Leaving one bearing in place will help with realignment if you were to choose to reinstall the cutter assembly at a later time. If necessary, lightly tap on the end of the main shaft to free the cutter head assembly from the housing.
8	Once the cutter head assembly has broken free of the housing, slowly lift the handle up until the cutter head assembly is clear of the housing and the router is resting on the front support strip. The cutter head can now be rolled out from underneath of the router and stored until needed.

Chapter 5 Operating Instructions

Table 5-11 Saw Cut Attachment Installation

Step	Action
1	Mount the two side mounting angles to the cutter housing using 1/2"-13 x 1-3/4" long bolts and 1/2" lock washers, hand tight only. Install the mounting angles where the main shaft bearings were located with the two-hole flange at the bottom of the router. The mounting angle with the saw blade guard mounting tab should be located on the side opposite of the belts.
2	Mount a 1-3/4" pillow block bearing to each one of the mounting angles with 1/2"-13 x 1-3/4" long bolts, 1/2" flat washers, and 1/2"-13 upset nuts, hand tight only.
3	Install the main shaft loosely through the two pillow block bearings. The side that has a shoulder for the blade mounting collars and a center bolt hole should go on the side opposite of the belts.
4	Tighten the 6 bolts for the bearing mounting angles and the 4 pillow block bearing bolts.
5	Install inner collar, drive pin, and outer collar onto main shaft using 1/4" x 7/8" long keyway, 5/8" SAE flat washer, 5/8" lock washer, and 5/8"-11 x 4" left hand thread bolt.
6	Install two 1/4" x 90° barbed fittings onto the blade guard. The barbs should point to the rear of the router when the guard is installed onto the router. Place the guard onto the router. It may be necessary to cut a notch out of the frame gusset, and cut a couple of links out of the chain deflector to accommodate the blade guard.
7	Align the main shaft in the pillow block bearings so that the concrete blade will be centered in the blade guard (No blade is supplied with kit). Tighten the set screws on the bearings to hold the main shaft in place.
8	Install the tapered lock bushing and the belt sheave onto the main shaft using hardware that comes with the taper lock bushing. Align the belt sheave with the clutch assembly on the engine.
9	Install the belts and tighten to 1/4" deflection at 10 lbs. of pressure.
10	Install the water pipe assembly. Align the two tabs with two holes in the switch cover bracket on the handle bar. Attach with 1/4" x 3/4" bolt, 1/4" flat washer, and 1/4" nylon lock nut.
11	Install 3/8" pipe elbow and hose connector to water pipe assembly. Locate on the belt side of router; orientation should follow the line of the handle.

Chapter 5 Operating Instructions

Table 5-12 Saw Cut Attachment Installation (continued)

Step	Action
12	Install 3/8" street elbow, 3/8" bronze ball valve, 3/8 x 1/4" reducing bushing, and straight hose connector on opposite side of water tube assembly. Orientation should follow line of handle bar, pointing towards the blade guard.
13	Cut 1 piece of 3/8" plastic tube approximately 8" long. Connect it to the barbed tee fitting and the inside barb on the blade guard. Cut another piece that will go between the barbed tee and the shutoff valve. Use the remainder of the tube to cut a piece that goes between the outside barb on the blade guard and the barb tee.
14	Inspect the machine; make sure there are no loose or missing parts. Reconnect the battery cable. Run the Router for a few minutes to insure proper operation.
15	Install the belt guard.

Chapter 5 Operating Instructions

5.10 Storing the Machine

Follow these instructions when storing the CRAFCO Model 30 Pavement Router

5.10.1 CRAFCO Model 30 Dust Control Router

DO NOT leave the machine resting on the seal brushes or the brushes will become deformed, causing them not to function properly. The dust collection bag should be stored in a covered area out of direct sunlight and away from moisture. Store the dust collection bag in a place where it won't be inadvertently torn or damaged.

5.10.2 CRAFCO Model 30 Pavement Router and Self-Propelled Router (without dust control)

DO NOT rest the weight of the machine on the rubber rock deflector or rubber will become deformed, causing them not to function properly. Store the machine with engine in a near level position.

Chapter 6 Maintenance Instructions

6.0 Maintenance Instructions

This chapter contains all normal maintenance instructions to properly maintain your machine.

6.1 Oil Recommendations

Using the proper type and weight of oil in the crankcase is extremely important. Failure to use the correct oil, or using dirty oil, causes premature engine wear and failure. Check engine oil daily. Change oil after every 100 hours of operation. Change oil filter every 200 hours. Use Crafco part number 31330. Refer to engine owner's manual for more information.

6.1.1 Oil type

Use high quality detergent oil of API (American Petroleum Institute) service class SG or SH. Select the viscosity based on the air temperature at the time of operation as shown in [Figure 6.1](#).

Note: Using oil other than service class SG or SH or extending oil change intervals longer than recommended can cause engine damage. Refer to the engine owner's manual for detailed oil check, oil change, and oil filter change procedures and intervals.

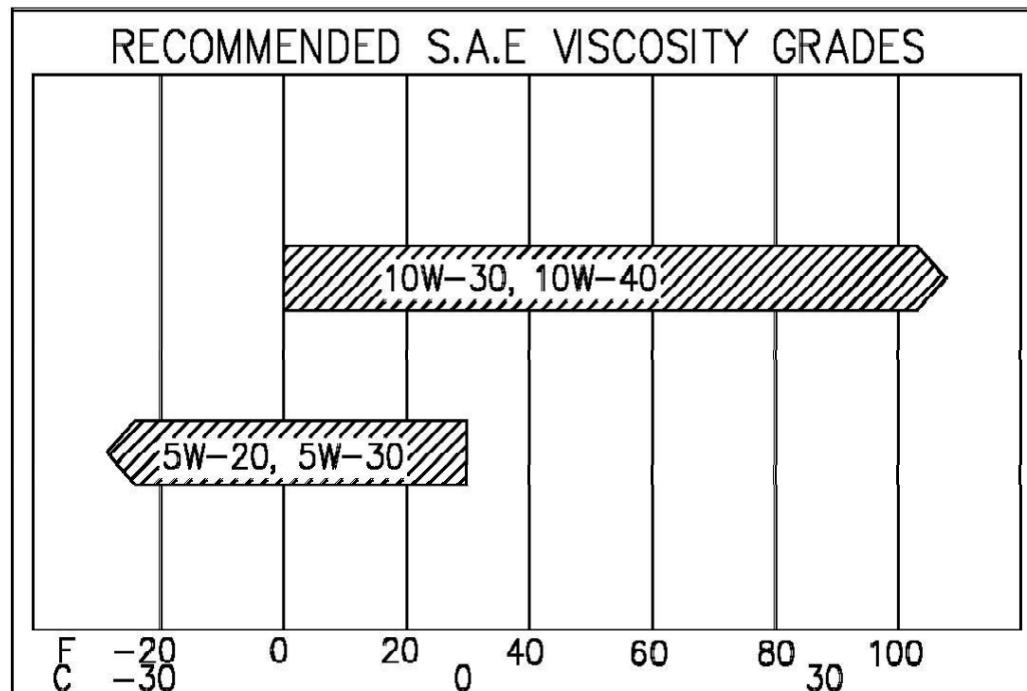


Figure 6-1 Recommended Engine Oil Viscosity

Chapter 6 Maintenance Instructions

6.2 Fuel Recommendations

WARNING

Explosive Fuel!

Gasoline is extremely flammable and its vapors can explode if ignited. Store gasoline only in approved containers, in well ventilated, unoccupied buildings away from sparks or flames. Do not fill the fuel tank while the engine is hot or running since spilled fuel could ignite if it comes in contact with hot parts or sparks from ignition. Do not start the engine near spilled fuel. Never use gasoline as a cleaning agent.

6.2.1 General Recommendations

Purchase gasoline in small quantities and store in clean, approved containers. A container with a capacity of 2 gallons or less with a pouring spout is recommended. Such a container is easier to handle and helps eliminate spillage during refueling.

To minimize gum deposits in your fuel system and to insure easy starting, do not use gasoline left over from the previous season.

Do not add oil to the gasoline.

Do not over-fill the fuel tank. Leave room for the fuel to expand.

6.2.2 Fuel Type

For best results use only clean, fresh, unleaded gasoline with a pump sticker octane rating of 87 or higher. In countries using the Research method, it should be 90 octane minimum.

Unleaded gasoline is recommended as it leaves less combustion chamber deposits. Leaded gasoline may be used in areas where unleaded is not available and exhaust emissions are not regulated. Be aware, however, that the cylinder heads may require more frequent service.

6.2.3 Gasoline/Alcohol Blends

Gasoline (up to 10% ethyl alcohol, 90% unleaded gasoline by volume) is approved as a fuel for Kohler engines. Other gasoline/alcohol blends are not approved.

6.2.4 Gasoline/Ether Blends

Methyl Tertiary Butyl Ether (MTBE) and unleaded gasoline blends (up to maximum of 15% MTBE by volume) are approved as a fuel for Kohler engines. Other gasoline/ether blends are not approved.

Chapter 6 Maintenance Instructions

6.3 Battery

Check charge condition. Keep battery connections tight and clean. Check the fluid level in battery regularly.

6.3.1 Battery Recharging

When recharging, do not use a battery charger rated for more than 8 AMP's. If the battery has fallen below 10.5 volts, a charger made specifically for charging AGM batteries is required. Do not overcharge the battery.

WARNING

Explosive Gas!

Batteries produce explosive hydrogen gas while being charged. To prevent a fire or explosion, charge batteries only in well ventilated areas. Keep sparks, open flames, and other sources of ignition away from the battery at all times. Keep batteries out of the reach of children. Remove all jewelry when servicing battery.

6.4 Periodic Maintenance

Follow a regular schedule of inspection and servicing, based on operating hours. Keep an accurate logbook of maintenance, servicing, and operating time. Use the factory recommended Periodic Maintenance Schedule (based on favorable operating conditions) to serve as a guide to get long and efficient engine life.

For severe duty, extreme temperature, etc., service more frequently. Neglecting routine maintenance can result in engine failure or permanent damage.

For any abnormalities in operation, unusual noises from the engine or accessories, loss of power, overheating, etc., contact your nearest Kohler Service Center.

Periodically inspect the in-line fuel filter and replace when dirty using Crafco part number 31331.

WARNING



Inhalation of exhaust gases can result in serious personal injury or death. DO NOT use the air cleaner or exhaust elbow as a supporting step. Damage of these and connecting parts might cause an exhaust leak.

WARNING

Accidental Starts!

Before servicing the engine or equipment on the machine, always disconnect the spark plug leads to prevent the engine from starting accidentally. Ground the leads to prevent sparks that could cause fires.

Chapter 6 Maintenance Instructions

6.5 Maintenance Schedule

These required maintenance procedures should be performed at the recommended intervals. They should also be included as part of any seasonal tune-up. Refer to Table 6-1 for regularly scheduled maintenance. The following guidelines should also be followed:

- Check fluid level in battery regularly.
- Tighten all bolts on machine frequently.
- Clean machine each day using compressed air or by wiping with rags, especially in area of engine cooling fins.

Table 6-1 Maintenance Chart

Frequency	Maintenance required
Daily or before starting engine	<ul style="list-style-type: none"> • Fill fuel tank • Check oil level • Check air cleaner for dirty, loose, or damaged parts * • Check air intake and cooling areas, clean as necessary * • Grease cutter shaft bearings. • Blow loose dust/dirt off engine
Every 25 Hours	<ul style="list-style-type: none"> • Service air cleaner dust cap * • Service primary air cleaner element *
Every 50 Hours	<ul style="list-style-type: none"> • Clean out cooling fins on engine. If dust is allowed to accumulate, overheating may occur, causing damage to the engine. • Lubricate frame pivot using multi-purpose grease
Every 100 Hours	<ul style="list-style-type: none"> • Change Oil • Remove cooling shrouds, and clean as necessary * • Check oil cooler fins • Check spark plug condition and gap if necessary • Lubricate cutter shaft bearings
Every 200 Hours	<ul style="list-style-type: none"> • Change oil filter • Check secondary air cleaner element and foam wrap *
Annually or every 500 hours	<ul style="list-style-type: none"> • Have starter drive serviced ** • Have solenoid shift starter disassembled and cleaned ** • Repack wheel bearings.

* Perform these maintenance procedures more frequently under extremely dusty, dirty conditions.

** Have a Kohler Engine Service Dealer perform this service.

Chapter 6 Maintenance Instructions

6.6 Air Cleaners

For longer engine life, the Model 30 Pavement Router has been fitted with a High Capacity Air Cleaner (primary) and secondary element. Due to the dusty conditions created during operation, it is necessary to service the air cleaner when it becomes clogged with dirt. Follow the steps in [Table 6-2](#) to service the primary air cleaner. Check the secondary element (safety) only if the primary air cleaner element was damaged. Follow the steps in Table 6-3 to change the secondary air cleaner.

Table 6-2 Changing Primary Air Cleaner Element

Step	Action
1	Service element only when restriction indicator reaches the service level (indicator pops up). It is only above that point that air cleaner restriction begins to reduce engine performance level. When restriction finally indicates a change, remove the primary element carefully. When element replacement is needed use Crafco part number 31344.
2	Do not attempt to clean the dirty element. Rapping or pounding dirt out is dangerous and could cause damage to the element.
3	Carefully check new element for damage before installing.
4	Reinstall new element, replace air cleaner cap and fasten retaining clips.

Table 6-3 Changing Secondary (safety) Air Cleaner Element

Step	Action
1	Remove the air cleaner cover.
2	Remove the primary element.
3	Remove the safety element.
4	Handle new elements carefully: Do not use if the sealing surfaces are bent or damaged.
5	Reinstall the new safety element, primary element and air cleaner cap. Fasten retaining clips.
6	When safety air cleaner element replacement is necessary, order Crafco part number 31345.

Chapter 6 Maintenance Instructions

6.7 Changing Cutters

Always use genuine Crafco cutters and other replacement parts. Failure to do so will void warranty and possibly cause damage to machine or injury to operator. The procedure outlined in [Table 6-4](#) will greatly simplify cutter changing. Call Crafco or your local Crafco Distributor for any additional questions you may have.

WARNING

Engine must not be running when changing cutters, or working on any part of machine. Serious injury or death could result. Do not allow anyone to pull on handle, start engine, or do any other maintenance while working on cutter head.

Table 6-4 Cutter Changing

Step	Action
Note: With the Dust Control Router the cutter housing shroud must be in the stored position before moving to the next step.	
1	Raise cutter mechanism to maximum height. Push machine forward while holding handle up. This will allow rock deflector to fold up and machine to tilt forward exposing cutters for easy accessibility. Make sure front stand is supporting machine before releasing handle. (Figure 6.2)
2	Remove click pin on rear stand, lower support strip, and reinstall click pin to lock strip in place. (Figure 6.3)
3	Place wrench supplied with machine on exposed bolt in cutter window. (Figure 6.4). Turn clockwise to rotate cutter head to end of cutter window. This will rotate cutter head for proper indexing.
WARNING	
Do not attempt to turn cutter head with hands.	
4	Remove wrench and place on bolt just exposed. Loosen bolt at least one full turn. Slide retainer back exposing pin.
5	Using pin removal tool (also supplied with machine) push pin all the way out, except when changing pins. (Figure 6.5). Remove worn cutters and/or worn pins. Pins should be replaced when worn in any area to a diameter less than 3/4 inch. Use pin as a pilot to mount spacers and cutters. Make sure carbide tips are positioned per Cutter Installation Warning page 39.
6	Slide retainer back into position and tighten bolt.
CAUTION	
It is most important that retainer is always put back in the locked position. As the bolt is tightened, the cutter head will rotate clockwise exposing next cutter.	
7	Repeat steps 3 through 6 for other five cutter positions.
8	Remove click pin from rear stand, move support strip to upper position and reinstall click pin.
9	Lower machine to operating position. See section 9.11 for cutter configurations.

