RADIUS MASTER

MODEL 911

115 VAC

CORNER RADIUS MACHINE

OWNER’S MANUAL
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INTRODUCTION

This manual explains the principles and procedures needed to competently operate and maintain the Radius Master corner radius machines sold and serviced by the Roper Whitney of Rockford, Inc.

WARNING
POTENTIAL FOR INJURY OR DEATH

The product described in this publication may employ or create conditions that could, through misuse, inattention, or lack of understanding, result in personal injury or death, or damage to the product or other equipment. It is imperative that personnel involved in the installation, operation, programming, and maintenance of this product understand the operation of the product and the contents of this and all supporting documents.

It is strongly suggested that the novice operator and maintenance personnel read this manual in its entirety before attempting to operate or maintain the machine.

TECHNICAL SUPPORT:
Should any questions remain unanswered, our Field Service Technicians and in-house Product Support staff can provide you with assistance. Before calling for assistance, service, or parts, please have the following available:

- The machine type and serial number – listed on the nameplate on the back of the cabinet.
- A description of the problem.
- A description of the operating conditions and setup.
- Operating device, feature, and function status.
- The manuals and prints provided with your system.

To obtain assistance, service, or parts please contact:
Roper Whitney of Rockford, Inc.
2833 Huffman Boulevard, Rockford, IL 61103
Phone: (815) 962-3011   Fax: (815) 962-2227

NOTE
It may be required that you obtain service or parts through an authorized Roper Whitney distributor.
ATTENTION BOXES:
Attention boxes are used to alert you to hazards which could result in harm to you, others, or the equipment; remind you of important information to be considered. The following are examples and explanations of attention boxes used in this manual.

**WARNING**
TYPE OF HAZARD

A warning box is used to emphasize that a hazardous environment that could cause personal injury or death exists in the equipment or may be associated with its use and that inattention to proper safety, operation or maintenance procedures could result in personal injury or death and damage to the equipment.

**CAUTION**

A caution box is used to emphasize that inattention to proper safety, operation, or maintenance procedures could result in damage to the equipment.

**NOTE**

A note box is used to call attention to information that is especially significant to understanding the subject matter, to provide important information, or to make a recommendation.
SAFETY PRECAUTIONS

Although the system has been designed with safety in mind and is equipped with numerous safety features, no amount of design and features can replace an informed, proficient, safety-conscious attitude on your part. This chapter describes various safety precautions which must be observed when operating, and maintaining your machine. This chapter must not be considered all-inclusive on the subject of safety. Use this chapter as a guide to supplement safety precautions, warnings, and instructions in:

- Other manuals about this machine
- Local, plant, and shop safety rules and codes
- Governmental safety laws and regulations
PERSONAL SAFETY

DO:  Ensure that you know how to do the work in a correct, safe manner. Know the hazards associated with the work and how to protect yourself. If you are in any way uncertain about your job and the safe way to perform the work, ask your supervisor for instructions.

Notify your supervisor whenever you feel there is any hazard involving the equipment or the performance of your job.

Report all injuries or illness, regardless of severity, to your company's first aid or safety officer. Never attempt self-treatment.

Observe and follow safety instructions in your work area, paying special attention to posted warnings such as “NO SMOKING”, “HIGH VOLTAGE”, and “DANGER”.

Use safety protective equipment. Always wear approved eye and hearing protection. Wear safety-toe shoes with slip-proof soles. Keep this safety equipment in good condition.

Avoid any pinch-points created by the movement of the machine’s components.

DO NOT: Do not allow untrained and/or unauthorized personnel to service, operate, or conduct tests on the system.

Do not wear loose, hanging clothing or jewelry while operating or servicing the system.

Do not use compressed air for cleaning debris from yourself or your clothing.

Do not place speed above safety.
TOOL SAFETY

DO:  

Use the proper tool and equipment for the task.

Inspect tools before each use to ensure that they are in proper working condition.

Maintain tools in their proper working condition.

Keep tools in their proper storage place when not in use.

Remove all hand tools such as wrenches, hammers, and diagnostic equipment from the machine immediately after each use.

Report defective tools to your supervisor and turn defective tools in for replacement.

Use hoists and cranes to lift heavy machine units, workpieces, or any other load too heavy for one person. Be sure loads are balanced.

DO NOT:  

Do not use broken, burned, mushroomed, or defective tools.

Do not strike two hardened steel surfaces together.

Never use a crane, hoist, or other lifting device to lift more than its rated capacity.

Do not use makeshift climbing aids as a substitute for a ladder.
WORK AREA SAFETY

DO: Keep the work area well lighted, clean, neat, and orderly. Oils, water, or debris on the floor can cause someone to slip and fall.

Use only approved cleaning fluids.

Deposit trash, refuse, debris, and other waste in the proper refuse container. Combustible material must be kept in metal containers provided for that purpose.

Hazardous materials require special containers, handling, and disposal procedures. Follow your company’s and governmental procedures for the proper identification, containment, storage, and disposal of waste materials.

Clear the work area of any hazardous obstructions that could result in injury.

Beware of protruding machine elements or assemblies.

DO NOT: Do not allow extension cords, hoses, or wires to be placed where they will create a tripping hazard.

Do not use explosive liquids such as gasoline as cleaning agents.

Do not dispose of any hazardous waste in “ordinary” refuse containers, on the ground, in sewers, streams, or waterways.

Do not use compressed air for cleaning debris or grit from yourself or the machine.
MACHINE SETUP AND OPERATION SAFETY

DO:  Read, understand, and follow all machine-mounted warning and instruction plates and signs.

