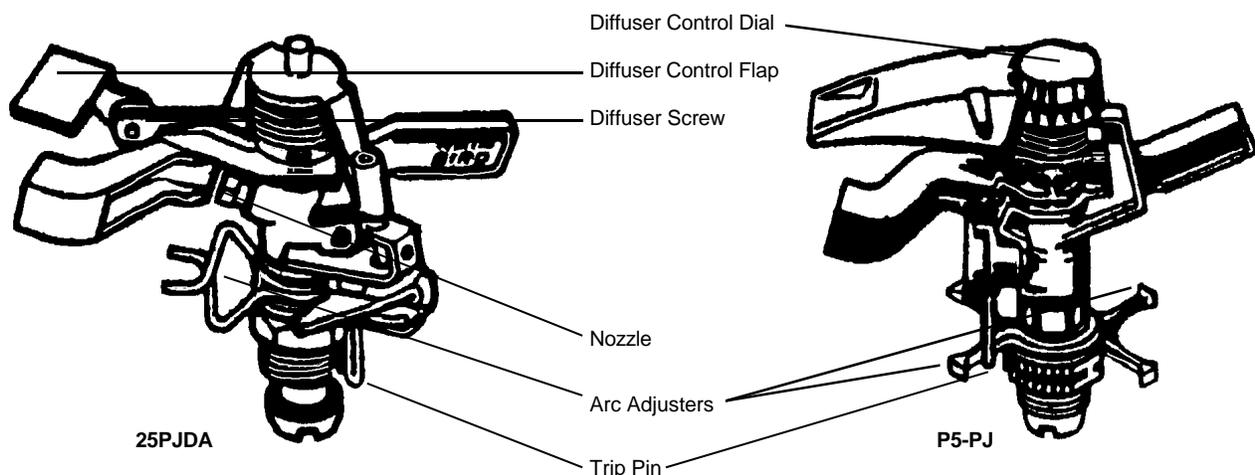


IMPACT SPRINKLER TROUBLESHOOTING GUIDE

USE AND OPERATION

The diagrams below depict typical Rain Bird sprinklers with all available controls. Your particular model may have only some of these features.

- Diffuser screw:** Breaks up the stream of water for more close-in watering. Shortens distance of the stream (throw) up to 25% of total throw. Screw clockwise into the stream to produce misting and shorten throw. Turn counterclockwise until totally out of stream for maximum distance (unadjusted throw).
- Distance control flap:** Reduces length of the stream and redistributes water. Tilt downward into stream to deflect water. May be used in conjunction with diffuser screw for maximum throw reduction.
- Distance control dial:** Some plastic models have a dial on top marked for minimum and maximum distance. Turning the dial will cause modification of the stream of water and distance of throw as indicated on the dial. This feature serves the same purpose as the distance control flap found on other models.
- Arc Adjusters (Trip collar):** Used to adjust degree of arc sprinkler will rotate. Position one arc adjuster for each side of the desired arc. Several types of arc adjusters are available depending on the model of your sprinkler. Generally, plastic models move by just a push of the thumb. To adjust the metal models, pinch the ends of each metal adjuster together before sliding into position.
- Trip Pin:** Used to determine part or full circle operation. Flip or bend the trip pin upward so it does not hit the trip collar for full circle operation. Pin should be downward for part circle operation (then slide arc adjusters into position to set degree of arc).



IMPACT SPRINKLER TROUBLESHOOTING

Through many years of experience, we have found that conditions which most often interfere with the proper operation of impact sprinklers are the use of any lubricants (other than water), low water pressure, foreign materials in the irrigation water, and excessive damage or wear to sprinkler parts. Any one or a combination of these factors can cause the sprinkler to stop rotating completely or rotate to one side and fail to return.

If your sprinkler stops working:

DON'T....Spray it with lubricant!

DON'T....Drill out the nozzle!

DO.....Disassemble and clean the unit thoroughly.

DO.....Check for sources of reduction in water pressure.