Chapter 6 Maintenance Instructions**Figure 6-2 Router on Front Stand****Figure 6-3 Raised Rear Support Strip**

Chapter 6 Maintenance Instructions**Figure 6-4 Wrench in Cutter Window****Figure 6-5 Pin Removal Tool**

Chapter 6 Maintenance Instructions

6.8 Changing Cutter Heads

It is recommended that the cutter head be changed when holes for pins are worn to 1.000 in diameter or larger. Follow the steps in Table 6-5 to remove the cutter head and main shaft, and Table 6-6 to install the new cutter head and main shaft. The cutter head and main shaft are sold in matched sets and must be installed together.

Table 6-5 Removing Old Cutter Head and Main Shaft

Step	Action
1	Remove belt guard. (Figure 6.7)
2	Back off belt tension, adjusting bolt jam nuts all the way and remove the V-belts. (Figure 6.6).
3	Tip the router back, lowering handle all the way to the ground.
4	Remove wheels.
5	Remove lower sheave. The sheave has a built in puller. Loosen and remove the three mounting cap screws. Insert these same cap screws in the threaded jack-screw holes. Starting with the screw farthest from the bushing saw slot; tighten all screws alternately and progressively to separate sheave from bushing.
6	Drive a wedge into the slot of bushing, barely enough to free the bushing and slide bushing off shaft.
7	Lift handle to set machine flat on ground, and then remove top three cap screws in each of the two main shaft bearings. It is not necessary to remove bottom cap screw in each bearing but leave it intact.
8	Push handle down all the way to the ground again, this will lift the front of the router, freeing the cutter head assembly from the cutter housing. Then roll the cutter head from under the router.



Figure 6-6 Belt Tensioner

Chapter 6 Maintenance Instructions**Figure 6-7 Belt Guard**

Chapter 6 Maintenance Instructions

Table 6-6 Installing New Cutter Head and Main Shaft

Step	Action
1	Slip the bearings on to the main shaft in the new cutter head.
2	Push the handle down all the way to the ground to raise the front of machine.
3	Roll new cutter head assembly under machine and into position.
4	Line up bearings with cutout sections in the flywheel housing, fitting each into its slot as machine is lowered over flywheel.
5	Reinstall three cap screws that attach bearings to flywheel housing.
6	Center cutter head in housing and move main shaft so that it is flush with bearing on side opposite sheaves.
7	Replace locking ring mechanism on each bearing (if equipped).
8	If bearings do not use a locking ring, follow this procedure: Using 1/4" electric drill and 13/64" drill bit, make dimple in shaft under one or more set screws. Remove two set screws on each bearing and coat with a thread adhesive such as Loctite. Replace set screws and tighten until snug.
9	Reinstall hub and lower sheave. Be sure the sheaves are in alignment using straight edge.
10	Tighten cap screws that pull the sheave onto bushing alternately and progressively until tapers are seated. Check alignment and sheave run out or wobble and correct as necessary before tightening cap screws to recommended torque value of 15 ft. - lbs. each.
11	Reinstall wheel and tire assemblies.
12	Install V-belts and tighten tension using the jam nuts underneath motor mount. Correct belt tension is 1/4" deflection per belt when 10 lbs. pressure is applied.
13	Install belt guard.
14	Install cutters, shafts and spacers as outlined in changing cutters, Table 6-4 Cutter Changing .

Chapter 6 Maintenance Instructions

6.9 V-Belts

Check and tighten the V-belts as required after 2 hours of operation. To tighten V-belts, adjust jam nuts under engine mount. ([Figure 6.6](#)). The V-belts should be changed once they can no longer be tightened to the correct tension, or when showing signs of excessive wear. Follow the steps in [Table 6-7](#) to change the V-Belts. Recheck belt tension after 8 hours and every 40 hours thereafter. Always replace both belts and inspect sheaves for wear.

CAUTION

Do not over-tighten belts as damage will occur to belts and bearings. Belts that are too loose will shorten the life of the belts and sheaves. When installing new belts do not attempt to stretch over sheaves.

Table 6-7 Changing V-Belts

Step	Action
1	Remove belt guard by removing 4 bolts. (Figure 6.7).
2	Loosen belt tensioner until bottomed out. (Figure 6.6).
3	Remove old belts. Install new belts.
4	Tighten belt tensioner. Correct tension is 1/4" deflection per belt when 10 lbs. pressure is applied. Incorrect belt tension will cause poor belt life, damage to bearings, and engine crankshaft bearing failure.
5	Install belt guard.

Chapter 6 Maintenance Instructions

6.10 Electric Clutch

The CRAFCO Model 30 Router is equipped with an electric clutch which can be engaged independently of engine operation. Under normal operation, no service of this clutch is required. If the V-grooves should become worn, a completely new clutch assembly (Crafco part number 31289) must be installed ([Figure 6.8](#)).



Figure 6-8 Electric Clutch

6.11 Dust Control Router Specific Maintenance

The following maintenance instructions are for parts used on dust control equipped Model 30 Pavement Routers.

6.11.1 Dust Collection Bag Maintenance

The dust collection bag should be cleaned on a daily basis or more frequently depending on asphalt conditions to ensure maximum dust collector efficiency. To clean the dust collection bag, remove the dust collection bag from the router. Open the zipper on the dust collection bag to access the inside of the dust collection bag.

CAUTION

Dust may collect between the elements or “teeth” of the zipper, making it difficult to open. **DO NOT** try to forcibly open the zipper or damage to the dust collection bag may occur. Gently work the slider of the zipper back and forth to work the dust out of the elements until the zipper is completely opened.

Use a Shop Vac to vacuum the entire inside of the dust collection bag. If shop air is to be used to blow dust off of the dust collection bag, use a nozzle that restricts air pressure to no more than 30 psi. Higher pressure than 30 psi. may damage the dust collection bag.

Chapter 6 Maintenance Instructions

Do Not try to clean the dust collection bag with water. Keep the dust collection bag dry at all times, whether when in use or during transport and storage. Water, rain or significant moisture may cause the bag to shrink and not function appropriately.

6.11.2 Cutter Head Dust Shroud

When seal brushes become worn and stop trapping dust behind the shroud, they should be replaced. If brushes become deformed they can be soaked in hot water for approximately 20 min. This will aid in the brushes regaining their shape. Allow brushes to dry before using. If the shroud is showing wear or damage beyond the extent of brush wear, the entire shroud should be replaced.

6.11.3 Replacing Seal Brushes

Follow the steps in [Table 6-8](#) to replace the seal brushes on the dust shroud.

Table 6-8 Changing Seal Brushes

Step	Action
1	Remove the long aluminum brush holders from the sides of the shroud.
2	After their removal you will be able to slide the short brushes out of their holders and slide new brushes in.
3	The ends of the aluminum holders for the long brushes have been crimped at the ends. Use a screwdriver or a pair of pliers to spread the ends of the holders apart,
4	Then slide the brushes out of the holder.
5	After installing new brushes in the holder, re-crimp the ends in a vice to keep the brushes from sliding out.
6	Reinstall the holders on the shroud.
7	To replace the flexible brush on top of shroud, drill out the rivets with a #30 drill bit.
8	Replace the flexible brush and secure with new 1/8" wide domed blind rivets. (PN 28549)

Chapter 6 Maintenance Instructions

6.12 Self-Propelled Router Control Cable

The control cable on the Self-Propelled Router must be properly tensioned to ensure a long service life of the cable. Over time, the friction disks on the drive mechanism will become worn, or the cable may become stretched and not engage the self-propelled drive mechanism properly and will require re-adjustment of the cable or replacement. See [Table 6-9](#) for the proper adjustment of the cable.

6.12.1 Control Cable Adjustment

There are 3 places on the control cable where adjustments can be made. Two threaded cable adjusters on each end of the control cable and 5 attachment points for the control cable on the drive mechanism ([Figure 6-9](#)). The control cable is properly adjusted when the control lever is bottomed out on the handle bar and the self-propelled drive mechanism is fully engaged. It should not take a great deal of pressure or force to fully engage the drive mechanism.

CAUTION

The control cable is improperly adjusted if the control handle does not touch the router handle as the drive mechanism becomes fully engaged. If the drive mechanism is fully engaged and the control handle is not against the router handle, forcing the control handle past this point puts an extreme amount of pressure on the control cable. Doing so can stretch the wire cable prematurely, cause a cable end to fail, or break the wire cable.

Table 6-9 Adjusting the Self-Propelled Control Cable

Step	Action
1	Remove the belt guard to access the cable attachment point to the drive mechanism.
2	Turn the two threaded cable adjustors to their minimum adjustable position (turned fully into the cable support brackets).
3	Disconnect the cable clevis from the control handle by removing the cotter pin and clevis pin.
4	Move the cable clevis on the drive mechanism to the next available hole on the drive assembly and reinstall the belt guard. Note: disconnecting the control cable from the control handle makes this step easier.
5	Reattach the control cable to the control handle.
6	Give the control handle a test pull, it should easily go all the way to the router handle.
7	Start the router engine and give the control handle another test pull. The drive mechanism should become fully engaged as the control handle touches the router handle. If the router does not drive forward in a solid, steady manner, release the handle and make further adjustments by turning one or both of the cable adjusters. Make small adjustments at a time while testing the control handle. Continue adjusting until the router drives forward in a solid, steady manner. Lock the adjusters in place with the lock nut on the adjuster once the proper setting is achieved.
8	Make any necessary adjustments to the safety cutoff switch near the control handle to make sure it will not allow the cutter head to function when the self-propelled mechanism is engaged. See Figure 6-10 for location of the switch.

Chapter 6 Maintenance Instructions

Figure 6-9 Self-Propelled Control Cable

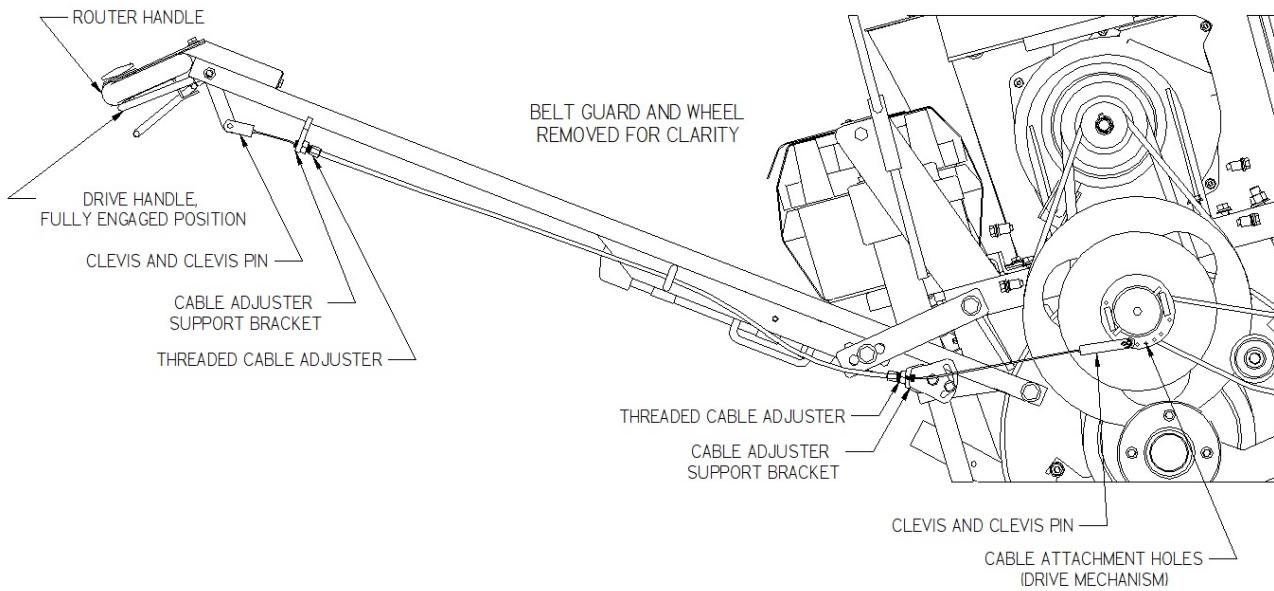
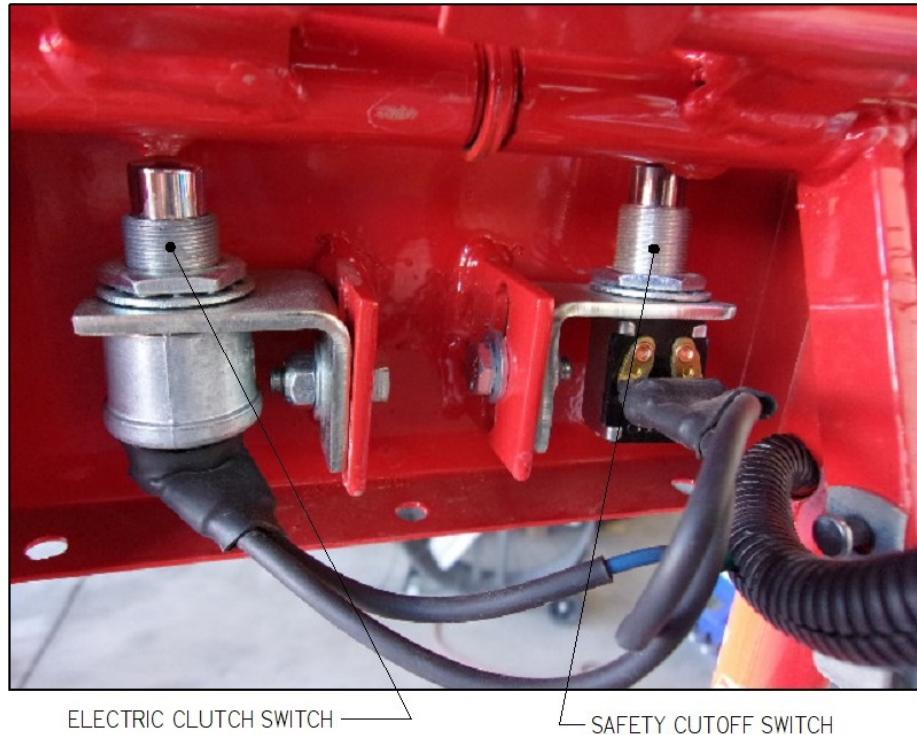


Figure 6-10 Self-Propelled Safety Cutoff Switch



Chapter 6 Maintenance Instructions

6.13 Common Maintenance Parts and Kits

Table 6-9 contains some parts and kits for the Model 30 Pavement Router that has been put together for your convenience as add on, or maintenance parts.

Table 6-10 Common Add On, Optional, and Maintenance Parts

PART NO.	DESCRIPTION
24259	ROUTER GAUGE PACKAGE OPTION
31293	FUEL TANK FOR PRE MARCH 2011 ROUTERS
31442	FUEL TANK FOR POST MARCH 2011 ROUTERS
31326	FUEL TANK PETCOCK
31327	FUEL TANK GROMMET FOR 31326
31334	FUEL TANK CAP
31450	SELF-PROPELLED KIT
31478	SELF-PROPELLED BELT A-43
31480	SELF-PROPELLED MECHANISM ONLY
31550K	DUST CONTROL RETROFIT KIT
20919	CARBIDE SKID PLATE
31443	CARBON FILTER CANISTER
31344	OUTER AIR CLEANER ELEMENT
31345	SAFETY AIR CLEANER ELEMENT
31330	ENGINE OIL FILTER
31331	ENGINE FUEL FILTER
32078	V-BELT 5VX-560
31289	ELECTRIC CLUTCH
31414	DUST COLLECTION BAG, 12 SQ. FT.
31575	LARGE PARTICLE DUST COLLECTION BIN
31591	DUST CONTROL SHROUD BRUSHES
31592	
31593	
31594	
31595	
31350	CRACK SAW ATTACHMENT

Chapter 7 How to use a Multimeter

7.0 How to Use a Multimeter

The Model 30 Pavement Router uses 12-volt direct current (DC) to power the engine, and actuator motor. The DC power is from a 12-volt battery.

