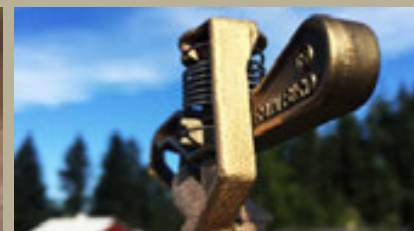


Brass Impact Parts Guides



Maintenance Guide

Impact Sprinklers

Impact Sprinkler Head Types: Spoon-Driven, Wedge-Driven, and Precision Jet (PJ™).

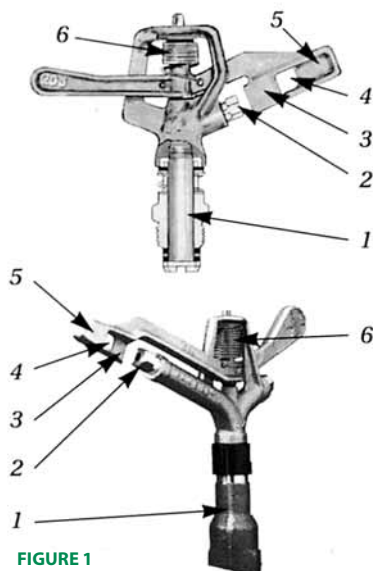
Principal of Operation

On **spoon-driven sprinklers**, (Figure 1) the water passes through the body (1), then through the nozzle (2), past the sloping vane (3), through the window (4) into the curve of the spoon (5). The reactionary force of the water leaving the spoon drives the arm out of the stream and away from the nozzle. The tension of the arm spring (6) then pulls the arm back into the original position where it impacts on the bridge or nozzle, causing the sprinkler to turn. The impact is accentuated by the thickness and angle of the leading edge of the sloping vane.

This impact is only sufficient to cause a small degree of travel so that the rotation of sprinkler is uniform and relatively slow (one-half to three minutes per revolution, depending on pressure and size of sprinkler and nozzle). Slow rotation keeps wear on moving parts at a minimum and prolongs the life of the sprinkler.

Wedge-drive sprinklers (such as the Rain Bird 14V) operate in the same manner except that the wedge rather than a spoon serves to force the arm in or out of the water stream. The chief advantages of the wedge are that it prevents an excessive amount of water from being deposited just below the sprinkler, and that it provides a greater driving force that rotates these sprinklers satisfactorily with smaller size nozzles.

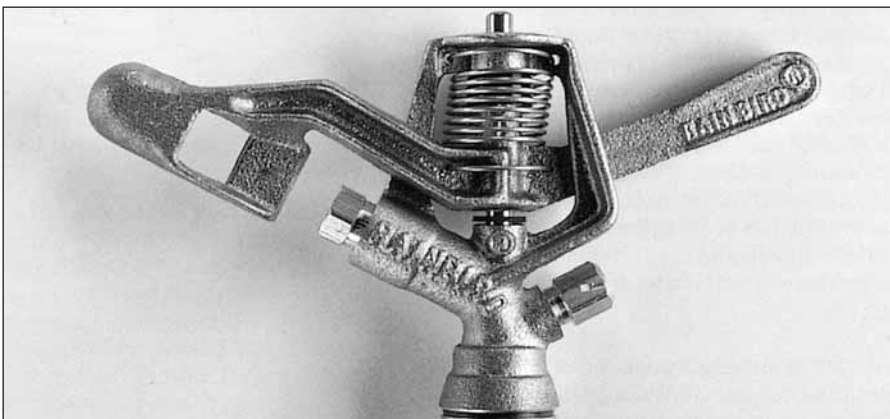
How Impact Sprinklers Operate



Rain Bird patented **Precision Jet (PJ™)** sprinklers operate in a manner similar to a spoon-drive sprinkler with the PJ tube replacing the spoon. When the arm enters the stream, the water is directed through a tube. The back force of the water exiting the tube is along a line away from the fulcrum and, therefore, the arm is kicked back out of the stream. The advantage of the precision jet sprinkler is that side splash is eliminated. The PJ feature is used on part circle sprinklers that are placed adjacent to areas not to be watered.

Cause of Sprinkler Failure or Faulty Operation

Through many years of experience, we have found the conditions which interfere with the proper operation of Rain Bird sprinklers. The following items outline these conditions in detail and provide the necessary steps to resume proper sprinkler operation



1 Foreign Objects in Irrigation Water

If the sprinkler does not contain a stream straightener (small vaned device inside sprinkler in the nozzle, or just behind nozzle), soft materials may be removed from obstructed nozzles by inserting a coated or covered piece of wire, such as a pipe cleaner, through the nozzle while the sprinkler is operating. Care should be taken to avoid scratching the nozzle opening. If this fails, the nozzle should be removed and cleaned. Sprinklers containing stream straighteners should not be cleaned with a wire because of the possibility of damaging the vanes on the straightener. It is recommended that the nozzle and straightener be removed and cleaned.

The best guarantee against nozzle plugging problems is to adequately screen the water where it enters the system. Where water is derived from irrigation ditches, screening at the intake is a necessity. Information on types of screening/filtering devices may be obtained from your Rain Bird distributor.

2 Oil or Pipe Dope

Rain Bird sprinklers are WATER LUBRICATED and must NOT be oiled in any manner. Oil causes the bearing washer to swell and soften and affects the rotation of the sprinkler, frequently bringing it to a complete stop. Pipe dope or thread lubricant contains oil, and when applied to the bearing threads is carried to the washer, saturating it and causing the sprinkler to stop turning. If oil has been applied to the sprinkler, it will be necessary to disassemble the bearing and wipe the oil off the sleeve and nipple and replace the washer(s) with a new, clean one.

Bearing washers are composed of material which provides the friction necessary for the successful operation of the sprinkler. As stated previously, Rain Bird sprinklers are WATER LUBRICATED and all materials used in their construction are anti-rust and anti-friction metals, except the bearing washer.

3 Improper Pressure

Rain Bird sprinklers are designed and adjusted to operate over fairly wide pressure ranges depending on the model. When operating on pressure that is either too high or too low, the performance will be unsatisfactory both as to sprinkler rotation and water distribution. Operating a nozzle at too low of a pressure will result in large droplets and a distribution of most of the water around the outer edge of the pattern. If the pressure is extremely low the sprinkler may fail to rotate. In the case of too high a pressure, the nozzle will tend toward misting and even slight wind currents will carry the water away

from the desired pattern. Extremely high pressure could cause the sprinkler arm to strike the back of the sprinkler body, causing the sprinkler to stand still or turn backwards. In general, as nozzle size increases, so must the pressure for desired performance.