Impact Sprinkler Troubleshooting Guide

Problem	Cause	Remedy
A. Sprinkler does not rotate back and forth.	1. Insufficient water pressure. Requirements vary from model to model. Most popular models need at least 25 psi at the last sprinkler head, and should have an unadjusted throw of at least 36'.	a. Remove sprinkler head and attach pressure gauge to riser. Check operating pressure with line running. If pressure is low, check for breaks in the line or water running elsewhere which could drain pressure.
		b. <i>Pop-up Models</i> : Check for water coming out around the guide seal below the sprinkler head. This is a pressure activated seal. If pressure is insufficient, water will leak around this seal causing the unit to stall and pop up only part way. If the unit is new or others on the line have same problem, it is probably related to pressure. If the unit is older, clean or replace the guide nut seal if necessary.
		c. Try switching with another sprinkler closer to water source. If it works, then pressure could be the problem.
		d. If the sprinkler stopped working within a month or two of installation, the system may not have been designed to accommodate the normal operating pressure of the type of sprinklers installed. If metal sprinklers are being used, try switching to plastic. If plastic sprinklers are being used, try a lower gallonage variety.
		e. If measures above do not provide enough pressure boost, system may have to be rerouted to include less sprinkler heads per line.
A. Sprinkler does not rotate back and forth.	2. Debris in nozzle or other parts of sprinkler. Build up of water deposits causing friction.	a. Remove sprinkler and check for debris in nozzle , swivel bearing , and inlet . Sometimes, a wire pushed <i>gently</i> into the nozzle will loosen debris so it can be rinsed out. Do not drill or alter nozzles as this may permanently hinder the sprinkler performance. <i>Metal models only</i> : If sand is caught in vane inside of nozzle, it will need to be removed. Loosen nozzle with wrench and unscrew.
		b. Thoroughly wash sprinkler to remove dirt and oil. A vinegar and water solution will help remove water deposits.
		c. Replace bearing washers if oil has been used on the sprinkler.

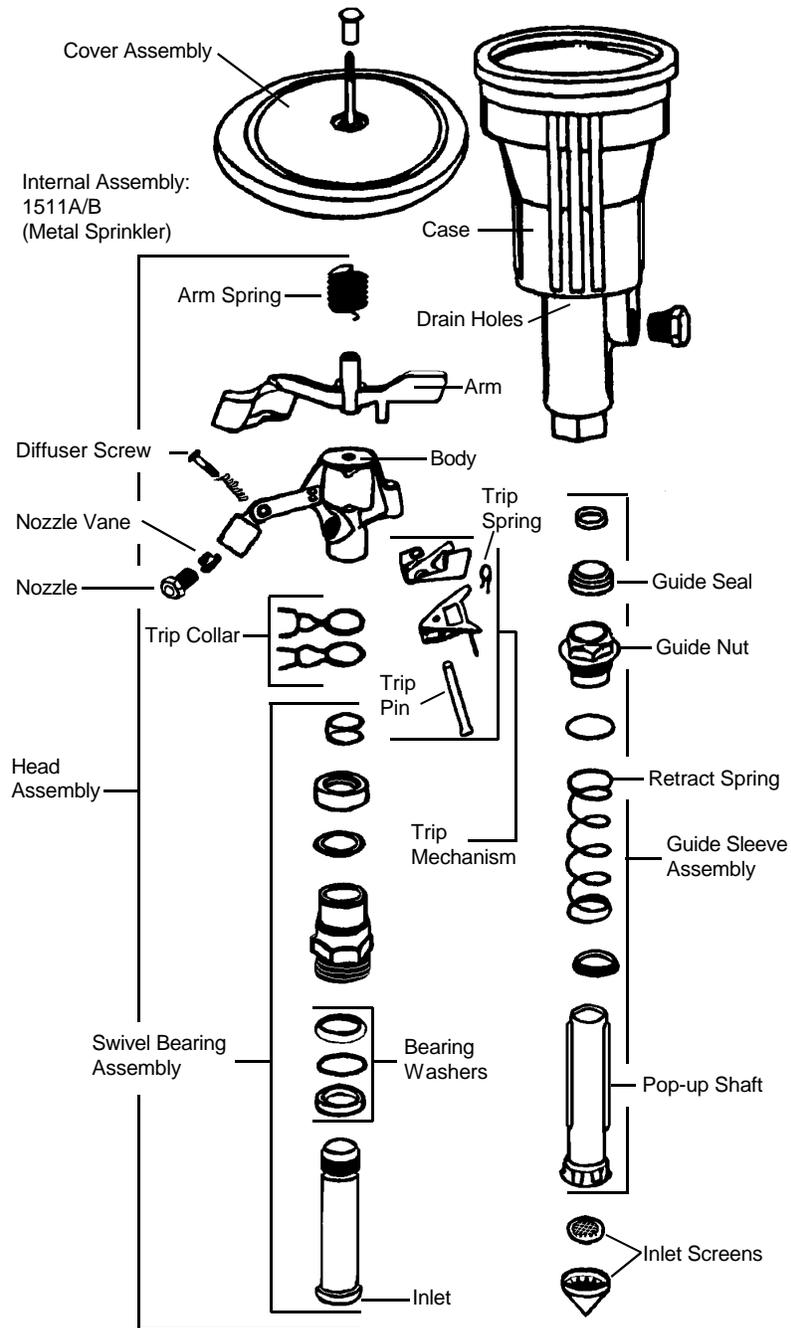
Impact Sprinkler Troubleshooting Guide Continued