12-volt DC power has little danger of electrical shock. Care must still be taken when dealing with DC power systems because it is capable of producing large amounts of current.

7.1 Checking DC Voltage with a Multimeter

Connect the probes to the meter.

Set the range to a position that includes 12-volts or higher.

Touch the red probe to the positive side of accessory and black probe to ground. If the item you are checking has a ground wire attached then use that ground or you can use the grounding stud on the engine channel assembly.

7.2 Checking Resistance (Ohms)

Connect probes to the meter (See [Figure 7.1 Standard Multimeter](#)).

Note: When checking Ohms the circuit cannot be completed. This means one end of the wire will need to be disconnected.

7.3 Checking Wire Continuity

Set the meter to "Audible Continuity".

Now touch the probe to each end of the wire in question. The meter will read "0" on the screen and make an audible beep if the wire has continuity from end to end.

Chapter 7 How to use a Multimeter



Figure 7-1 Standard Multimeter

Chapter 7 How to use a Multimeter



Figure 7-2 Clamp – On Amp Meter/Multimeter

Chapter 8 Troubleshooting

8.0 Model 30 Pavement Router Troubleshooting

Use the guides in [Table 8-1](#) to help you troubleshoot problems you may encounter with the Model 30 Pavement Router, including self-propelled and dust control models. Also see the Engine Operators Manual for further engine troubleshooting.

Table 8-1 Trouble Shooting Guide Model 30 Pavement Router

Problem	Possible Cause	Remedy
Cutters wear out of round	Cutters not spinning on pins thereby creating uneven wear.	<ul style="list-style-type: none"> Don't cut so deep. Take two passes to get to the required depth. Check to see if washer count is correct. Refer to Section 9.11 Cutter Positioning
Engine Stalls.	No Spark	<ul style="list-style-type: none"> Check electric system for defective wires, switches, etc. See Engine Operators Manual.
	Inadequate supply of fuel to carburetor.	<ul style="list-style-type: none"> Check fuel pump, fuel valve and lines. See Engine Operators Manual.
Machine fails to raise or lower.	Defective or worn linear actuator.	<ul style="list-style-type: none"> Check for 12Vdc to the actuator in the red and yellow wires. Flipping the rocker switch one way, will cause voltage in the red wire, while flipping it the opposite direction will cause the voltage in the yellow wire. If the voltage is good, replace the linear actuator. If the voltage is bad, check voltage going to the rocker switch.
	Damaged rocker switch, wiring, or fuse.	<ul style="list-style-type: none"> Check for 12Vdc going to rocker switch from the brown wire. If voltage is good, check switch connections. Replace bad connection or switch. If voltage to the switch is bad, replace wiring.

Chapter 8 Troubleshooting

Table 8-2 Trouble Shooting Guide Model 30 Pavement Router (Continued)

Engine doesn't spin properly when cranking.	Starter problems.	<ul style="list-style-type: none"> Repair or replace starter. See Engine Operators Manual.
	Low battery.	<ul style="list-style-type: none"> Charge or replace battery. See Battery Recharging
Engine missing or loss of power.	Dirty carburetor.	<ul style="list-style-type: none"> Clean/Service Carburetor. See Engine Operators Manual.
	Defective fuel pump.	<ul style="list-style-type: none"> Replace fuel pump. See Engine Operators Manual.
Engage drive system pulling up on the handle and nothing happens.	Pulling the wrong handle	<ul style="list-style-type: none"> The drive system is controlled by the right hand handle.
	Drive cable has too much slack.	<ul style="list-style-type: none"> Adjust the cable so that the drive system starts to move as you begin to pull the handle.
	Both tires are not at the correct tire pressure.	<ul style="list-style-type: none"> Make sure both tires are at the recommended P.S.I. rating.
The Dust Control System is not controlling the dust as well as it once did.	Hoses and guards are not properly positioned.	<ul style="list-style-type: none"> Review the operating procedures and make sure everything is properly placed.
	Either the dust collection bag or the large particle dust collection bin needs to be cleaned.	<ul style="list-style-type: none"> Clean the dust collection bag and/or dump out the large particle dust collection bin.
	Old brushes on the cutter head dust shroud.	<ul style="list-style-type: none"> Replace all the brushes on the cutter head dust shroud.

Chapter 9 Illustrated parts Lists

9.0 About the Illustrated Parts List

The Illustrated Parts List (IPL) is designed to help technical service or maintenance personnel correctly identify orderable replacement parts.

The figure and table titles reference the part number (PN) to which they apply. The PNs for each of the Model 30 Pavement Router machine models are as follows:

- Model 30 Pavement Router with electric clutch PN 21300
- Model 30 Pavement Router non-clutch PN 21330
- Model 30 Self-Propelled Router PN 21340
- Model 30 Pavement Router with Dust Control PN 21350
- Model 30 Self-Propelled with Dust Control PN 21360

Illustrations are designed to show general shape and size of a part and the relationship that part has to other parts. Actual size and shape of parts or components may differ or vary from the actual part or component.

9.1 Ordering Crafco Parts

Crafco distributors and Crafco Pavement Preservation Supply Centers are strategically located throughout the United States. Parts can be ordered from your local Crafco distributor or directly from Crafco, Inc. if a distributor is not available in your area.

When ordering parts, give the following information:

- Part Number
- Machine Model
- Serial Number

Write, call, or Fax Crafco, Inc. at the following:

Crafco, Inc. Headquarters

6165 W Detroit St.

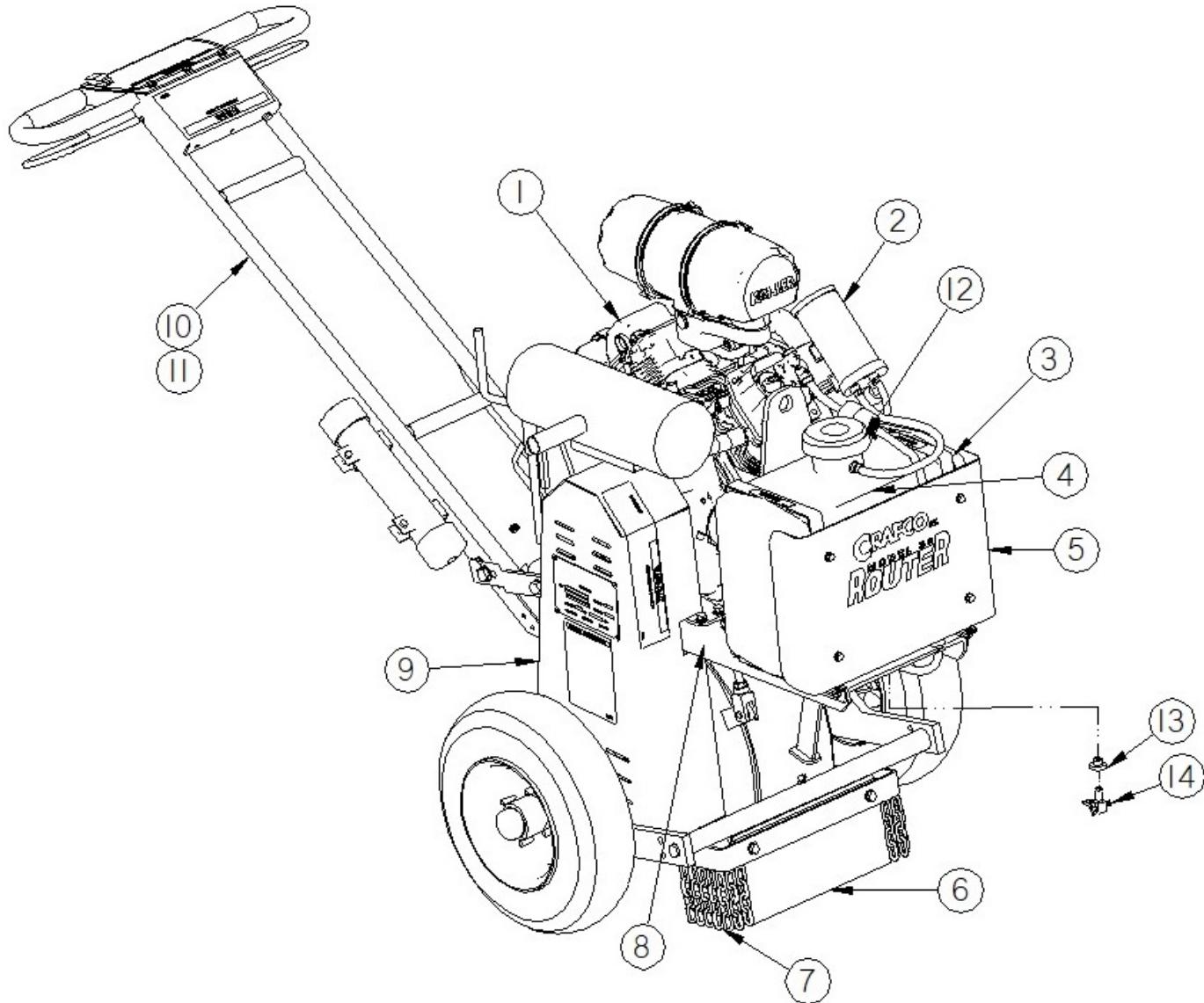
Chandler, AZ 85226

Phone: (602) 276-0406

Toll Free: (800) 528-8242

Fax: (480) 961-0513

Visit our website at www.crafco.com

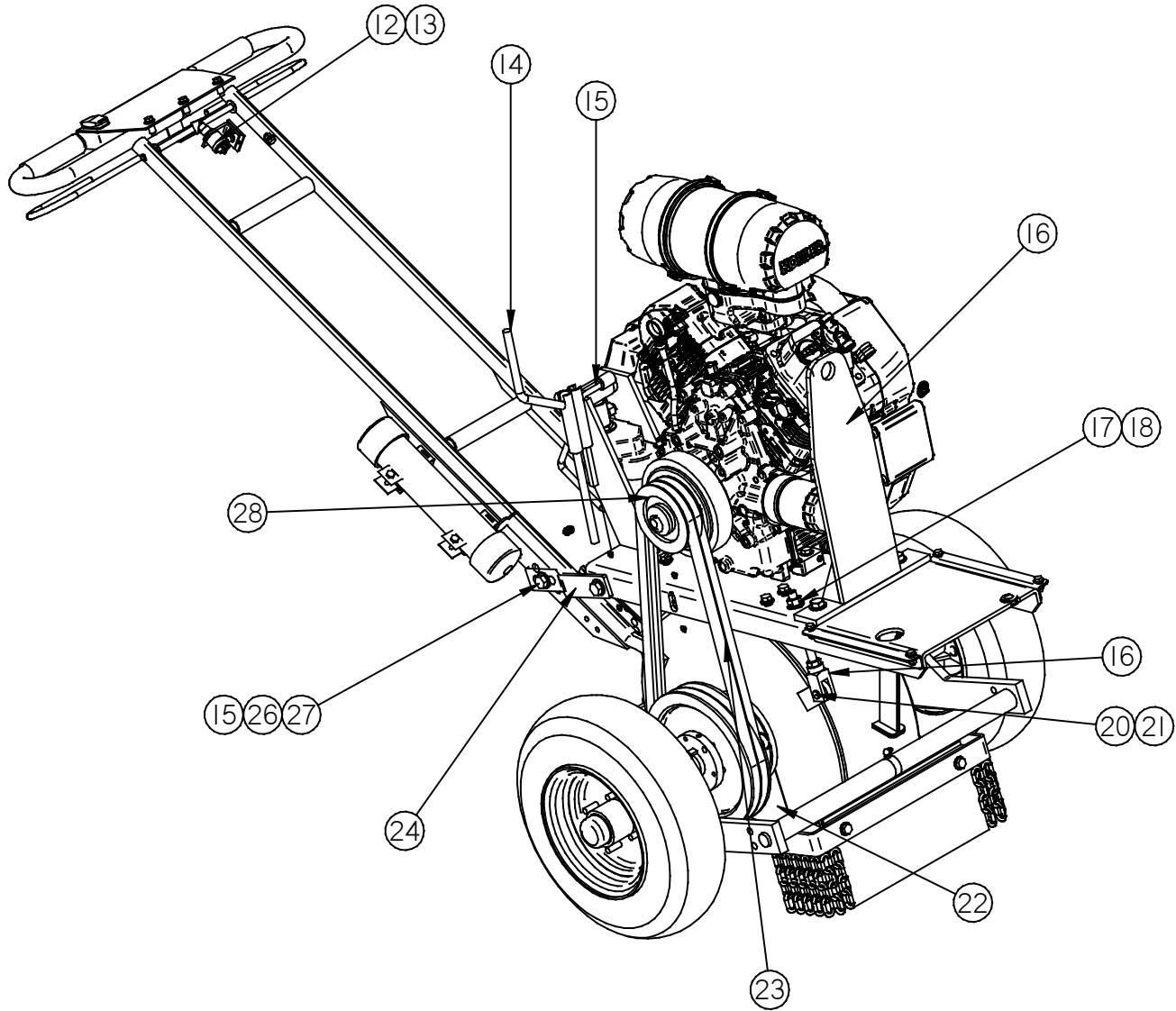
Chapter 9 Illustrated parts Lists**9.2 Model 30 Pavement Router**