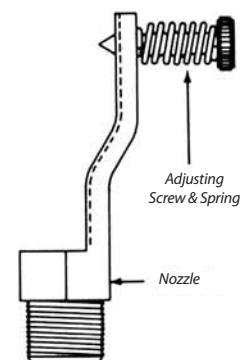
FIGURE 2
Pitot Tube - 41017
and Gauge - RBGL 100



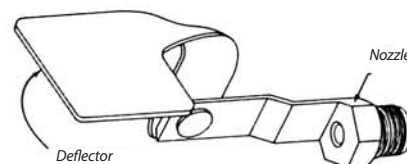
FIGURE 3
Pilot tube shown properly inserted into sprinkler nozzle.
(Approx. 1/8" from nozzle opening)

from the individual sprinkler will not be retarded, thus building up the pressure. Move the curve end of the tube back and forth through the stream until the highest pressure is recorded. Do not insert the pitot into the orifice.

All pressures indicated in this manual and our catalog are pressures at the sprinkler, which may differ considerably from pressures at a distant source from which water is supplied. Small diameter pipe or hose will reduce pressure considerably. Failure of a sprinkler to perform properly when pressure is lower than recommended for a particular size nozzle may be overcome by changing to a smaller size nozzle. However, it is not



ADJ NOZZLE



DC NOZZLE

FIGURE 4

advisable to use a nozzle smaller than the minimum recommended size for the particular sprinkler model. To illustrate, sprinkler Model No. 30W failing to operate properly with a 3/64" nozzle may give very satisfactory performance with a 9/64" nozzle.

On the ADJ models, an adjustable pin is used on the nozzle extension- see Figure 4. At pressures from 30 pounds up, the pin should not be set into the stream as far as when the sprinkler is operating at lower pressures (20 to 30 pounds). For these low pressures, you can adjust the pin so as to secure the desired break-up of the stream. This pin also can be adjusted to shorten the throw of the stream, where it is desirable to use the sprinkler in a smaller area.

The DC nozzle is used for controlling distance of throw. It is operated by adjusting the deflector downward into the water stream to decrease the distance of throw as desired.

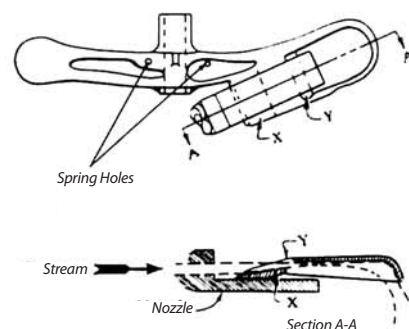


FIGURE 5

5 Damaged Parts

Occasionally sprinkler parts may be bent by accident. Cast bronze and aluminum alloy, used in Rain Bird parts, are pliable to certain limits. These parts can usually be bent back into shape if they are not too badly damaged.

In the case of bending of a model 20 or 25 arm into shape after it has been damaged, it should be done so the vane "x" fits flat on the nozzle surface and so the stream will enter the window "y" as shown in Figure 5.

A good rule of thumb for adjusting a bent arm is to bend it so that when the arm is at rest, the vane "x" (Figure 5) is just to the left of the nozzle opening when viewed toward the nozzle face with the sprinkler in an upright position.

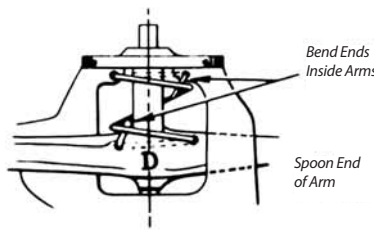


FIGURE 7

If possible, water test sprinkler. Bring pressure up slowly to ensure that arm does not stick in stream. Also, try to hold arm in stream to see if it will come out and oscillate of its own accord.

7 Worn Bearing Washer

Inspect bearing washer (normally black), periodically and replace if worn or damaged. Failure to make needed replacements of these parts will result in damage to the more expensive Bearing Nipple and Sleeve.

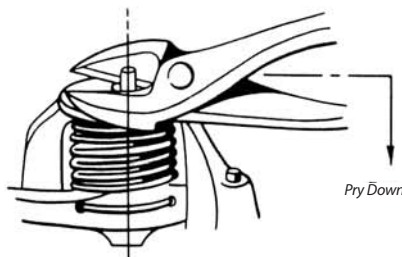


FIGURE 6

6 Broken Arm Spring

To replace arm spring, pull the fulcrum pin with a pair of large diagonals or side cutting pliers as shown in Figure 6. The pin is pressed into the body and will come out when pulled as shown in sketch. Cut the spring loose and remove parts.

Feed end of spring through the holes in the arm, as shown in Figure 7, in the following way.

Holding the arm in your hand with the cup part of the spoon facing you, and spoon end of arm pointed to your right, feed end of spring into hole on your right (hole nearest spoon) then on through the hole on the left from the back side. The end of the spring is now pointing toward you. Bend over end (approximately 1/4") using needle nose pliers (see Figure 7). The spring wire is normally longer than required. Hold arm with spoon end pointing toward you (looking down on top of arm). Cut off the tag end of the spring at the center line of the arm. Now install arm in body as shown in Figure 7. Drive fulcrum pin into lower hole with hammer. Pull arm around as far back as it will go, away from nozzle and feed upper end of spring into the hole that is farthest from the nozzle. Then feed through the other hole so it extends about 1/8" and bend this extended spring end over sharply to clinch. Check the assembled spring to be sure that the spring end does not rub against the center bearing of the arm or the spring coils when it rotates (see Figure 7).

Use of Arm Weight

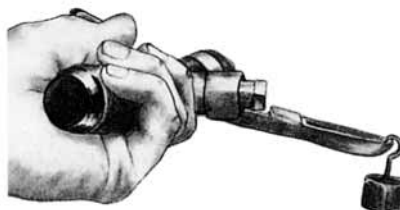


FIGURE 8

Arm weights for some sprinkler models are available from Rain Bird distributors and dealers in order to adjust for proper spring tension. To check spring tension with the arm weight, hang the weight over the outer lip of the spoon, with the sprinkler held in a sideways position. The weight should deflect the leading edge of the spoon below the nozzle opening but not beyond the hex point on the outside of the nozzle. If an arm weight is not available check the arm tension with that of a new sprinkler or with one that is operating satisfactorily.