Problem	Cause	Remedy
	<p>3. Worn or damaged parts.</p>	<p>a. If arm or body of sprinkler is bent or damaged, replace sprinkler or part if available.</p> <p>b. Arm spring tension may need increasing. <i>Metal models:</i> Unhook spring from arm with needle-nosed pliers. Bend slightly to shorten and re-hook. <i>Plastic Models:</i> Unhook spring from arm with needle-nosed pliers, re-hook to next adjoining protrusion on arm.</p> <p>c. Replace bearing washers if less than 2/3 of original thickness, if mineral deposits are a problem, or if oil based products have been used.</p>
<p>B. Sprinkler rotates to one side and stops.</p>	<p>1. Check points for non-rotation in Section A, 1-3.</p> <p>2. Excessive water pressure. Just as each sprinkler has a lower pressure limit for proper operation, there is also an upper limit. For most sprinklers the limit is 80 psi at the head. The optimum operating pressure is around 50 psi. Pressure that is too high will, at the worst, cause the sprinkler to stall, and at the least, cause the premature wear of the sprinkler parts. If the sprinkler rotates or reverses very fast, this a forewarning of excessive pressure.</p>	<p>a. Put more heads on your line or try making adjustments in the flow at the valve. In some cases, installing a pressure regulator ahead of your main shutoff valve is a good idea and will protect your entire system.</p>