**Figure 9-1 Model 30 Pavement Router: PN 21300,
21330 Non-Clutch**

Chapter 9 Illustrated parts Lists

Table 9-1 Model 30 Pavement Router: PN 21300

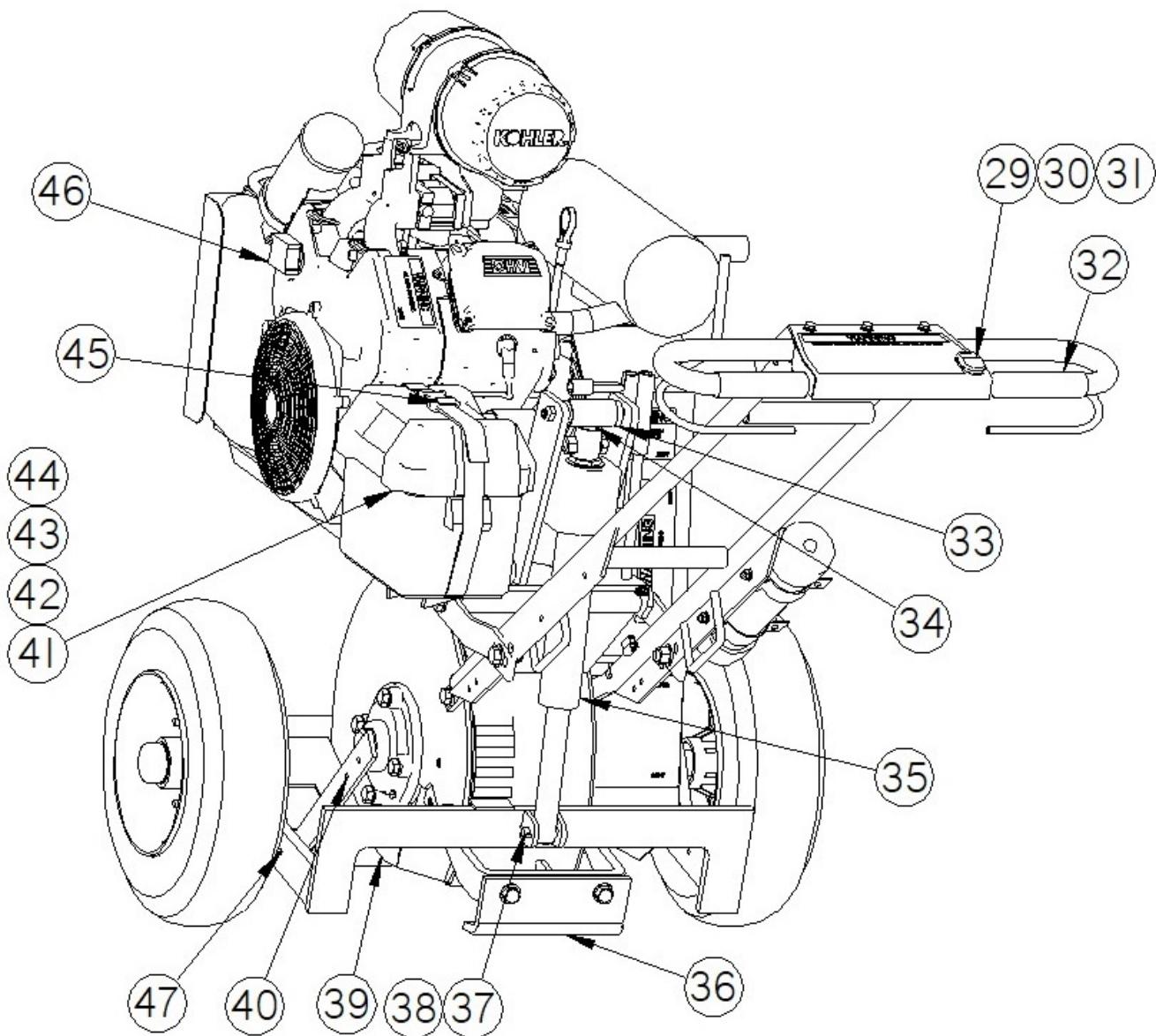
FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9.1	1	20914	ENGINE: KOHLER PA-CH752-3125(27HP)(20 Kw)	1
	2	31443	CARBON FILTER CANISTER	1
	3	20946	GAS TANK STRAP ASSEMBLY	2
	4	31442	FUEL TANK	1
	5	20945	GAS TANK GUARD	1
	6	31102	RUBBER ROCK DEFLECTOR	1
	7	31104	DEFLECTOR CHAIN ASSEMBLY	1
	8	20910	ENGINE CHANNEL ASSEMBLY	1
	9	20940	BELT GUARD ASSEMBLY	1
	10	20920	HANDLE BAR ASSEMBLY	1
	11	20903	ROCKER SWITCH WIRING HARNESS	1
	12	31334	FUEL TANK CAP with TETHER	1
	13	31327	RUBBER GROMMET, PETCOCK VALVE	1
	14	31326	PETCOCK VALVE	1

Chapter 9 Illustrated parts Lists**Figure 9-2 Model 30 Pavement Router: PN 21300**

Chapter 9 Illustrated parts Lists

Table 9-2 Model 30 Pavement Router: PN 21300

FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9.2	1	31338	SWITCH	1
	13	28685	STAR WASHER	1
	14	31100	PIN REMOVAL TOOL	1
	15	31101	PIN RETAINING WRENCH	1
	16	32119	LIFTING BRACKET ASSEMBLY	1
	17	28504	1/2-13 HEX NUT	1
	18	28674	SAE 1/2" WASHER	9
	19	31052	CLEVIS ASSEMBLY	1
	20	29480	CLEVIS PIN 3/8 X 1 1/4"	1
	21	29638	COTTER PIN 1/8 X 1"	2
	22	31031	FILLER PLATE - RH	1
	23	32078	V-BELT 5VX-560	2
	24	31210	HANDLE BRACKET	2
	25	28759	1/2-13 X 1 1/4" GRADE 8 BOLT	6
	26	28642	1/2" GRADE 8 HARDENED FLAT WASHER	8
	27	28540	1/2" – 13 UPSET TYPE LOCK NUT	7
	28	31289	ELECTRIC CLUTCH	1

Chapter 9 Illustrated parts Lists**Figure 9-3 Model 30 Pavement Router Back Side: PN 21300**

Chapter 9 Illustrated parts Lists

Table 9-3 Model 30 Pavement Router: PN 21300

FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9.3	29	20915	ROCKER SWITCH	1
	30	51614	14 Ga. SPADE TERMINAL	4
	31	51592	10 Ga. SPADE TERMINAL	2
	32	20916	FOAM HAND GRIP	2
	33	32109	RUBBER BUSHING	2
	34	31068	SHOCK ABSORBER ASSEMBLY	1
	35	32001	ACTUATOR	1
	36	20919	CARBIDE SKID PLATE	1
	37	29345	1/2 X 2" CLEVIS PIN	1
	38	29638	1/8 X 1" COTTER PIN	2
	39	31033	FILLER PLATE – LH	1
	40	31342	SUPPORT STRIP	1
	41	37620	BATTERY – 12V	1
	42	24003	BATTERY BOX	1
	43	20949	BATTERY CABLE GROUND	2
	44	20948	BATTERY CABLE POSITIVE	1
	45	24037	BATTERY STRAP WITH BUCKLE	1
	46	24250	HOUR/TACH METER	1
	47	28693	1/4 X 1.2 GRIP RANGE QUICK RELEASE PIN	1

Chapter 9 Illustrated parts Lists

9.3 Electrical Schematic Model 30 Pavement Router with Clutch

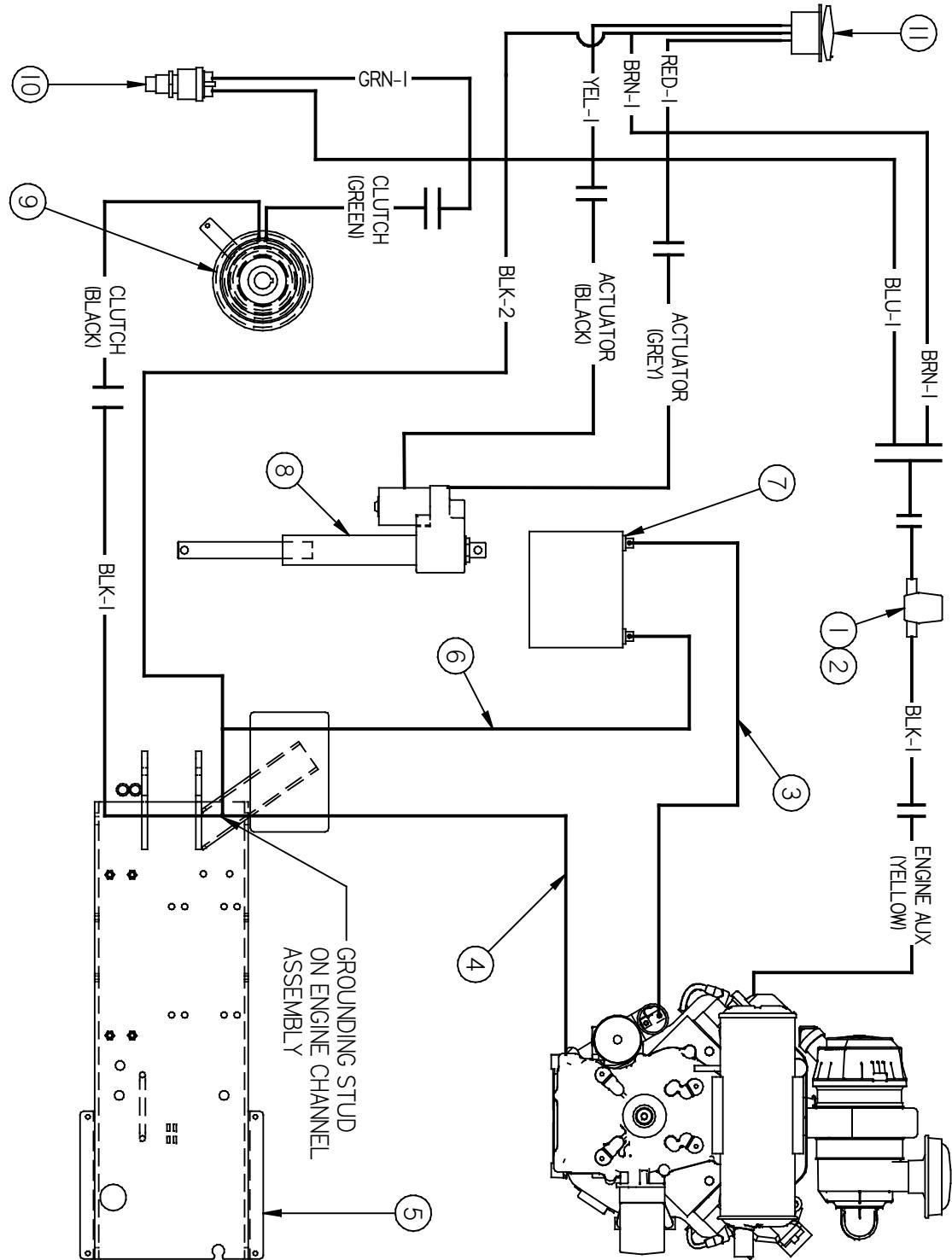


Figure 9-4 Electrical Diagram Model 30 Router with Electric Clutch

Chapter 9 Illustrated parts Lists

Table 9-4 Electrical Diagram Model 30 Router with Clutch

FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9.4	1	31514	IN-LINE FUSE HOLDER	2
	2	32510	FUSE, 20 AMP (NOT SHOWN)	1
	3	20948	BATTERY CABLE POSITIVE	1
	4	20949	ENGINE GROUND (BATTERY CABLE GROUND)	2
	5	20910	ENGINE CHANNEL ASSEMBLY	1
	6	20949	BATTERY CABLE GROUND	2
	7	37620	BATTERY 12V	1
	8	32001	ACTUATOR	1
	9	31289	ELECTRIC CLUTCH	1
	10	31338	CLUTCH SWITCH	1
	11	20915	ROCKER SWITCH	1

Chapter 9 Illustrated parts Lists

9.4 Electrical Diagram Model 30 Pavement Router Non-Clutch

The following wiring diagram applies to the Model 30 Pavement Router non-clutch PN 31330.

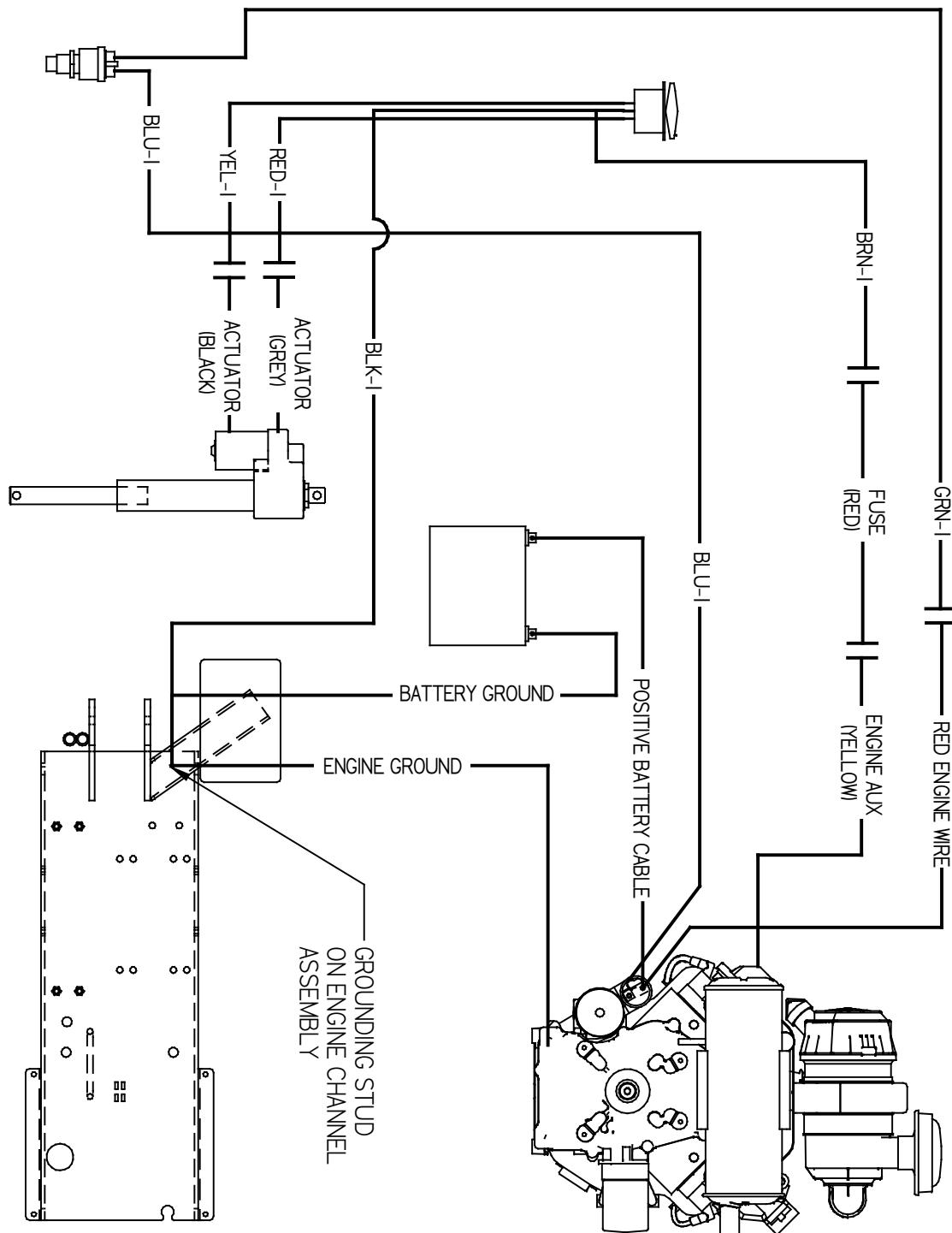


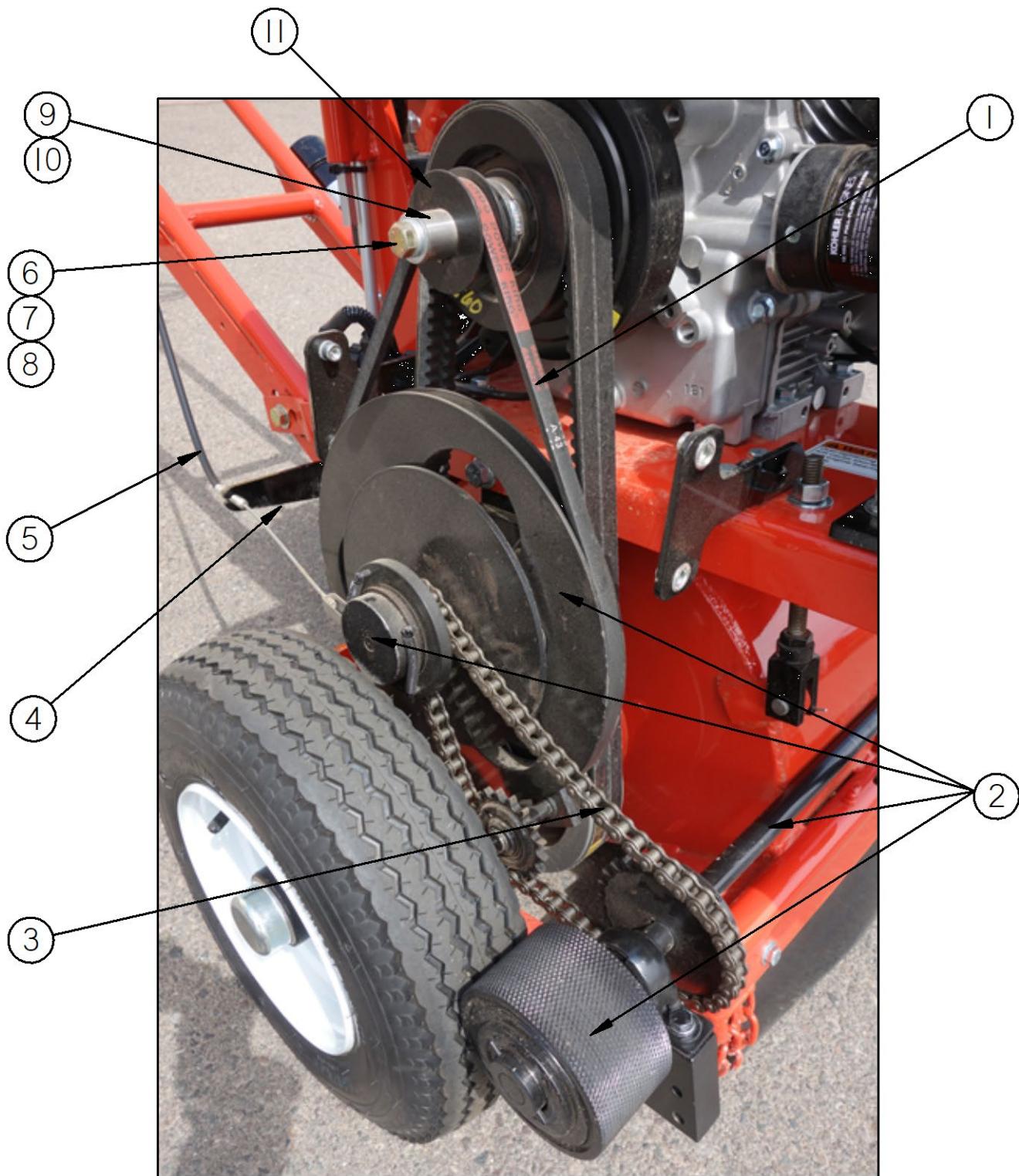
Figure 9-5 Electrical Diagram Model 30 Router Non Clutch

Chapter 9 Illustrated parts Lists**9.5 Model 30 Self Propelled Router**

This section illustrates the unique parts for the self-propelled system.