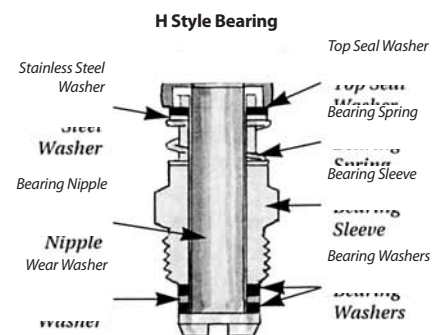


FIGURE 9

8 Worn Wear Washers

The Bearing Sleeve is threaded on the lower end for attachment of the sprinkler to the piping system. The bottom of the lower end of a TNT style bearing (see Figure 10) is machined in such a shape as to fit a T-shaped wear washer. Because of this fit the wear washer should not turn in the Sleeve recess. The bottom of the lower end of the Sleeve is a seat only,

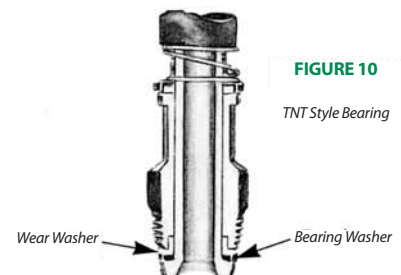


FIGURE 10

TNT Style Bearing

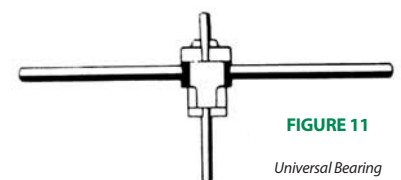


FIGURE 11

Universal Bearing Wrench

not a wearing surface, which is also true for the Sleeve in the H style bearing. Note that the H style wear washer is flat and is located differently than the water washer for the TNT style bearing (see Figure 9). Check the wear washer periodically and replace if worn or damaged. Failure to replace will damage the much more expensive Bearing Nipple and Sleeve.

9 Replacing Bearings

A special wrench (Figure 11) is made to fit all Bearing Nipples and to unscrew them from the body. This wrench should be available at your Rain Bird dealer; however, if you can not secure one, a small bar or large screwdriver may be used to unscrew the bearing. Be cautious when placing the sprinkler in a vise, not to squeeze the arm or other extended parts use the body. Washers that are worn thin from sand and other abrasives in the water should be replaced.

10 Trip Mechanism on Part Circle Models

Model No. 25

Sand-Cast Trip Models-Bronze Color

The trip spring (Figure 12) is about the only item in this assembly that may need to be replaced after extended use. To reach this spring, pull off the whole assembly after first removing clip. Cut the spring loose from the upper trip casting and replace with a new one in the same position.

After bending the spring, be sure there is not too much wire left. If there is, cut the end off so that it won't rub against the lower trip casting. The assembly must be put together before it goes on the shaft.

Be sure spacer washers are in place as shown in Figure 12. Some water causes lime deposits, which should be cleaned off. Lime deposits can cause the mechanism to stick after a few years use.

Model No. 25

Powered Metal trip Models-Yellow Color

Removing and replacing the trip spring for these sprinklers is the same in every respect as for sand cast trip models expect that the spring is held in place by a preform on one leg of the spring. No bending and cutting of the wire is required. The new spring is installed by pressing the spring leg with the preform through the appropriate hole and then following the above instructions for the sand-cast trip models.

Models No. 35 and No. 65D

Although somewhat different in their parts, the operation of these models is basically the same as the No. 25.

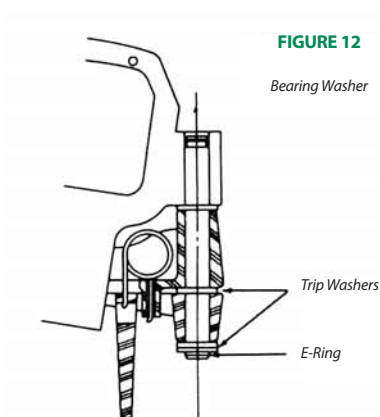


FIGURE 12

Bearing Washer

Trip Washers

E-Ring

11 Setting Part Circle Friction Collars

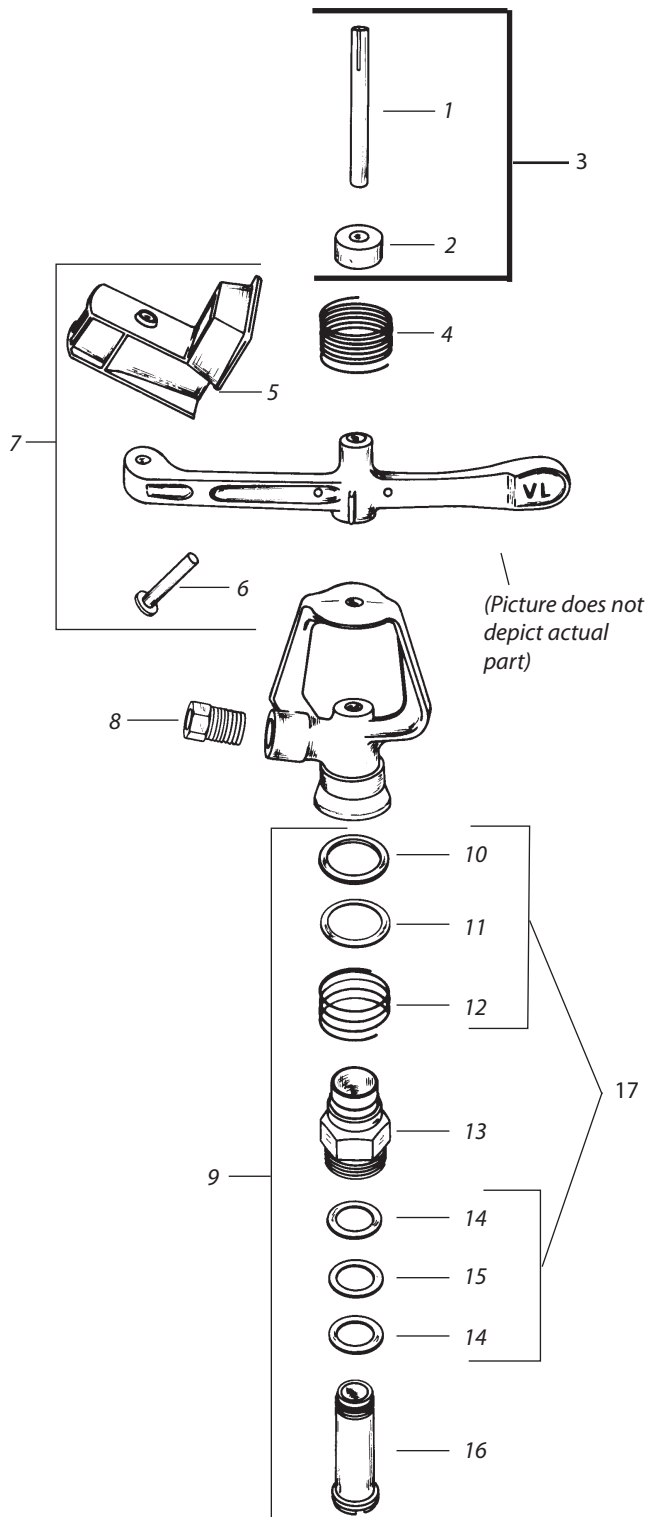
The purpose of the friction collars is to control the arc of the circle of coverage. On the 25, 35, and 65D, the collars must be moved with the fingers only. Never use pliers in setting these collars. Use of pliers will cause the collars to lose their tension and, after a few settings, they will no longer hold their position.