Impact Sprinkler Troubleshooting Guide *Continued*

Problem	Cause	Remedy
B. Sprinkler rotates to one side and stops.	3. Trip spring broken or other trip mechanism parts damaged.	a. Metal models: Replace with trip assembly repair kit for your model. b. Plastic models: Only trip spring is replaceable. Call our toll free hotline for replacement springs. 1-800-RAIN-BIRD
	4. Trip collar missing.	a. Metal models: Replace with repair kit for your specific model. b. Plastic models: Call our toll free hotline for replacement plastic arc adjusters. 1-800-RAIN-BIRD
	5. Trip pin missing or not in downward position.	a. Call our toll free hotline for replacement trip pins for most models. 1-800-RAIN-BIRD
	6. Pop-up models: debris in case.	a. Check for debris or water in case which could restrict movement of sprinkler head.
C. Special problems with Pop Up sprinklers in cases (rotors).	1. Unit will not pop up or down.	a. Check for insufficient water pressure to fully pop up unit or seal internal assembly.
		b. Remove dirt or debris from case which may be obstructing pop up/down action.
		c. Check that internal assembly is properly screwed into case.
		d. Rock or debris trapped in retract spring or spring is damaged.
		e. Remove internal assembly from case using wrench available for your model. Disassemble, inspect for damage or foreign materials, clean and reassemble.
	2. Case fills up with water.	a. Check as in Section C-1 a and c above. If water is coming out around seal, there may be dirt lodged between the seal and pop up shaft preventing sealing, or seal may need replacing.
		b. Internal assembly may not be properly screwed into case.
		c. Case installed too low without sufficient gravel drainage below sprinkler. Try enlarging the drain holes with a screwdriver.
d. Dense, clay soil may not allow swift drainage of sprinkler even with gravel drainage area.		
D. Water continues to leak out of sprinkler when system is turned off.	1. This is not a problem with the sprinkler, but rather with one of the two points at right.	a. Water continues to drain out of the lowest sprinkler head on the line for a period of time when system is shut off. The less the angle of slope <i>and</i> the longer the length of pipe, the longer it takes for all the water to drain. Consult your local Rain Bird contractor about sprinklers which contain a built-in check valve to prevent water in the pipe from draining out of the sprinkler head.
		b. Valve controlling sprinkler line is not shutting off all the way and allowing water to continue seeping through. If water continues to leak from the sprinkler head when area has not been watered within the last day, a faulty valve is most likely the cause.

IMPACT SPRINKLER DISASSEMBLY 15111A



POP UP UNITS IN A CASE

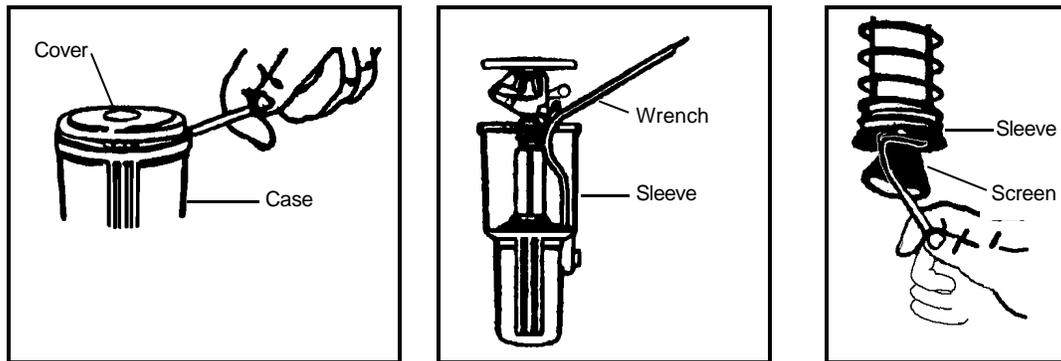
For Metal or Plastic sprinklers, remove unit from case using special Rain Bird wrench for your unit. Wrenches are available where Rain Bird underground sprinklers are sold. Sprinkler portion of unit is detachable from pop-up stem using a 1/2" hex wrench with a 6" extension.

To remove and replace cover on top of sprinkler:

Metal models - Unscrew cover retainer screw and remove damaged cover. Replace cover and screw.

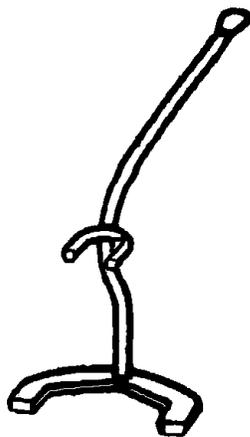
Plastic models - Pry out the center button with a screwdriver and, using needle-nosed pliers, carefully pinch together the retaining bracket on top of the sprinkler.

Remove old cover. Snap on new cover and replace center button.