Figure 9-6 Model 30 Self-Propelled Router PN 21340

Chapter 9 Illustrated parts Lists**Figure 9-7 Self-Propelled Router Mechanisms**

Chapter 9 Illustrated parts Lists**Table 9-5 Self-Propelled Router Mechanisms**

FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9.7	1	31478	BELT A-43	1
	2	31480	SELF-PROPELLED MECHANISM ASSEMBLY	1
	3	31479	DRIVE CHAIN	1
	4	20878	LOWER CABLE HOLDER	1
	5	31488	CABLE AND CABLE GUIDE CLEVIS ASSEMBLY	1
	6	28906	7/16 – 20 X 3 1/2" GRADE 8 BOLT	1
	7	28648	7/16 LOCK WASHER	1
	8	28673	7/16 FLAT WASHER	1
	9	20860	CLUTCH ASSEMBLY W/ STUB SHAFT	1
	10	37032	BRUSH SHAFT KEY 1/4" X 1 1/8"	1
	11	31482	CAST IRON FINISHED BORE V-BELT PULLEY	1

Chapter 9 Illustrated parts Lists**Figure 9-8 Self-Propelled Router Wheel Spacer****Table 9-6 Self-Propelled Router Mechanisms**

FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9.8	---	31483	WHEEL SPACER SELF-PROPELLED ROUTER	1

Chapter 9 Illustrated parts Lists

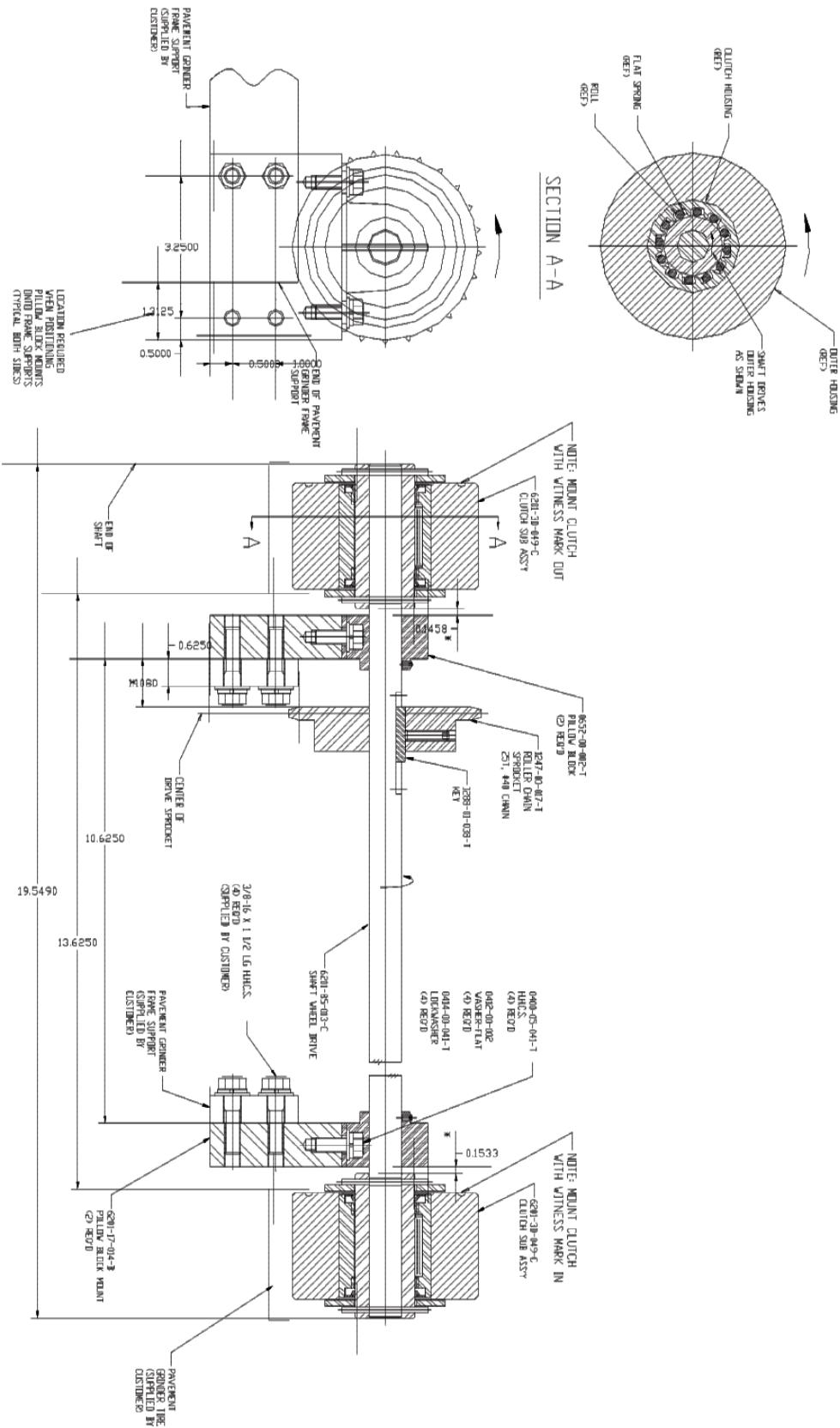


Figure 9-9 Model 30 Self-Propelled Router Drive Wheel Clutch Assembly

Chapter 9 Illustrated parts Lists

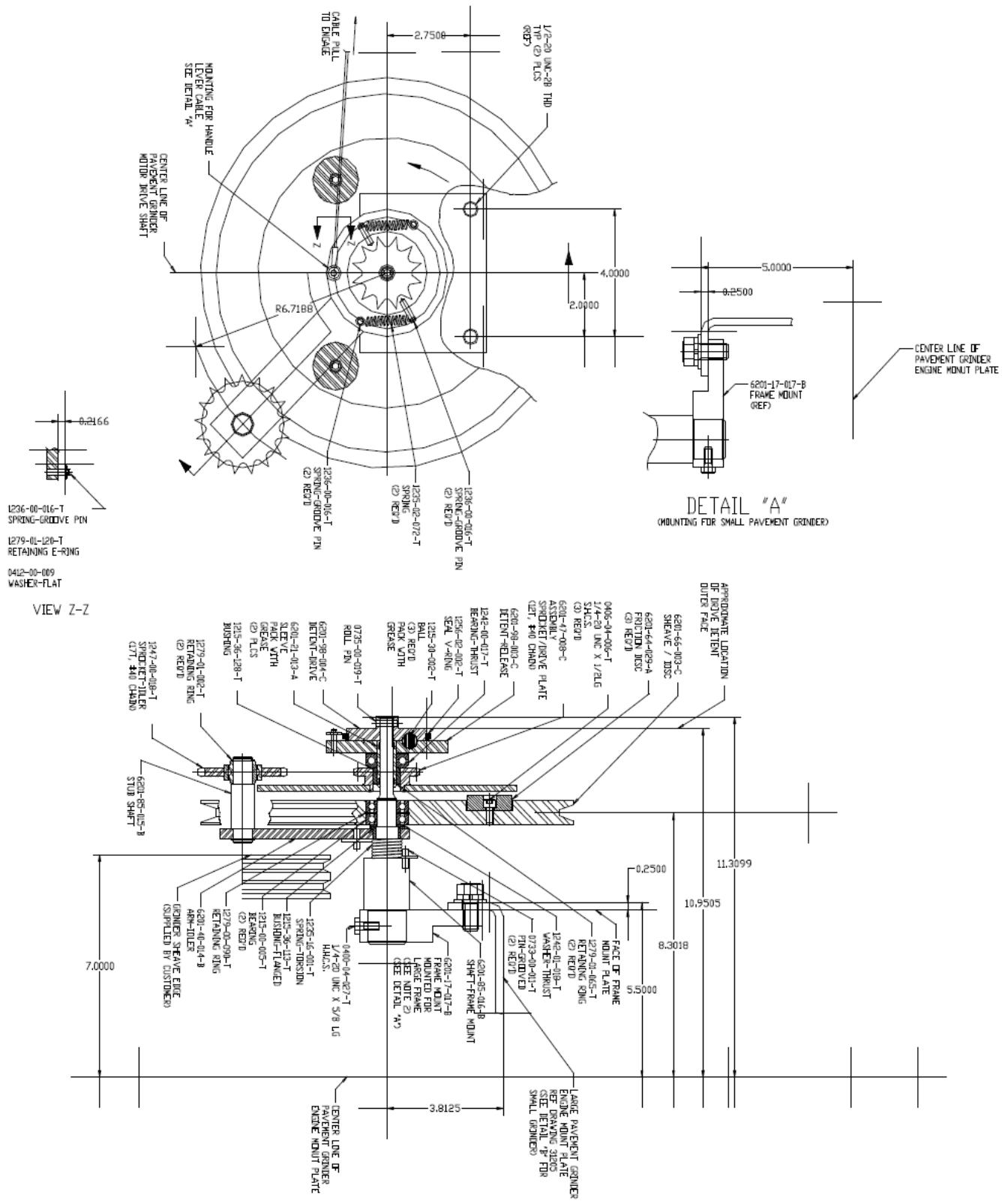


Figure 9-10 Model 30 Self-Propelled Router Drive System

Chapter 9 Illustrated parts Lists

9.6 Electrical Diagram Model 30 Self Propelled Router

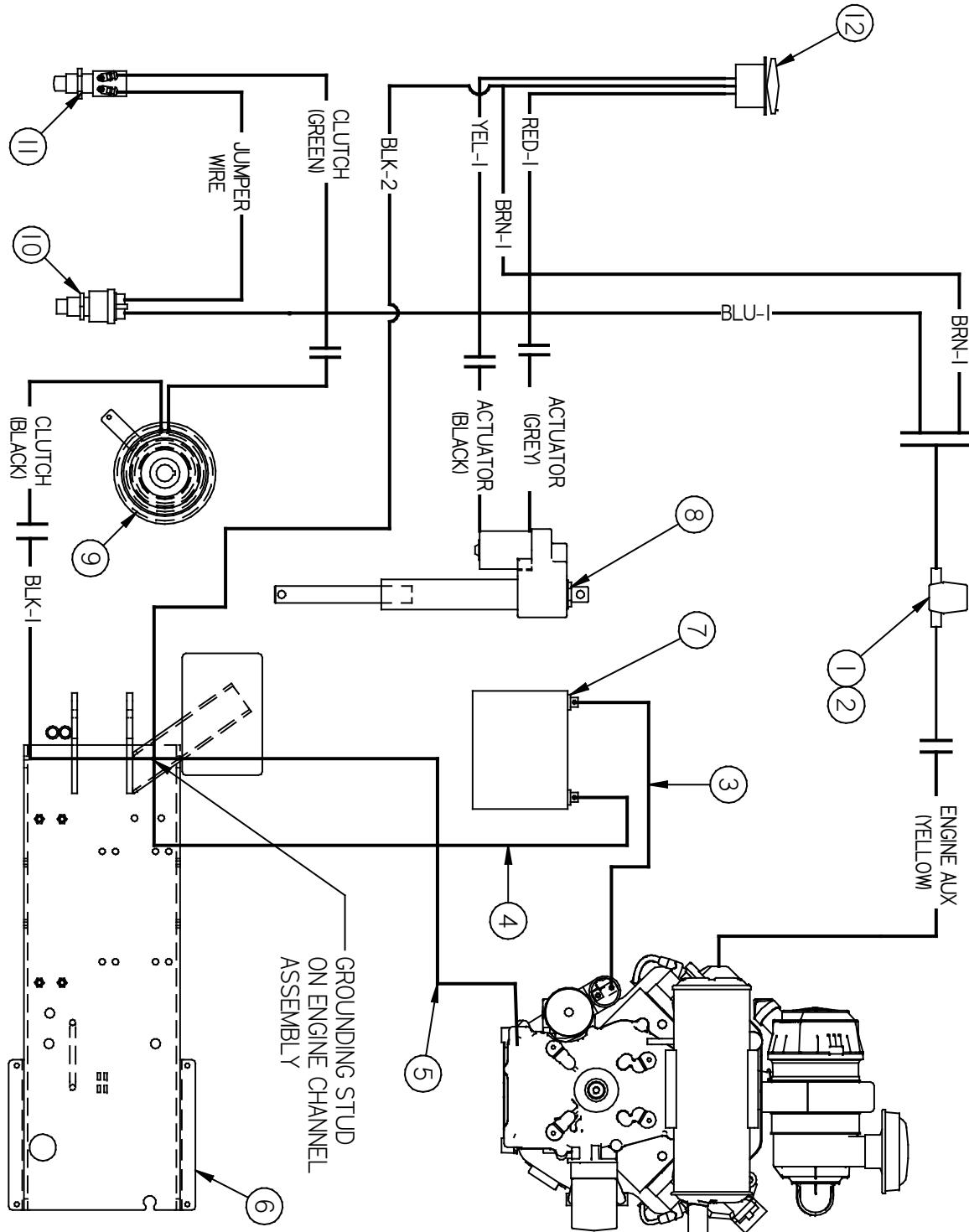


Figure 9-11 Electrical Diagram Self-Propelled Router

Chapter 9 Illustrated parts Lists

Table 9-7 Electrical Diagram Self-Propelled Router

FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9.11	1	31514	IN-LINE FUSE HOLDER	2
	2	32510	FUSE, 20 AMP (NOT SHOWN)	1
	3	20948	BATTERY CABLE POSITIVE	1
	4	20949	ENGINE GROUND (BATTERY CABLE GROUND)	2
	5	20910	ENGINE CHANNEL ASSEMBLY	1
	6	20949	BATTERY CABLE GROUND	2
	7	37620	BATTERY 12V	1
	8	32001	ACTUATOR	1
	9	31289	ELECTRIC CLUTCH	1
	10	31338	CLUTCH SWITCH	1
	11	31339	SWITCH	1
	12	20915	ROCKER SWITCH	1