SPRINKLER REPAIR SERVICE

If, after following the directions in this manual, your Rain Bird sprinkler does not operate properly, take it to your dealer or distributor for servicing. If they do not have the facilities for necessary repairs, contact the factory for the nearest authorized servicing facility.

**DO NOT USE
OIL • GREASE • PIPE DOPE
RAIN BIRD SPRINKLERS ARE WATER LUBRICATED**

14VH

**Ref. Part Description****14VH****UPPER ASSEMBLY**

3	Fulcrum Kit	177416
1	Fulcrum Pin	(100793)
2	Arm Hood	(117360)
7	Arm Spring Assembly	177521
4	Arm Spring	(100172)
5	Wedge	(111188)
6	Wedge Pin	(116046)

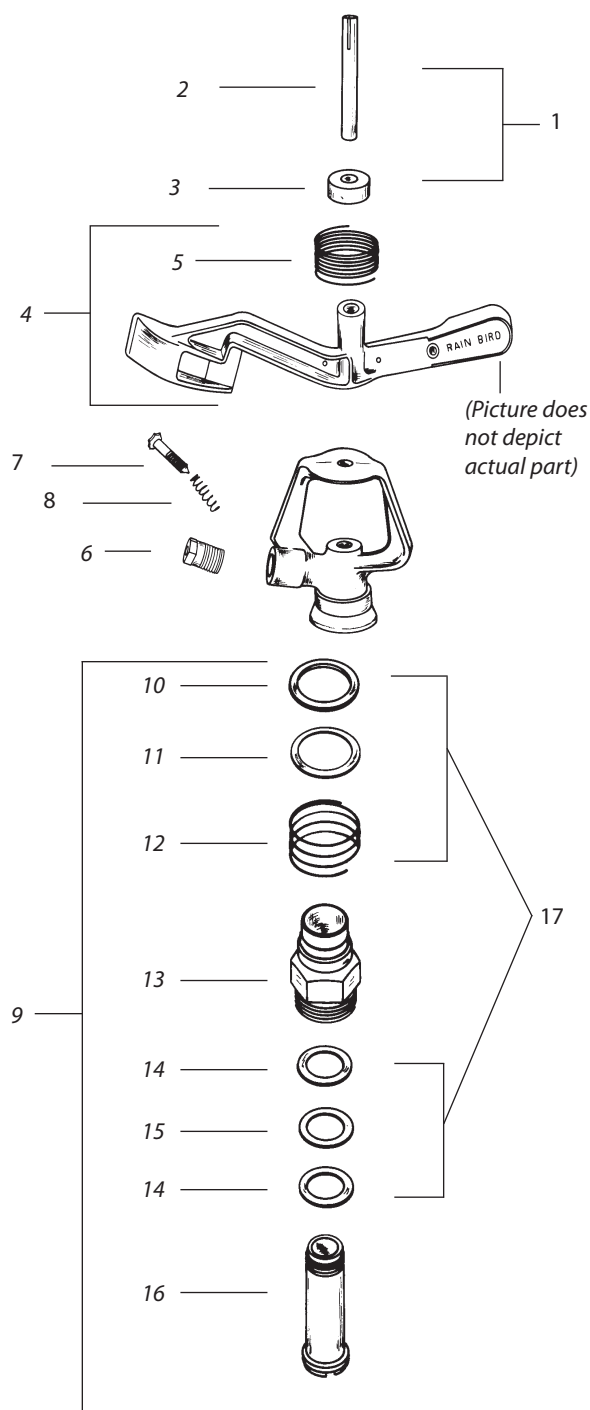
NOZZLES (Specify nozzle size when ordering)

8	Straight Bore	105780xx
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BEARING ASSEMBLY

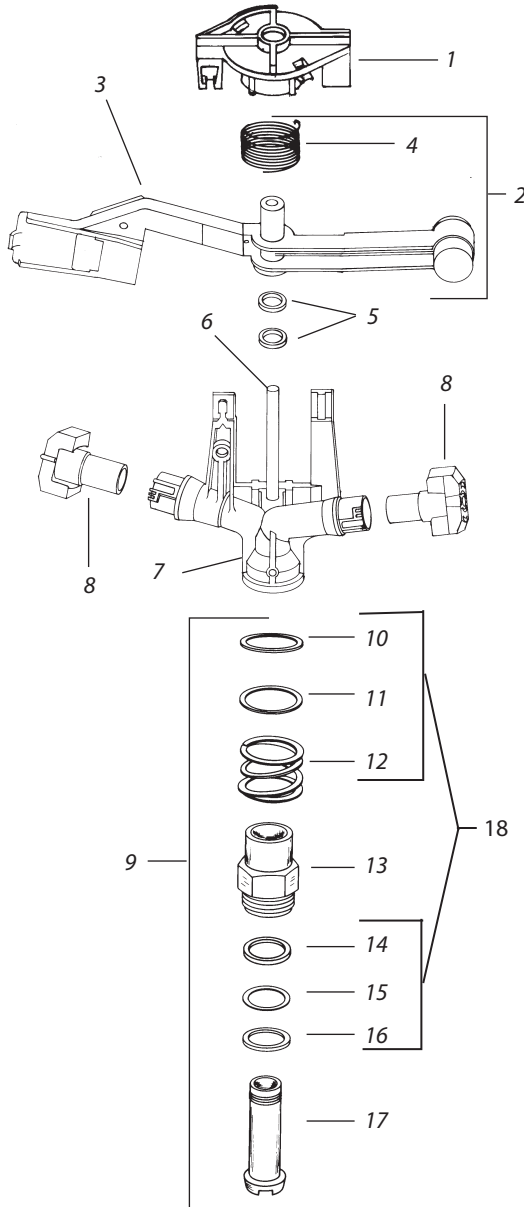
9	Bearing Assembly (H Style)	177535
10	Top Seal Washer (Black)	(104183)
11	Metal Top Seal Washer	(100280)
12	Bearing Spring	(105431)
13	Bearing Sleeve (Brass)	177510
14	Bearing Washer (2) (Black)	(104181)
15	Wear Washer	(104696)
16	Bearing Nipple	177516
17	Bearing Washer Kit	177536
10	Top Seal Washer (Black)	(104183)
11	Metal Top Seal Washer	(100280)
12	Bearing Spring	(105431)
14	Bearing Washer (2) (Black)	(104181)
15	Wear Washer	(104696)