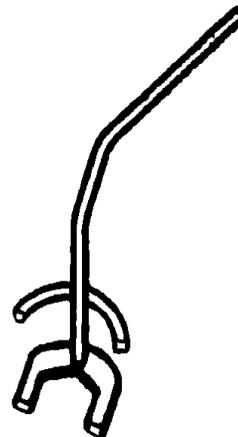
42064 Wrench

- For LG-3, and MG-4 Sprinklers
- AG-5, 2045-A



41045 Wrench

- For 15111A Sprinkler

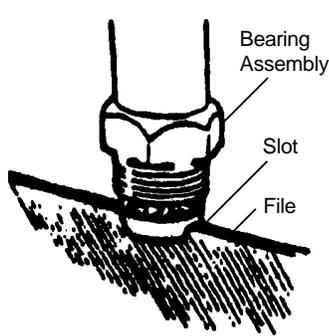


DISASSEMBLY OF METAL SPRINKLER HEAD

To replace the trip collar and bearing washers, lock the body of sprinkler in a vise, making sure the sprinkler arm is not touching the vise. Insert a file into nipple slot (figure A) or use a bearing wrench. Rotate file counterclockwise to unscrew nipple. Clean nipple in a solvent if necessary, to remove corrosion and dirt before installing washer.

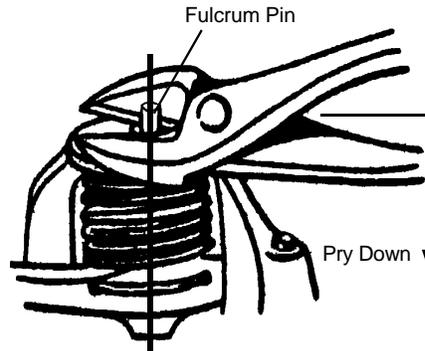
To replace the arm or arm spring, you will need to disassemble the top portion of the sprinkler. Grasp the pin at the top of the sprinkler with a pair of large diagonals or side cutting pliers and pry out (See Figure B). Take note of the way the arm spring is held in place. Use a pair of needle-nosed pliers to remove the spring.

To replace trip assembly, grasp trip shaft (See Figure C) with a pair of pliers and remove. Attach the "E" ring to the end of the new trip shaft **that does not have vertical grooves**. Install the lower trip and the upper trip on the trip shaft. Insert the bent end of the new trip spring into the small hole in the upper trip, and slip the other end of the spring into the small "U" notch in the lower trip. Insert new trip shaft into the sprinkler (Figure C). Gently tap in until there is a small clearance between the trips. When finished, the lower trips should "click" when pushed back and forth.



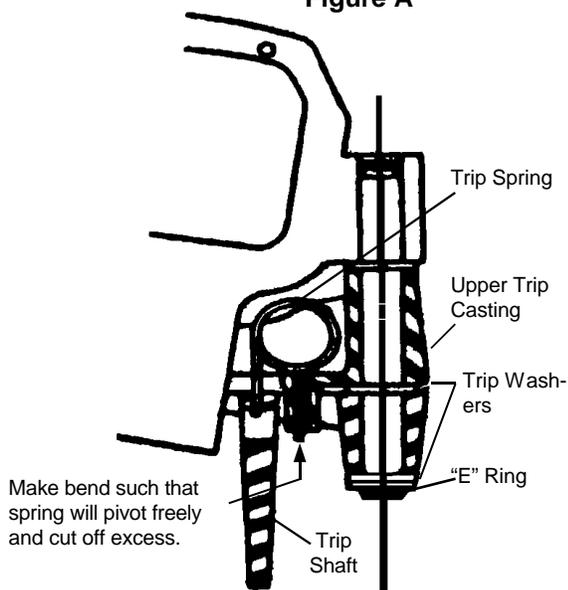
How to replace friction collars and bearing washer

Figure A

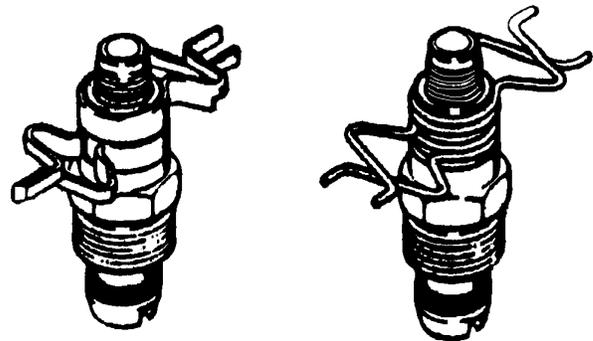


Removing the fulcrum pin

Figure B



Changing the Trip Mechanism



Flat Collars:
Install the round wire spacer onto the bearing, then install the new friction collars.