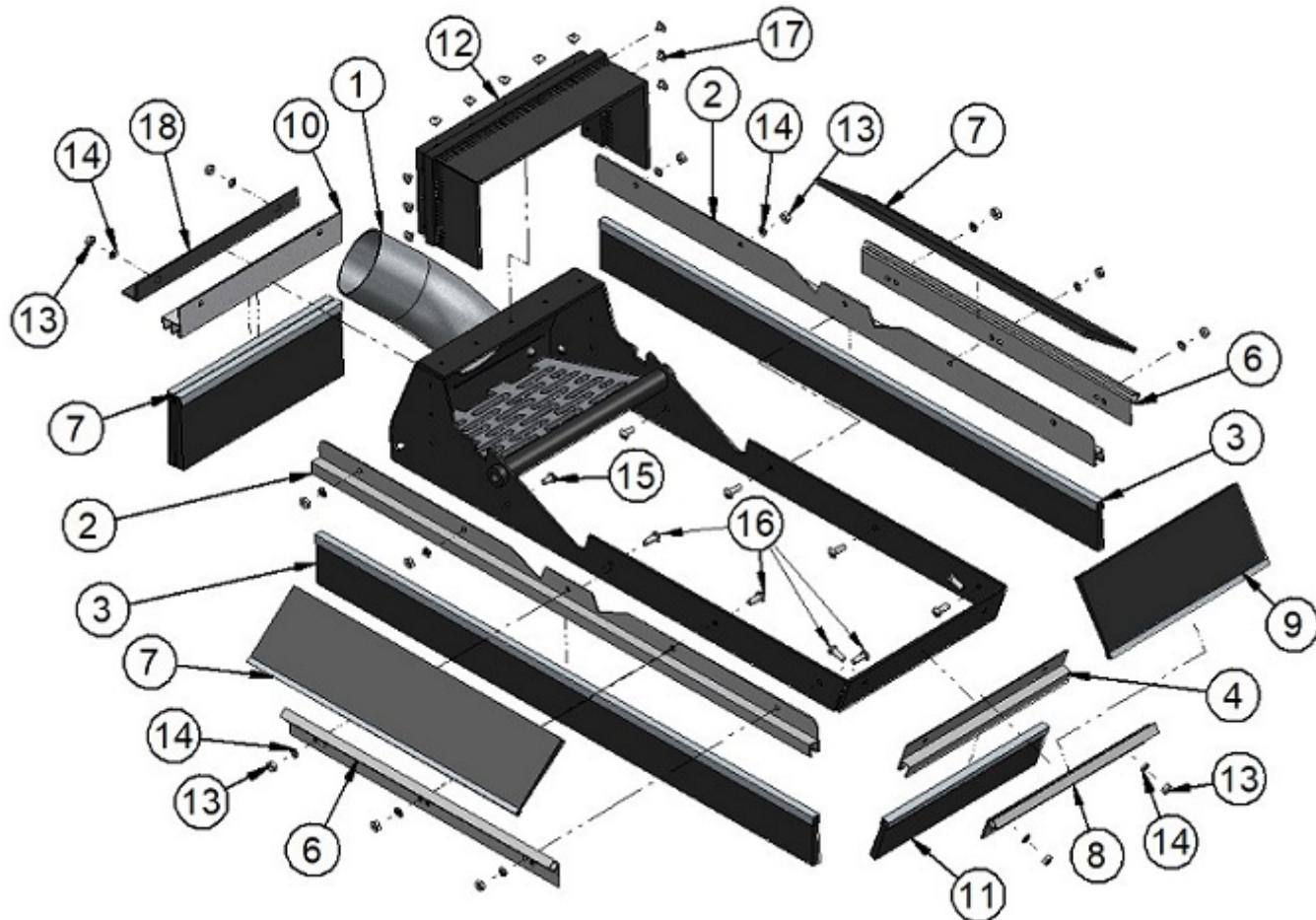
Chapter 9 Illustrated parts Lists

9.7 Model 30 Pavement Router with Dust Control

This section illustrates the unique parts for the dust control system. Self-Propelled with dust control machines will also contain the parts from sections 9.5 and 9.6.



**Figure 9-12 Model 30 Router with Dust Control, PN 21350,
21360 (Self-Propelled with Dust Control)**

Chapter 9 Illustrated parts Lists**Figure 9-13 Dust Shroud Assembly**

Chapter 9 Illustrated parts Lists

Table 9-8 Dust Shroud Assembly

FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9.13	1	31730N	DUST SHROUD WELD ASSEMBLY	1
	2	31586	BRUSH HOLDER A	2
	3	31591	STRIP BRUSH A	2
	4	31587	BRUSH HOLDER B	1
	5	31592	STRIP BRUSH B	2
	6	31588	BRUSH HOLDER C	2
	7	31593	STRIP BRUSH C	2
	8	31589	BRUSH HOLDER D	1
	9	31594	STRIP BRUSH D	1
	10	31599	BRUSH HOLDER E	1
	11	31595	STRIP BRUSH E	1
	12	31596	FLEX BRUSH SEAL	1
	13	28554	10/32 HEX NUT	14
	14	28644	#10 SPRING LOCK WASHER	14
	15	28819	10/32 X 3/8" ROUND HEAD SCREW	6
	16	28893	10/32 X 1/2" ROUND HEAD SCREW	8
	17	28549	1/8 WIDE DOME BLIND RIVET	11
	18	31538	REINFORCEMENT ANGLE	1

Chapter 9 Illustrated parts Lists

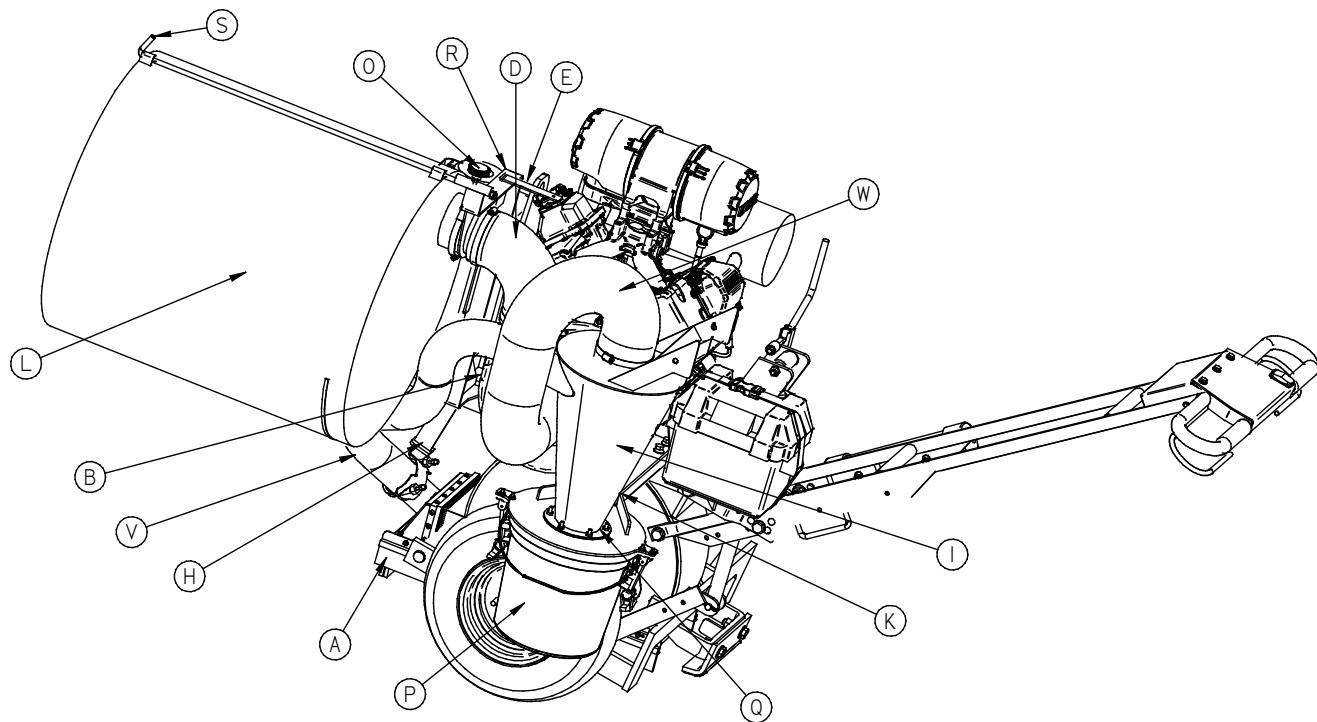


Figure 9-14 Dust Control Router

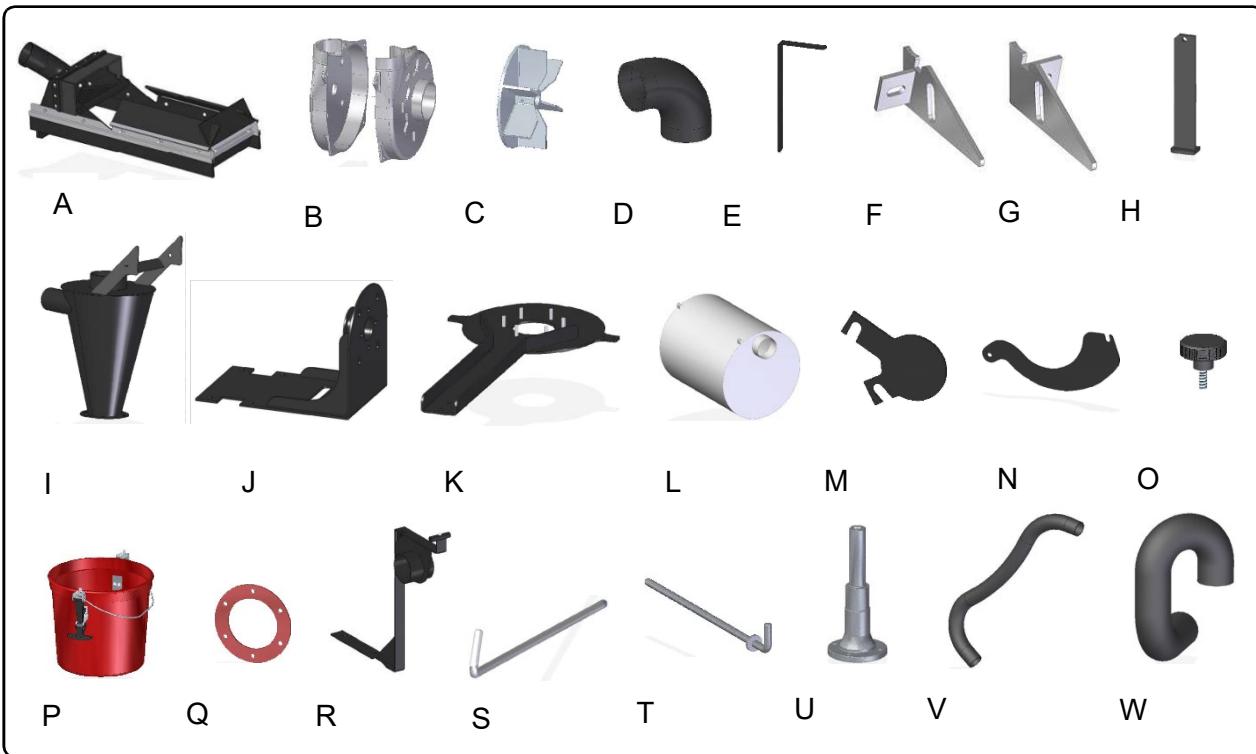


Figure 9-15 Dust Control Router Parts

Chapter 9 Illustrated parts Lists

Table 9-9 Dust Control Router Parts

FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9.14, Figure 9.15	A	31735N	CUTTER HEAD DUST SHROUD	1
	B	31411	BLOWER HOUSING ASSEMBLY	1
	C	31412	BLOWER FAN	1
	D	31415	90° X 4" ID RUBBER ELBOW	1
	E	31410	BRUSH MANIPULATION TOOL	1
	F	31726N	DUST SHROUD MOUNTING BRACKET LEFT SIDE	1
	G	31727N	DUST SHROUD MOUNTING BRACKET RIGHT	1
	H	31535	SUPPORT STRIP ASSEMBLY	1
	I	31555	CYCLONE	1
	J	31570	BLOWER MOUNTING BRACKET ASSEMBLY	1
	K	31560	CYCLONE MOUNTING BRACKET ASSEMBLY	1
	L	31414	DUST COLLECTION BAG, 12 SQ. FT.	2
	M	31417	PIN REMOVAL HOLE COVER	1
	N	31416	PIN RETAINING HOLE COVER	1
	O	31409	LOCKING KNOB	1
	P	31575	LARGE PARTICLE DUST COLLECTION BIN	1
	Q	31433	RUBBER GASKET, CYCLONE	1
	R	31565	FILTER BAG SUPPORT ASSEMBLY	1
	S	31567	FILTER SUPPORT ROD	1
	T	31545	DUST SHROUD RETAINING PIN	1
	U	31413	KOHLER FRONT DRIVE SHAFT	1
	V	31437	1 1/2" SUCTION HOSE	1
	W	31438	4" SUCTION HOSE	1

Chapter 9 Illustrated parts Lists

Figure 9-16 Dust Control Router (continued)

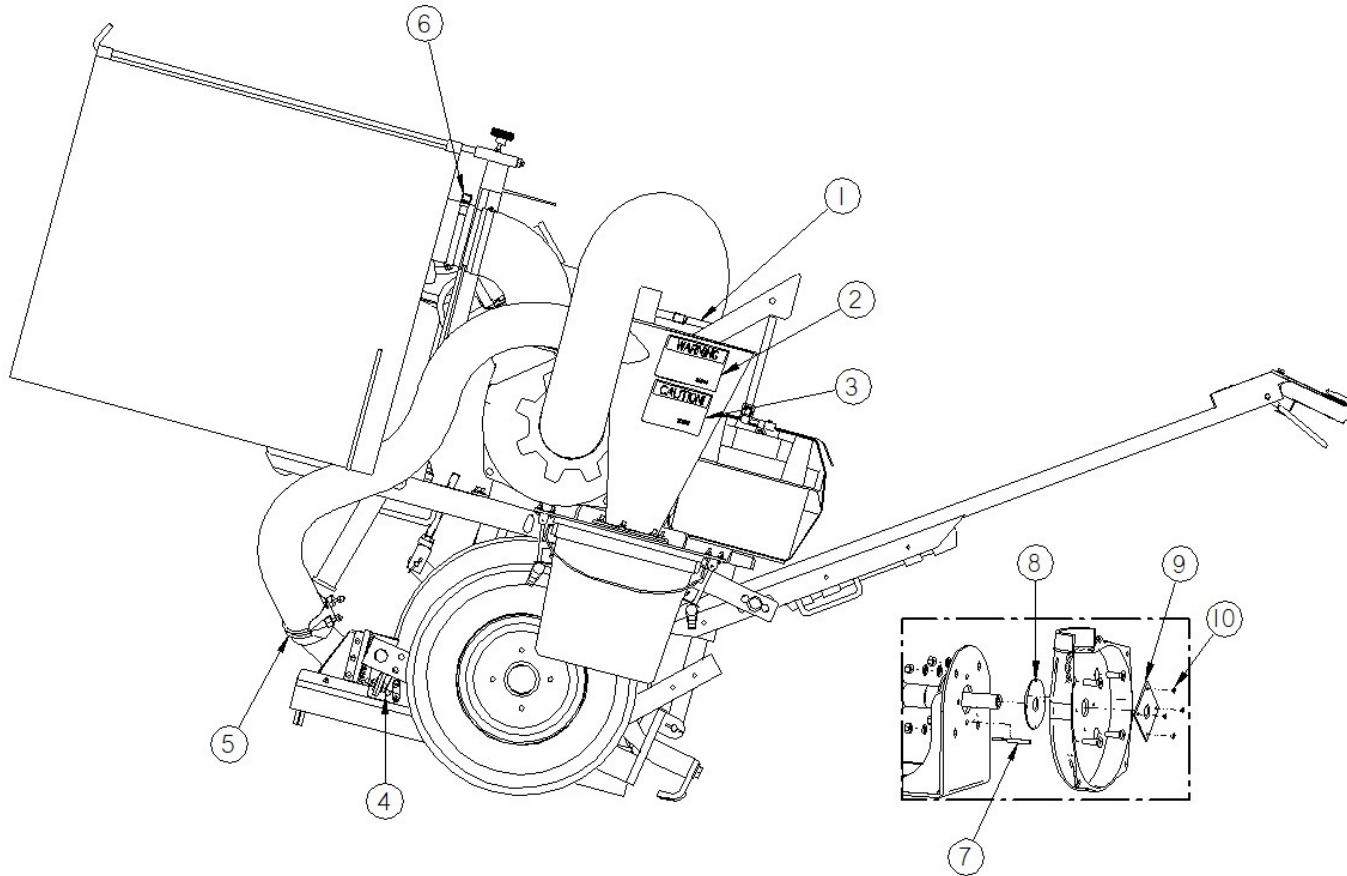


Table 9-10 Dust Control Router (continued)