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



Ref.	Part Description	20JH	20 ADJ-B
UPPER ASSEMBLY			
1	Fulcrum Kit	177415	—
2	Fulcrum Pin	(100793)	(100793)
3	Arm Hood	(100775)	—
4	Arm Spring Assembly	177525	(104984)
5	Arm Spring	(100133)	(106330)
NOZZLES (Specify nozzle size when ordering)			
6	Straight Bore	105780xx	05780xx
—	Nozzle & Vane Assembly	106160xx	—
—	Vane	101618	101618
7	Adjustment Screw	—	100136
8	Spring	—	100203
BEARING ASSEMBLY			
9	Bearing Assembly	177422	(109220)
10	Top Seal Washer (White)	(100279)	—
11	Metal Top Seal Washer	(100280)	—
12	Bearing Spring	(105431)	—
13	Bearing Sleeve (Brass)	177510	(104983)
14	Bearing Washer (2) (Black)	(104181)	(104181)
15	Wear Washer (White)	(104696)	(104696)
16	Bearing Nipple	177516	(104982)
17	Bearing Washer Kit	177445	—
10	Top Seal Washer (White)	(100279)	—
11	Metal Top Seal Washer	(100280)	—
12	Bearing Spring(105431)	—	—
14	Bearing Washer (2) (Black)	(104181)	(104181)
15	Wear Washer (White)	(104696)	(104696)

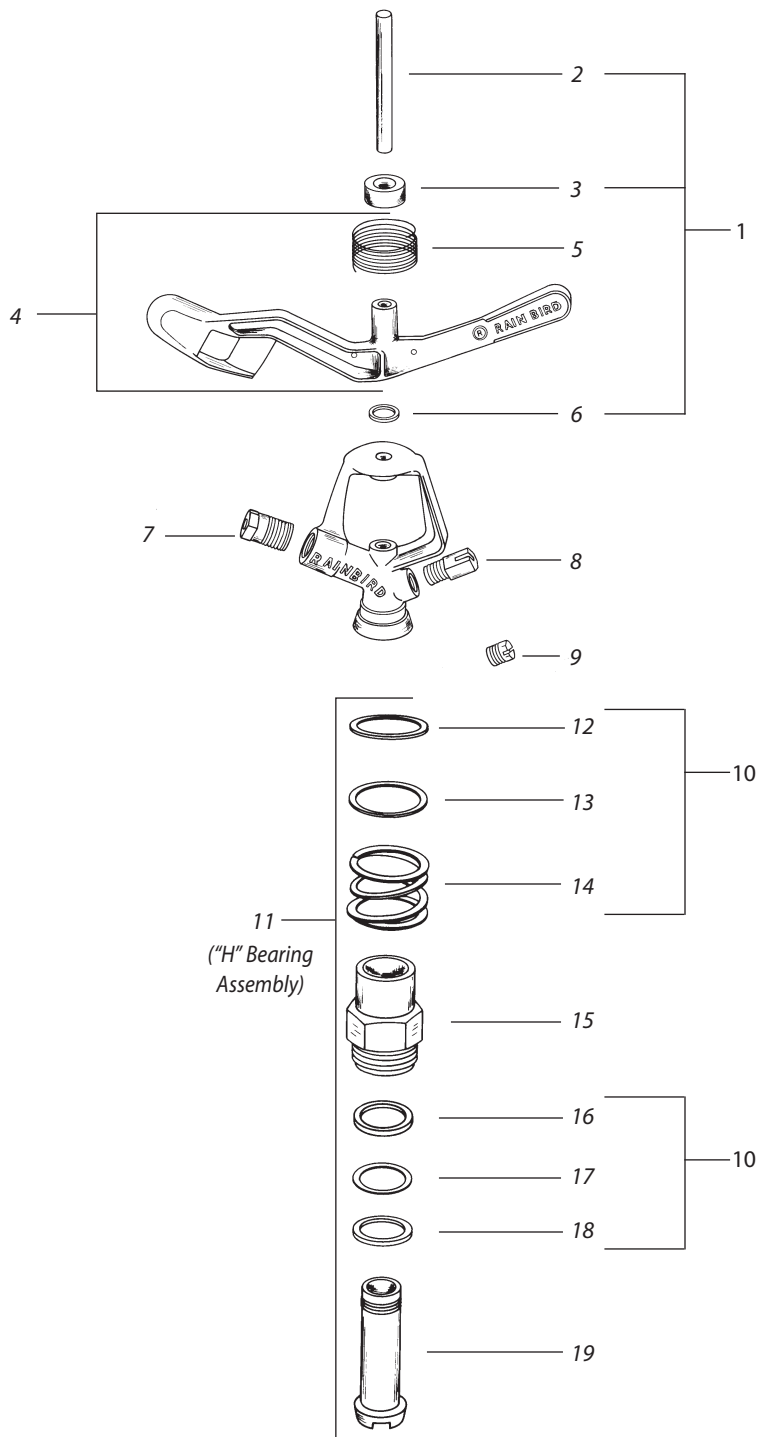
Note: Part numbers enclosed in brackets () are not available individually, but may be sold in assemblies or kits.



Ref.	Part Description	L36H	L36AH
UPPER ASSEMBLY			
1	Body Cap	NA	NA
2	Arm Spring Assy	(177527)	(177449)
3	Arm	(115063)	(112236)
4	Arm Spring	(114472)	(114472)
5	Arm Washer	(100270)	(100270)
6	Fulcrum Pin	(110726)	(110726)
7	Body	NA	NA
NOZZLES (Specify nozzle size when ordering)			
8	Straight Bore, Quick Fit	107881xx	107881xx
8	Low Pressure, Quick Fit	109247xx	109247xx
BEARING ASSEMBLY			
9	Bearing Assembly	177424	177425
10	Top Seal Washer	(Gr) (103709) (W) (100313)	
11	Metal Top Seal Washer	(100312)	(100312)
12	Bearing Spring	(106237)	(106237)
13	Bearing Sleeve	177511	177511
14	Bearing Washer	(B) (100726)	(B) (100726)
15	Wear Washer	(O) (103058)	(O) (104762)
16	Seal or Brg Washer	(G) (102345)	(B) (100726)
17	Bearing Nipple	177517	177517
18	Bearing Washer Kit	177447	177448
10	Top Seal Washer	(Gr) (103709) (W) (100313)	
11	Metal Top Seal Washer	(100312)	(100312)
12	Bearing Spring	(106237)	(106237)
14	Bearing Washer	(B) (100726)	(B) (100726)
15	Wear Washer	(O) (103058)	(O) (104762)
16	Seal or Brg Washer	(G) (102345)	(B) (100726)

Bearing washer color code: W = White, Gr = Dark Green, B = Black, O = Orange, G = Grey