Round Collars:
Discard the round wire spacer, then install the new friction collars.

Installing Trip Collars

Figure D

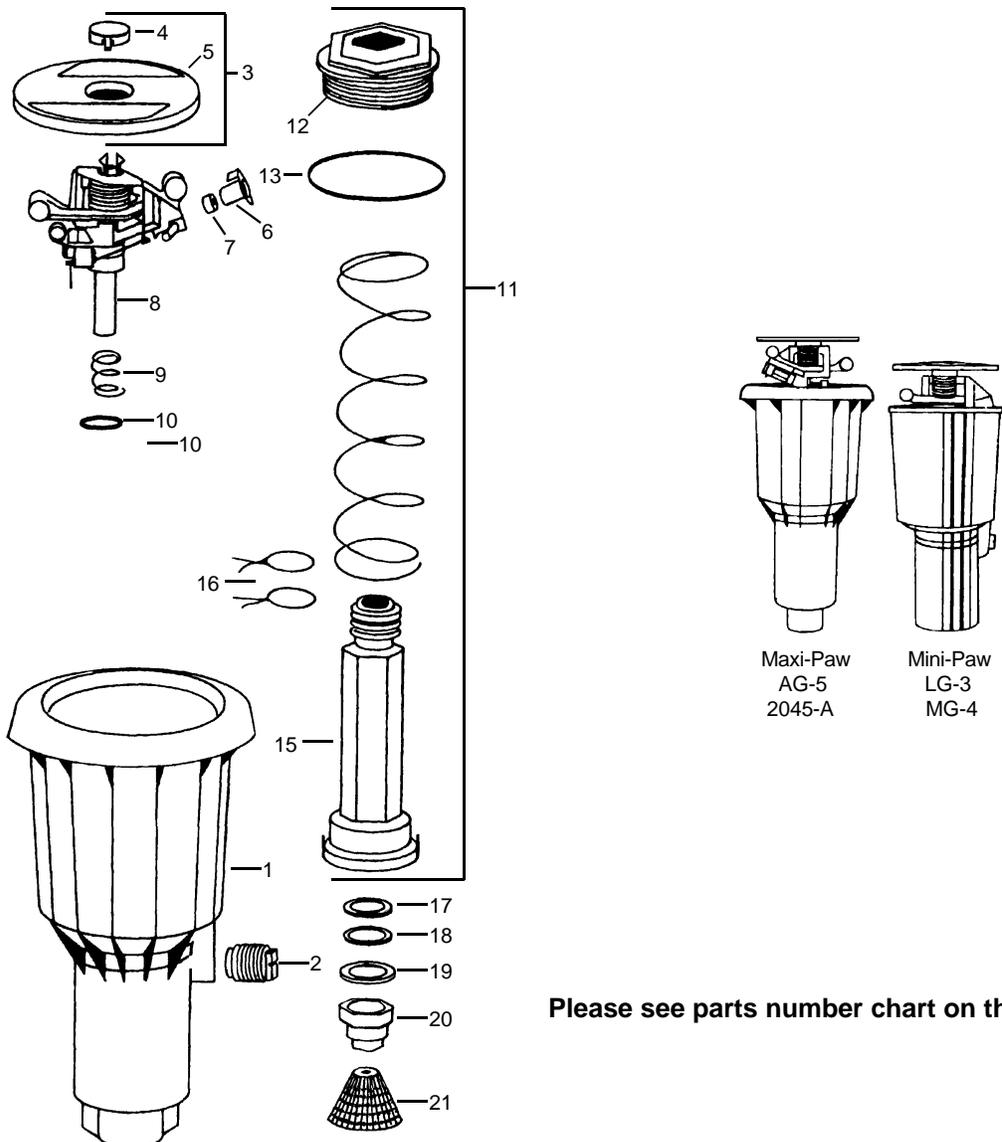
DISASSEMBLY OF PLASTIC SPRINKLER HEAD

Most components of plastic sprinkler heads are not detachable for cleaning or replacement. It is, however, possible to install a new trip spring using a needle-nosed pliers or plastic arc adjusters without damaging the sprinkler. On pop-up models, the cap can be replaced. Call our toll free hot-line for availability of parts for your particular model. 1-800-RAIN-BIRD

PARTS AND REPAIR SERVICES

A variety of parts and parts assemblies are available for Rain Bird metal and plastic sprinklers. If your local Rain Bird dealer does not carry the part you need, ask if it can be ordered, or call our toll free Technical Services hotline at 1-800-RAIN-BIRD for dealer referral or factory direct ordering information. If you are unsure of the model you have or need help in identifying or finding a part, the Technicians on our toll-free line are eager to assist you. A parts breakdown on your particular model is available upon request, or you can download parts breakdowns from our website at <http://www.rainbird.com>.

IMPACT SPRINKLER PARTS



Please see parts number chart on the next page.



MASTER PARTS LIST

PART CIRCLE ROTOR

MINI-PAW / MAXI-PAW / MAXI-PAW SAM

Catalog No.: 401

Date: 2/95

Page: 1 of 1

Ref.	Part Description	Mini-Paw	Maxi-Paw	Maxi-Paw-SAM
CASES				
1	Case Assembly	205175-01	207281-01	207281-01
2	Plug	208320	208320	208320
COVER ASSEMBLIES				