Make sure safety guards, shields, barriers, covers, and protective devices are in place, connected, and functional before operating the system.

Visually and functionally inspect all tooling and system components before operating the equipment. Check for cracks, chips, burrs, overheating, and other evidence of failure.

Pay attention to the machine process during operation. Unusual noises or vibrations can indicate problems requiring immediate attention.

Shut off power to the system when cleaning or servicing the machine or when guards, shields, or protective devices are removed or otherwise made inoperable.

Remove debris and grit with a rake or brush - not your hands.

DO NOT:  Do not remove, paint over, alter, or deface any machine-mounted warning and instruction plates and signs.

Do not override the safety features of the equipment.

Do not operate the machine in excess of its rated capacity.

Do not make adjustments, measure workpieces, or remove debris and grit until the machine has stopped moving and appropriate safety features are activated.

Do not brake or slow down moving equipment.

Do not use combustible fluids without adequate fire protection equipment.
MACHINE OPERATION AND MAINTENANCE

The model 911 Radius Master is a footswitch operated, air over oil, ready standing, corner radius machine. Although the standard choice of radii meet most requirements, optional die sets are available. The Radius Master is designed to be functional, simple, safe, and easy to maintain.
SYSTEM FUNCTION

Initially the die springs hold the die shoes open. When shop air is hooked to the machine it flows through the air valve and into the return side of the cylinder. This force helps return the die shoe to the ready (open) position at the conclusion of the machine cycle.

The complete machine cycle is initiated when the operator loads a workpiece into a die opening that corresponds to the desired corner radius and activates the footswitch. The footswitch energizes a solenoid mounted on the air valve. The solenoid causes the air valve to shift 80-100 PSI of shop air from the ready side of the cylinder to the power booster which - through reduction and compression - multiplies the force on the hydraulic side by a ratio of 16 to 1. Hydraulic pressure then actuates the cylinder, which pulls the die shoe and blade through the workpiece. Force is maintained until the operator releases the footswitch. When the footswitch is released, the solenoid is de-energized and shop air flows back to the return side of the cylinder, raising the die shoe and blade to their ready position.

SPECIFICATIONS:

Volts: 115 AC
Amps: 1.0
Air: 80-100 PSI
Capacity: 3/16"
Cutting Blades: A2 Tool Steel
Standard Radii: 1/8, 3/16, 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1
Height: 49"
Width: 32"
Shipping Weight: 345 lbs
SYSTEM OPERATION

SETUP:
Place the Radius Master in a well lit area that is free of debris and traffic hazards.

1. Uncrate the machine.
2. Plug the power cord into a standard 115 VAC outlet.
3. Connect the air supply to the inlet port on the right side of the machine.

NOTE
This machine requires 80-100 PSI, filtered, lubricated air.

OPERATION:
1. Turn on at the switch located on the front of the machine.
2. Place the workpiece on the table and slide it into the desired die opening.
3. While holding the part in place, activate the foot switch.
MAINTENANCE

SCHEDULE:
The Radius Master is designed to provide years of service with minimal maintenance. There are only two routine maintenance procedures required to ensure dependable performance.

1. Drain the air filter monthly.

2. Check and fill the hydraulic fluid semiannually with Mobil DTE 25.

FILL PROCEDURE:
A loss of power or erratic action of the upper head may indicate low hydraulic fluid. Cutting power is achieved by transmitting high pressure oil from the booster to the upper portion of the hydraulic cylinder. Use the following procedure for checking the oil level if necessary.

1. Remove cylinder rod screw, located at the top center of the upper die shoe.

2. Remove table.

3. Remove 1/2 NPT pipe plug, located in the top portion of “T” fitting.

4. Fill fitting with Mobile DTE 25 (or equivalent) to mid-point of fitting threads. Replace plug and tighten securely.

5. Extend and retract the cylinder rod several times, noting the length of stroke. Any air in the system will rise to the top of the fitting. Re-check the oil level, and again securely tighten the plug. Repeat this process until the oil level remains constant and the cylinder stroke is approximately 1/2 inch.

6. Check all connections for leak, and then replace the table. Install the screw into the cylinder rod end, and adjust the die set opening to 3/16 inches.
MACHINE HYDRAULICS AND PNEUMATICS

HYDRAULIC AND PNEUMATIC SCHEMATIC

Note: Number's refer to parts list on page 17.
ELECTRICAL SCHEMATIC

NUMBERS REFER TO PARTS LIST ON PAGE 17
ASSEMBLY DRAWING

PART NUMBERS REFER TO PARTS LIST ON PAGE 17
HYDRAULIC FILL AND PARTS

NUMBERS REFER TO PARTS LIST ON PAGE 17
ITEM | PART NUMBER | DESCRIPTION               | QTY  
--- | ----------- | -------------------------- | ----  
1   | 788320100   | Upper Die Shoe             | 1    
2   | 288940004   | Lower Die Shoe Assembly    | 1    
3   | 788160101   | Guide Pin                 | 2    
4   | 688184593   | Springs, Die Set          | 4    
5   | 600063487   | Roll Pin                  | 4    
6   | 688000494   | Clamp Nut                 | 2    
7   | 788260103   | Pin Insert Collar         | 2    
8   | 611012177   | Socket Head Cap Screw     | 8    

DIE ASSEMBLY DRAWING
### PARTS LIST

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<th>ITEM</th>
<th>PART NO.</th>
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<td>788060076</td>
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## PARTS LIST

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