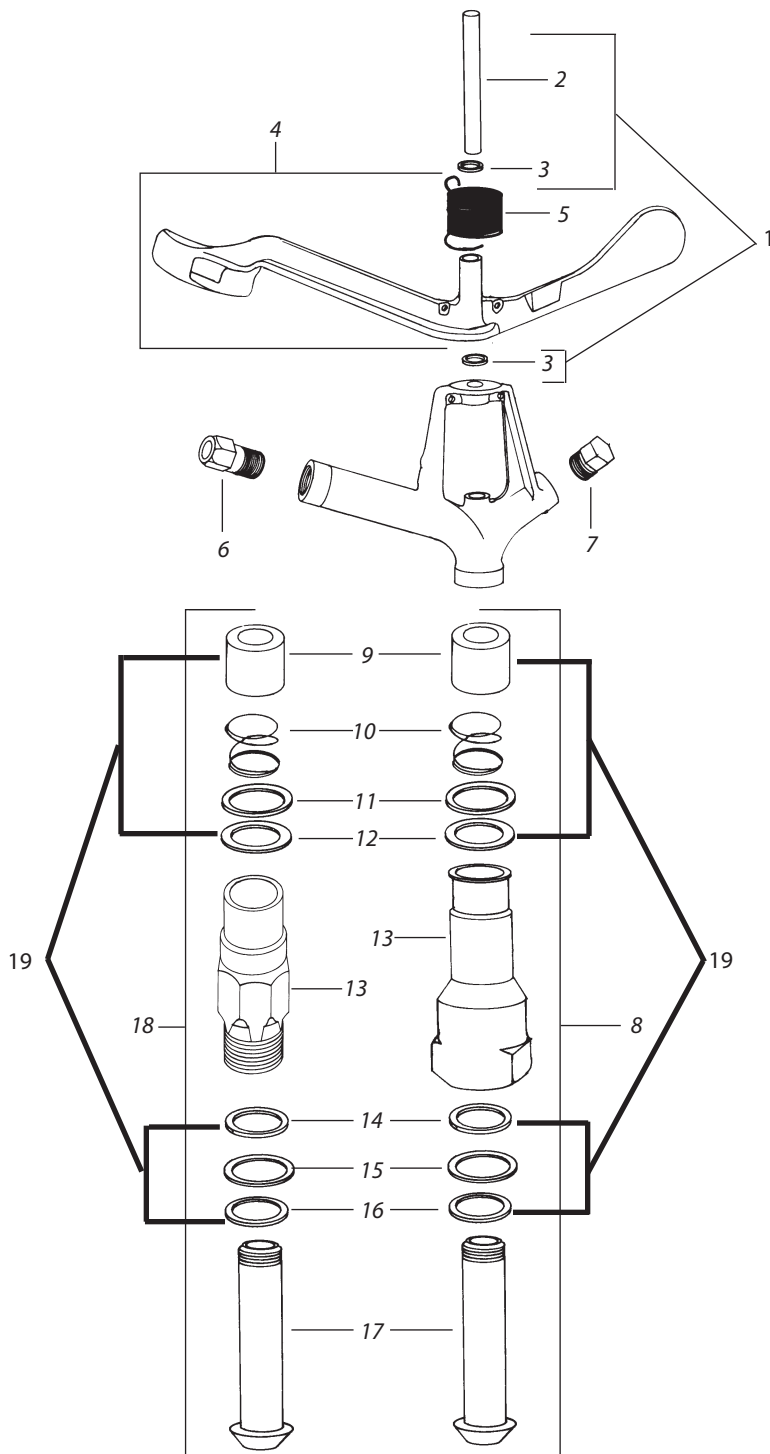
*NOTE: Old style L36 has a plastic bearing nipple, while new style L36 has a brass bearing nipple.



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

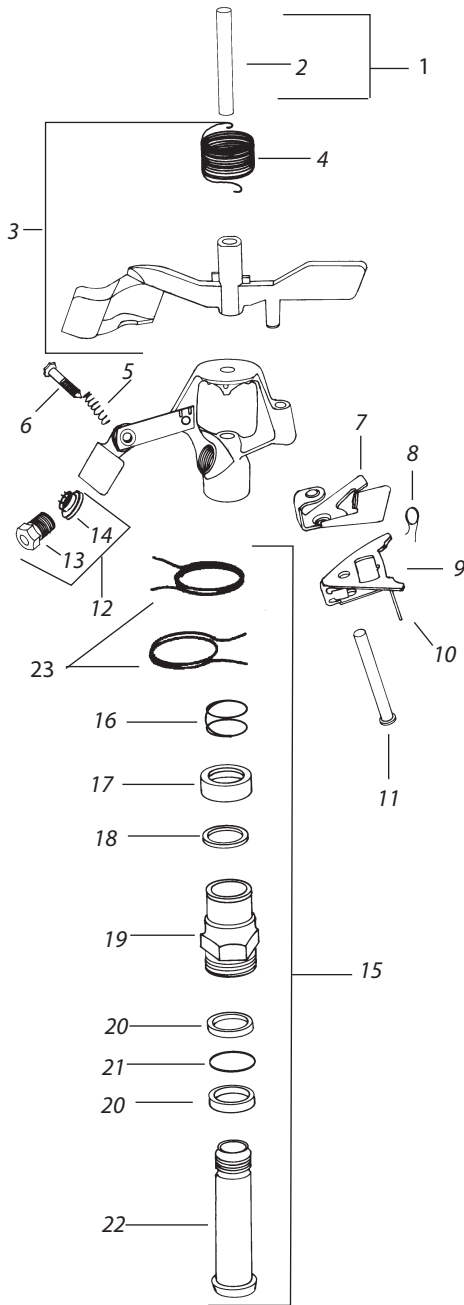
Ref.	Part Description	30H		30FH
		30WH	30PWH	30FWH
UPPER ASSEMBLY				
1	Fulcrum Kit	177417	177417	177417
2	Fulcrum Pin	(100271)	(100271)	(100271)
3	Arm Hood	(100968)	(100968)	(100968)
6	Arm Washer	(100270)	(100270)	(100270)
4	Arm/Spring Assembly	177529	177530	177529
5	Arm Spring	(231061)	(100358)	(231061)
NOZZLES (Specify nozzle size when ordering)				
7	Drive Nozzles			
-	Straight Bore	105842xx	105842xx	105842xx
-	Straight Bore w/Vane (E Models)	106131xx	106131xx	—
-	Keyhole	106353xx	106353xx	106353xx
-	Spreader Nozzles			
8	Spreader 7 Degree	100225xx	—	—
8	Spreader 20 Degree	100226xx	—	—
9	Spreader Plug (W Models)	100255	—	—
	Vane (E Models Not Pictured)	105816	105816	—
BEARING ASSEMBLY				
11	Bearing Assembly	180712	177425	177425
12	Top Seal Washer (W=Wht/G=Grn) G (103709)		W (100313)	W (100313)
13	Metal Top Seal Washer	(100312)	(100312)	(100312)
14	Bearing Spring	(106237)	(106237)	(106237)
15	Bearing Sleeve	177511	177511	177511
16	Bearing Washer (Black)	(100726)	(100726)	(100726)
17	Wear Washer (White)	(104762)	(104762)	(104762)
18	Seal Washer (Black)	(100726)	(100726)	(100726)
19	Bearing Nipple	177517	177517	177517
10	Bearing Washer Kit	180703	177448	177448
12	Top Seal Washer (W=Wht/G=Grn) G (103709)		W (100313)	W (100313)
13	Metal Top Seal Washer	(100312)	(100312)	(100312)
14	Bearing Spring	(106237)	(106237)	(106237)
16	Bearing Washer (Black)	(100726)	(100726)	(100726)
17	Wear Washer (White)	(104762)	(104762)	(104762)
18	Seal Washer (Black)	(100726)	(100726)	(100726)