FIG	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9-16	1	26092	GEAR CLAMP, SAE # 64	4
	2	31544	DECAL, DUST SHROUD ATTACHMENT	1
	3	31543	DECAL, DUST SHROUD STORAGE	1
	4	29657N	COILED BENT - WIRE LOCKING PIN	1
	5	31739N	CLAMP, 2-1/2" SDBC	2
	6	31418	ADJUSTABLE QUICK RELEASE GEAR CLAMP	1
	7	31738N	MODIFIED KEYWAY, BLOWER SHAFT SEAL	1
	8	31736N	BLOWER SHAFT, INNER SEAL	1
	9	31737N	BLOWER SHAFT, OUTER SEAL	1
	10	28992	3/16 BLIND RIVET, 7/8" LENGTH	4

Chapter 9 Illustrated parts Lists

9.8 Cutter Head and Drive Components

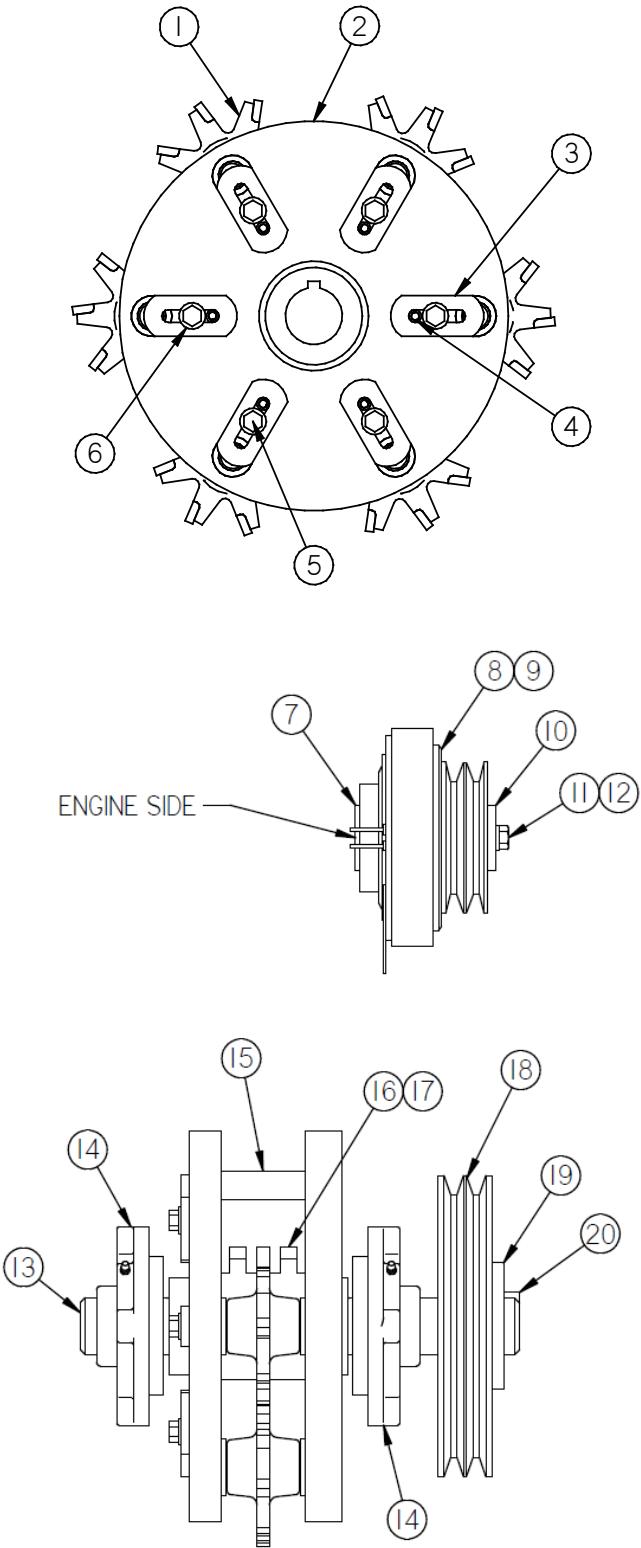


Figure 9-17 Cutter Head and Drive Assembly

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Table 9-11 Electrical Diagram Model 30 Router with Clutch

FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9.4	1	31145	WIDE HUB CARBIDE TIPPED CUTTER	6
	2	31032	CUTTER HEAD	1
	3	31120	RETAINING TAB	6
	4	32061	3/8 X 3/4 ROLL PIN	6
	5	32039	3/8" – 16 X 3/4" BOLT	6
	6	28672	3/8" FLAT WASHER	6
	7	28688	CLUTCH INNER WASHER (NEXT TO ENGINE)	1
	8	31289	ELECTRIC CLUTCH	1
	9	31004	KEY, 1/4 X 2 3/4	1
	10	28689	RETAINING WASHER (NEXT TO CLUTCH)	1
	11	28897	BOLT, 7/16 X 1 1/4	1
	12	28684	WASHER	1
	13	31073	MAIN SHAFT	1
	14	32043	BEARING	2
	15	31114	CUTTER PIN	6
	16	28847	1/2 - 13 X 1 SQUARE HEAD SET SCREW	2
	17	31072	KEY – 3/8 X 4	1
	18	32072	SHEAVE	1
	19	32071	1 3/4 BUSHING	1
	20	31071	3/8 X 1 5/8 SQUARE KEY	1

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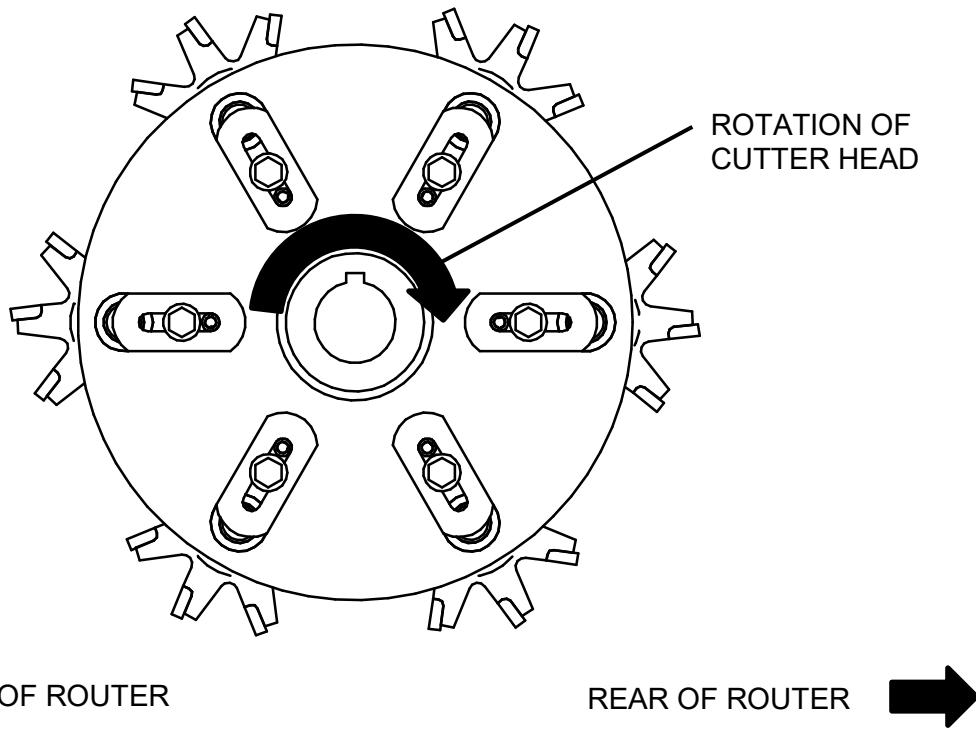
9.9 Pavement Cutter Selection

Table 9-12 Cutter Options and Selection Guide

31134 Standard Steel Standard Hub		PCC Pavement AC Pavement	Cast steel cutter for use with 11 hardened steel spacers. Able to be configured to cut $\frac{1}{2}$ " wide to $1\frac{1}{2}$ " wide. (See Figure 9.17)
31136, 31137 Carbide Tip Standard Hub		AC Pavement	Cast Steel Cutter with a Carbide insert cutting surface. For use with 11 hardened steel spacers. Able to configure to cut $\frac{1}{2}$ " to $1\frac{1}{2}$ " wide. (See Figure 9.17).
31149 Carbide Tip Standard Hub Extended Life		AC Pavement	Hardened Cast Steel Cutter with a Carbide insert cutting surface for extended cutting life. For use with 11 hardened steel spacers. Able to configure to cut $\frac{1}{2}$ to $1\frac{1}{2}$ " wide. (See Figure 9.17)
31135 Carbide Tip Wide Cut		AC Pavement	Cast Steel Cutter with a Carbide insert cutting surface. Hub removed to allow the cutter to be stacked for wider cuts. For use with up to 15 hardened steel spacers. Able to be configured to cut $\frac{1}{2}$ to 2" wide. (see Figure 9.18)
31145 Carbide Tip Wide Hub (Patent Pending)		AC Pavement	Cast Steel cutter with a Carbide insert cutting surface. For use with 2 hardened steel spacers (cutters come with 2 spacers). Able to be configured to cut $\frac{1}{2}$ " to $\frac{3}{4}$ " wide. Designed to provide a cleaner cut. (See Figure 9.19)
31138 Carbide Tip Extra Long		AC Pavement	Cast Steel Cutter with a Carbide insert cutting surface. Longer teeth for cutting depth up to 2". For use with 12 hardened steel spacers. Able to be configured to cut $\frac{1}{2}$ to $1\frac{1}{2}$ " wide. (See Figure 9.20).

Chapter 9 Illustrated parts Lists**9.10 Cutter Positioning****WARNING**

Install replacement cutters as shown. Failure to install correctly will result in rapid deterioration of carbide tip.



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9.11 Cutter Positioning

The following sections illustrate the spacing options for the different types of cutter heads available.

9.11.1 Cutter Positioning for Cutter Part Numbers 31134, 31136, 31137, 31149

Cutters can be aligned or staggered to configure the desired cut width. For wider cutting additional cutter can be added to a single pin to achieve a smoother finished cut. Always use enough Hardened Spacers to keep cutters appropriately positioned on the pin while still allowing the cutter to turn completely free.

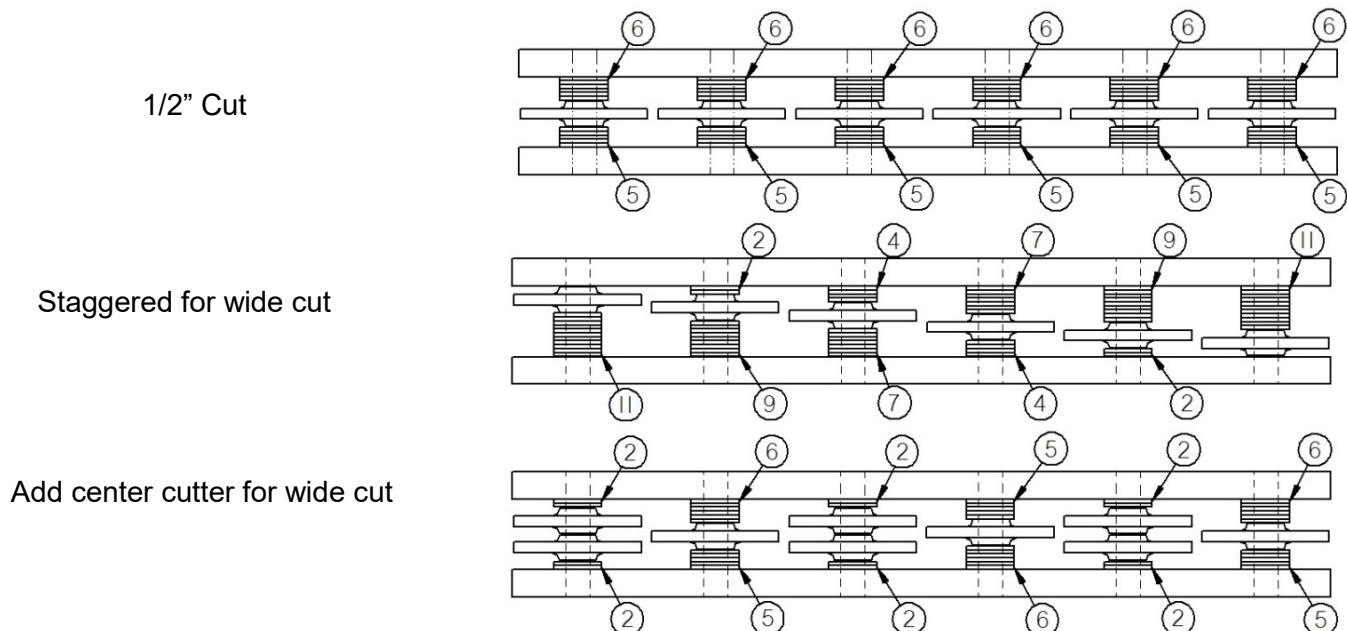


Figure 9-18 Cutter Positioning for 31134, 31136, 31137, 31149

9.11.2 Cutter Position for Cutter Part Number 31135 Shaved Cutter

Cutters can be aligned to configure the desired cut width. For wider cutting additional cutters can be added to a single pin to achieve a smoother finished cut. Always use enough Hardened Spacers to keep cutters appropriately positioned on the pin while still allowing the cutter to turn completely free. The main consideration is placing equal number of cutters and spacers on opposite pins to maintain balance. Failure to do so could result in permanent damage to the machine and possibly injury to the operator.