3	Cover Kit	206973	208001	208001
4	Dust Cap	(A) (204423-07)	(204423-12)	(204423-12)
5	Cover, Snap On	(A) (204422-01)	(207301)	(207301)
NOZZLES (B)				
6	Low Angle Nozzle	—	115902	115902
6	Standard Nozzle	—	206592	206592
7	Vane	—	202141	202141
INTERNAL ASSEMBLY (B)				
8	Head Assembly (B)	206678 (A) (206776)	206644 206638	206637 206638
	Diffuser Screw	203933	203933	203933
	Trip Spring	207740	207740	207740
	Bearing Hood (Black)	(C) (202965)	(C) (202965)	(C) (202965)
9	Upthrust Spring	(C) (203871)	(C) (203871)	(C) (203871)
10	Bearing Washer (Blue)	(C) (206071)	(C) (206071)	(C) (206071)
11	Pop-Up Sleeve Assembly	202415	202415	204400
12	Guide Nut	204555	204555	204555
13	O-Ring Seal	202011	202011	202011
14	Retract Spring	(202012)	(202012)	(204398)
15	Guide Sleeve	203171	203171	203171
16	Friction Collars (2)	203148	203148	203148
17	Buna N Washer (Black)	(C) (203363)	(C) (203363)	(C) (203363)
18	Wearing Washer (White)	(C) (204374)	(C) (204374)	(C) (204374)
19	Brg Backup Washer (Gray)	(C) (0(202138)	(C) (202138)	(C) (202138)
20	Body Retainer	(C) (202007)	(C) (202007)	(C) (202007)
21	Inlet Screen (Standard)	202076	202076	—
21	SAM Screen/Seal Assembly	—	—	205396
MINI-PAW WRENCH		42064		

(A) Included in Body Cover Assembly # 206974. (Specify nozzle size.)

(B) Specify nozzle size when ordering.

(C) Included in Bearing Washer Kit # 202190.

NOTE: Part numbers enclosed in brackets () are not available individually, but may be sold in assemblies or kits.

INSURE QUALITY - USE ONLY GENUINE RAIN BIRD PARTS

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