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



Ref.	Part Description	70CH / 70CHM
UPPER ASSEMBLY		
1	Fulcrum Kit	177420
2	Fulcrum Pin	(100348)
3	Arm Washer (2)	(100163)
4	Arm Spring Assembly	177532
5	Arm Spring	(100369)
NOZZLES (Specify nozzle size when ordering)		
6	Straight Bore	100382xx
7	Plug	100417
-	Bushing (3/8" MNPT x 1/8" FNPT)	100418
-	20 Degree Spreader Nozzle	100226-08
-	Body Vane (Not Shown)	100695
BEARING ASSEMBLY		
8	Bearing Assy (Female H Style)(NPT Assy)	177514
9	Bearing Hood	(103119)
10	Bearing Spring	(100620)
11	Metal Top Seal Washer	(100312)
12	Top Seal Washer (White)	(103115)
13	Bearing Sleeve (FNPT)	231071
14	Bearing Washer (Black)	(104038)
15	Wear Washer (Orange)	(104037)
16	Bearing Washer (Black)	(104038)
17	Bearing Nipple	177518
19	Bearing Washer Kit	177426
8	Bearing Assy (Male H Style)(NPT Assy)	177512
9	Bearing Hood	(103119)
10	Bearing Spring	(100620)
11	Metal Top Seal Washer	(100312)
12	Top Seal Washer (White)	(103115)
13	Bearing Sleeve (MNPT)	108725
14	Bearing Washer (Black)	(104038)
15	Wear Washer (Orange)	(104037)
16	Bearing Washer (Black)	(104038)
17	Bearing Nipple	177518
19	Bearing Washer Kit	177426
8	Bearing Assy (Female BSP Style)	177513
9	Bearing Hood	(103119)
10	Bearing Spring	(100620)
11	Metal Top Seal Washer	(100312)
12	Top Seal Washer (Black)	(103115)
13	Bearing Sleeve (FBSP)	231070
14	Bearing Washer (Black)	(104038)
15	Wear Washer (Orange)	(104037)
16	Bearing Washer (Black)	(104038)
17	Bearing Nipple	177518
19	Bearing Washer Kit	177426

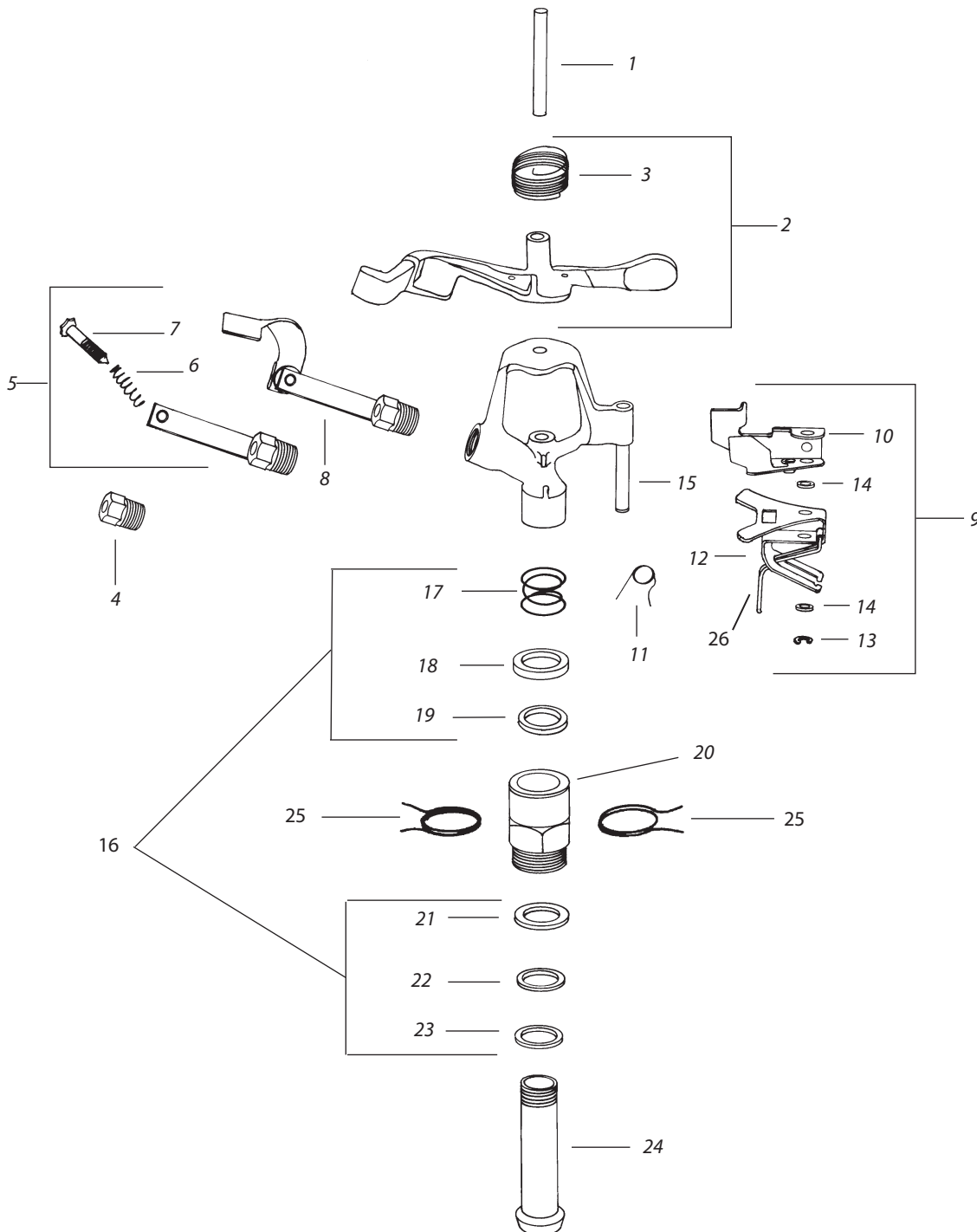
Note: Part numbers enclosed in brackets () are not available individually, but may be sold in assemblies or kits.