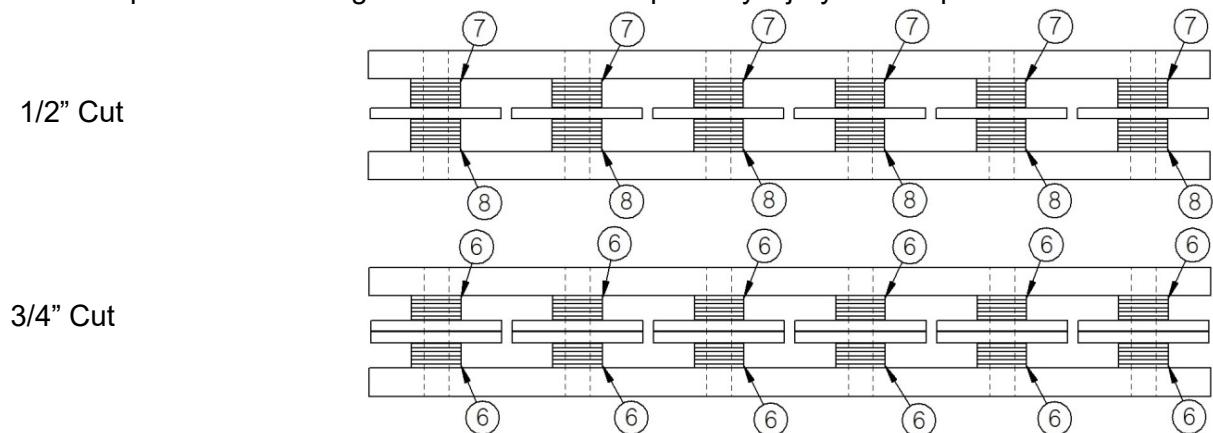


Figure 9-19 Cutter Positioning for 31135

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9.11.3 Cutter Positioning for Part Number 31145 (Patent Pending)

Cutters can be aligned or staggered to configure the desired cut width. Two Hardened Spacers are used with this cutter. Cutter produces a cleaner cut and causes less cutter bore wear.

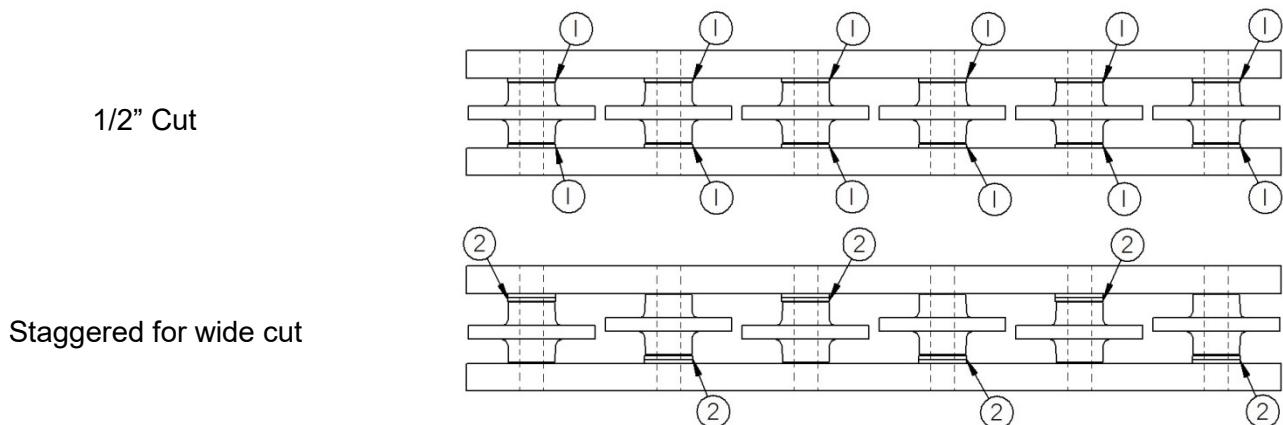


Figure 9-20 Cutter Positioning for 31145 (Patent Pending)

9.11.4 Cutter Positioning for Part Number 31138, 6 1/2" Cutter

Cutters can be aligned or staggered to configure the desired cut width. For wider cutting additional cutters can be added to a single pin to achieve a smoother finished cut. Always use enough Hardened Spacers to keep cutters appropriately positioned on the pin while still allowing the cutter to turn completely free.

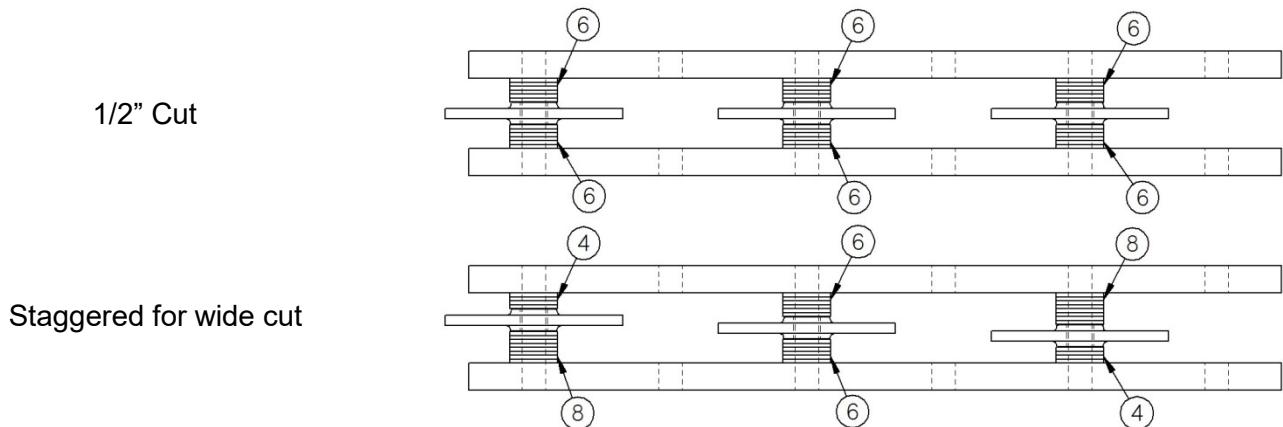
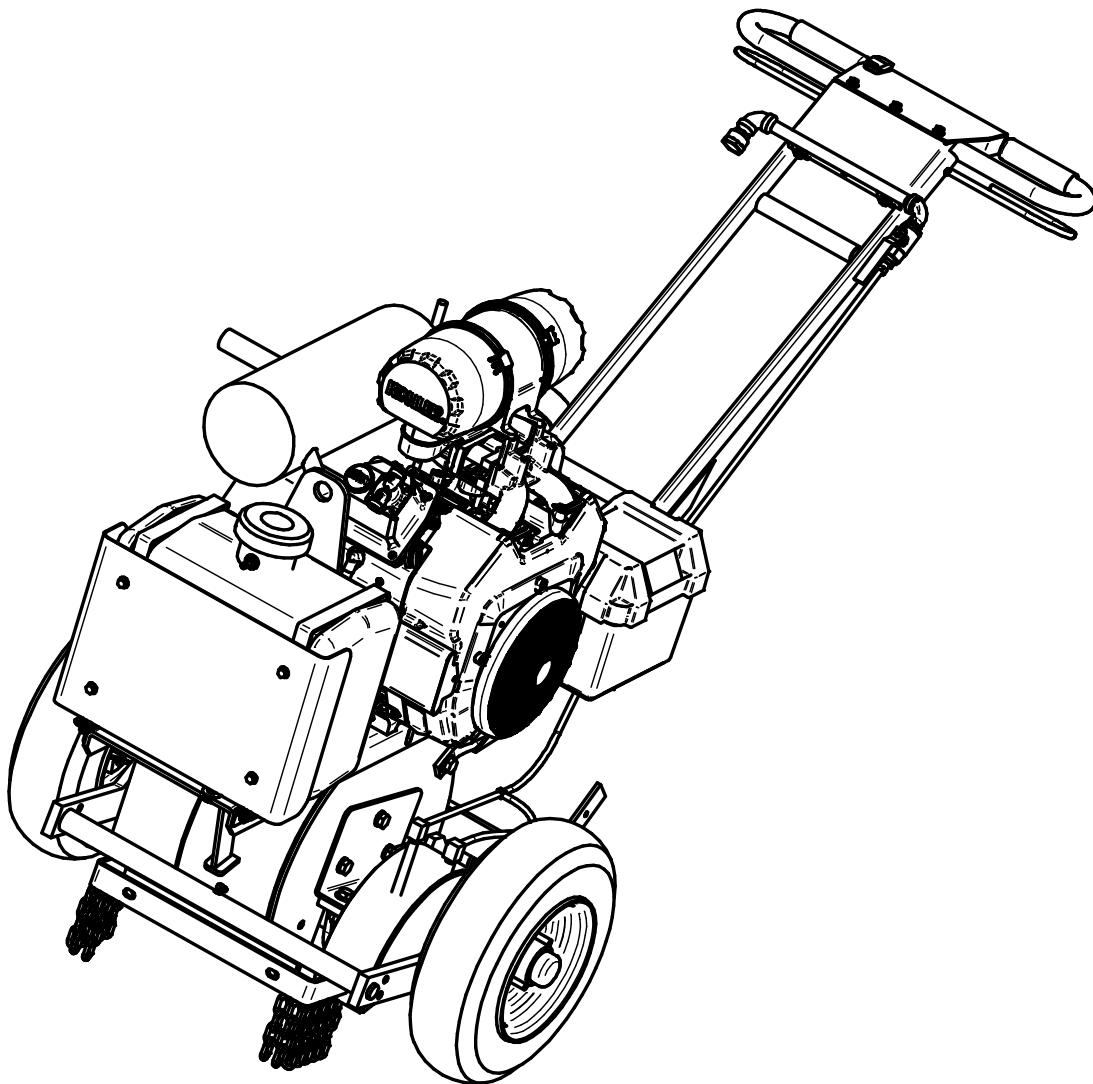


Figure 9-21 Cutter Positioning for 31138

Chapter 9 Illustrated parts Lists**9.12 Crack Saw Attachment****Figure 9-22 Model 30 Router with Crack Saw Attachment**

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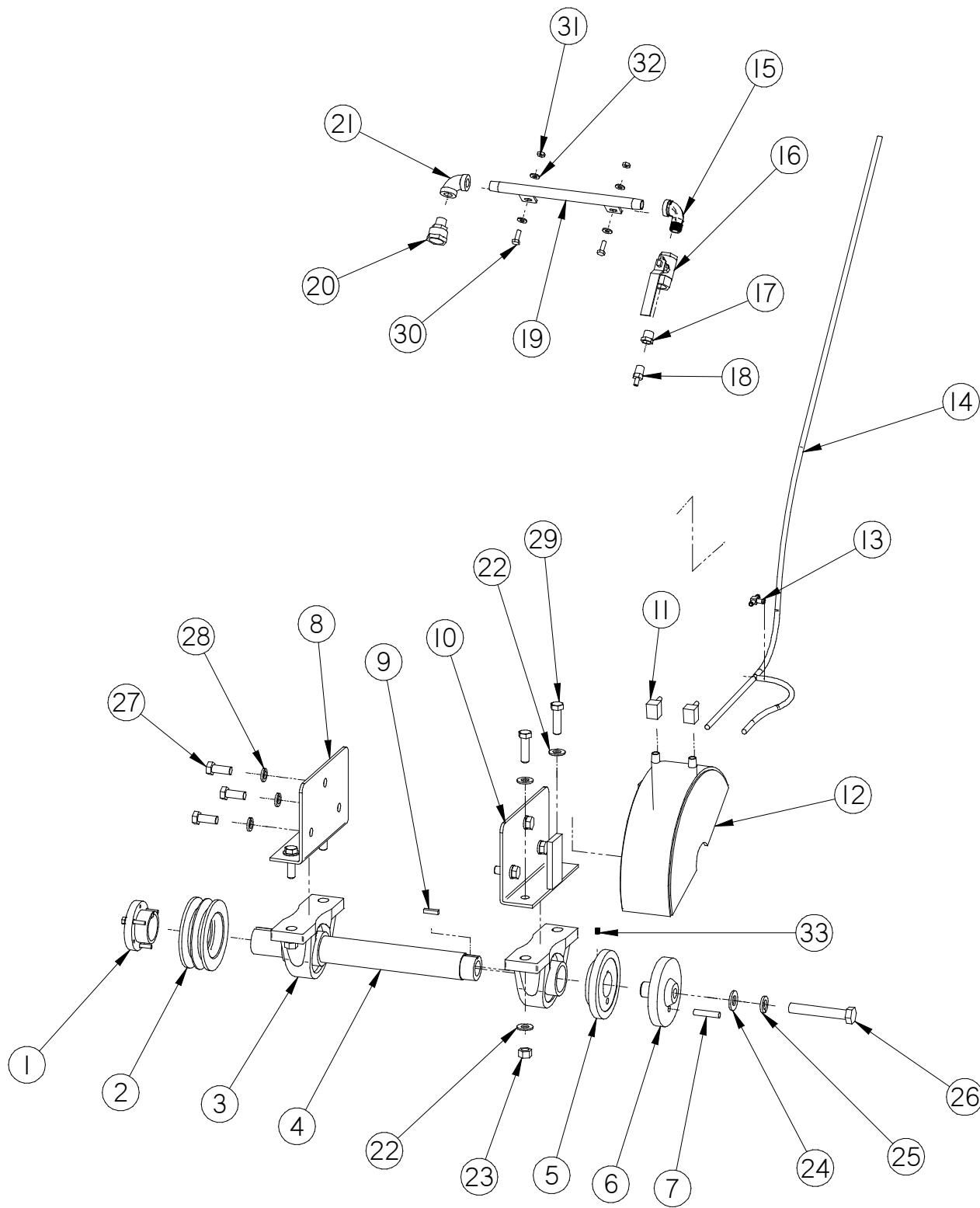


Figure 9-23 Crack Saw Attachment Parts

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Table 9-13 Parts List for Crack Saw Attachment

FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9.22	1	31367	1 – 3/4 TAPERLOCK BUSHING	1
	2	32068	SHEAVE 2G5V 4.65 DIAMETER	1
	3	31361	1 – 3/4" PILLOW BLOCK BEARING	2
	4	31360	MAIN SHAFT	1
	5	31364	INNER COLLAR	1
	6	31362	OUTER COLLAR	1
	7	31363	DRIVE PIN	1
	8	31351	SIDE MOUNTING ANGLE	1
	9	31368	1/4 SQUARE X 1.0" LONG KEY	1
	10	31352	SIDE MOUNTING ASSEMBLY	1
	11	29953	1/4" FEMALE FITTING – 90	2
	12	31355	BLADE GUARD ASSEMBLY	1
	13	29954	3/8 PUSH ON T-FITTING	1
	14	29957	3/8 INNER DIAMETER PLASTIC TUBING	1
	15	28237	3/8 STREET ELBOW	1
	16	29202	3/8 BRONZE BALL VALVE	1
	17	28342	3/8" X 1/4" BUSHING	1
	18	29956	STRAIGHT CONNECTOR	1
	19	31399	WATER PIPE ASSEMBLY	1
	20	29955	HOSE CONNECTOR	1
	21	28207	3/8" PIPE ELBOW	1
	22	28674	SAE 1/2" WASHER	8
	23	28540	1/2 - 13 UPSET TYPE LOCK NUT	4
	24	28676	5/8 SAE FLAT WASHER	1
	25	28650	5/8" LOCK WASHER	1
	26	28820	5/8 – 11 X 4.0 LH THREAD	1
	27	28761	1/2-13 X 1 1/2 HEX HEAD BOLT	6
	28	28649	1/2" LOCK WASHER	6
	29	28763	1/2 - 13 X 1 3/4 HEX HEAD BOLT	4
	30	28701	1/4 - 20 X 3/4" HEX HEAD BOLT	2

Chapter 9 Illustrated parts Lists**Table 9-14 Parts List for Crack Saw Attachment (continued)**

FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9.22	31	28524	1/4 -20 NYLON LOCK NUT	2
	32	28670	1/4" FLAT WASHER	4
	33	45671	1/4 – 20 X 3/8 ALLEN SET SCREW	1



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