		25BPJ-FP	
Ref.	Part Description	25BPJ-FP-ADJ	ADJ-DA-TNT
UPPER ASSEMBLY			
1	Fulcrum Kit	177461	177461
2	Fulcrum Pin	(100793)	(100793)
3	PJ Arm Spring Assembly	177507	177507
4	Arm Spring (for PJ)	(104933)	(104933)
5	Adjustment Spring	100136	100136
6	Adjustment Pin	100203	100203
TRIP MECHANISM			
7	Upper Trip	(108994)	(108994)
8	Trip Spring	105720	105720
9	Lower Trip Assembly (FP)	(110124)	(110124)
10	Trip Lever	109484	109484
11	Trip Shaft	(104734)	(104734)
NOZZLES (Specify nozzle size when ordering)			
12	Nozzle & Vane Assembly	106160xx	106160xx
13	Nozzle	105780xx	105780xx
14	Vane	101618	101618
BEARING ASSEMBLY			
15	Bearing Assembly	106181	110950
16	Bearing Spring	—	(100182)
17	Skirted Top Seal (Black)	—	(100180)
18	PTFE Top Seal (White)	—	(100181)
19	Bearing Sleeve (B)	106183	177498
20	Bearing Washer (Black)	(104181)	(104181)
21	Wear Washer (White)	(104184)	(104696)
22	Bearing Nipple	104982	177503
23	Friction Collar, STD (A)	104906	104906

- (A) STD friction collars 104906 include Quantity 1 per kit.
(B) Two Collars included with Bearing Sleeve

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



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

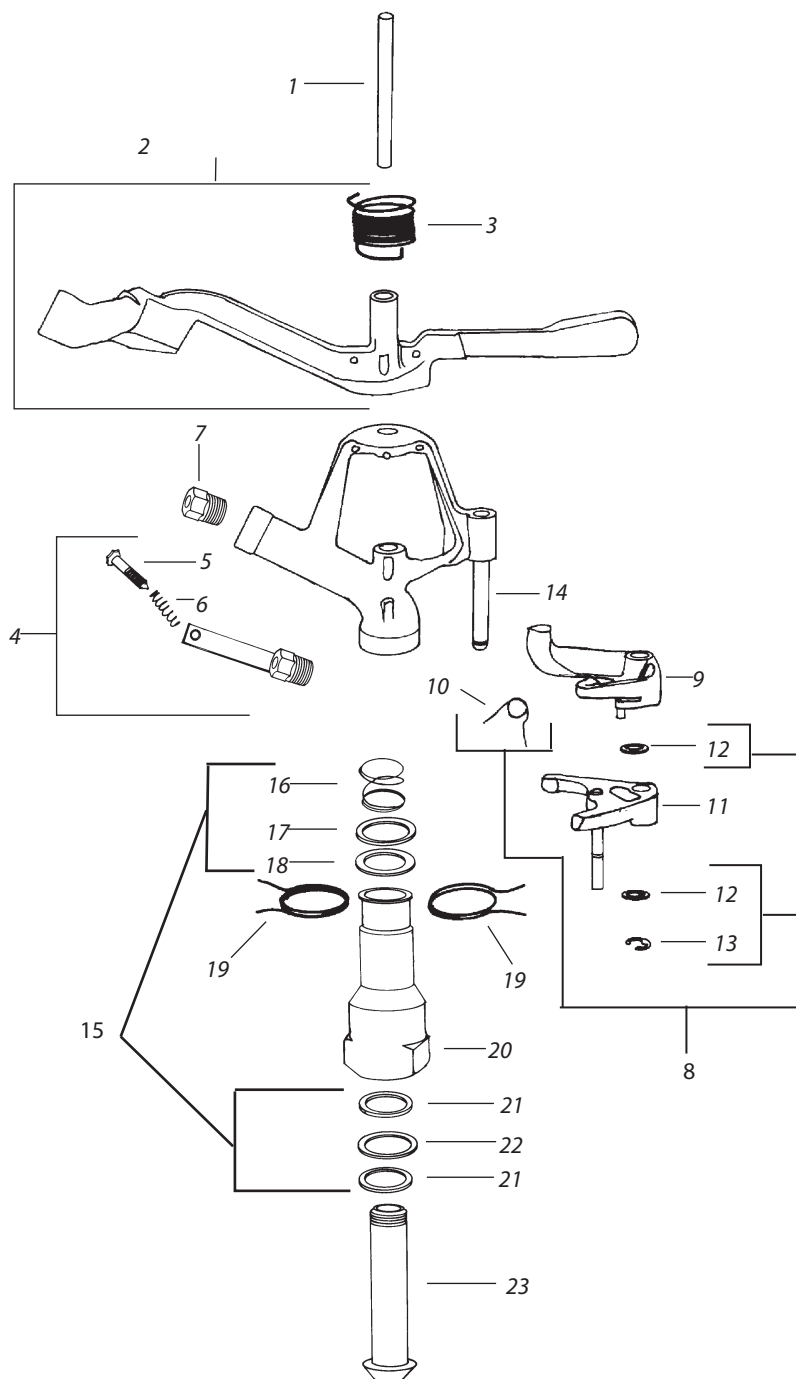
35A SERIES

Ref.	Part Description	35A-TNT	35A-ADJ-TNT	35A-PJDA-TNT	35A-PJADJ-TNT	35-A-PJ-TNT
UPPER ASSEMBLY						
1	Fulcrum Pin	177462	177462	177462	177462	177462
2	Arm Spring Assy, (PJ Pictured)	—	—	177469	177469	177469
3	Arm Spring	—	—	(100305)	(100305)	(100305)
2	Arm Spring Assy, STD	177468	177468	—	—	—
3	Arm Spring	(100305)	(100305)	—	—	—
NOZZLES (Specify nozzle size when ordering.)						
4	Standard Range Nozzle	105842xx	—	—	—	—
4	Keyhole Nozzle	106353xx	—	—	—	—
5	ADJ Nozzle Assembly	—	100328xx	—	100328xx	100328xx
6	Spring	—	100136	—	100136	100136
7	Pin—	—	100203	—	100203	100203
8	DA Nozzle	—	—	100332xx	—	—
TRIP MECHANISM						
9	Upper & Lower Trip Kit	114653	114653	114653	114653	114653
—	Trip Assembly, Upper with Trip Spring	(11386901)	(11386901)	(11386901)	(11386901)	(11386901)
10	Upper Trip	(11019201)	(11019201)	(11019201)	(11019201)	(11019201)
11	Trip Spring	100158	100158	100158	100158	100158
12	Trip Assembly, Lower	114318	114318	114318	114318	114318
13	E-Ring	231086	231086	231086	231086	231086
14	Spacer Washers (2)	100164	100164	100164	100164	100164
15	Trip Shaft	100320	100320	100320	100320	100320
26	Lever	110430	110430	110430	110430	110430
BEARING ASSEMBLY						
16	Bearing Washer Kit (New TNT Style)	177473	177473	177473	177473	177473
17	Bearing Spring	(240013)	(240013)	(240013)	(240013)	(240013)
18	Skirted Top Seal Washer (Black)	(240016)	(240016)	(240016)	(240016)	(240016)
19	Top Seal Washer (PTFE) (White)	(104762)	(104762)	(104762)	(104762)	(104762)
21	Bearing Washer (Black)	(100726)	(100726)	(100726)	(100726)	(100726)
22	Wear Washer (Orange)	(103058)	(103058)	(103058)	(103058)	(103058)
23	Bearing Washer, Seal (Gray)	(102345)	(102345)	(102345)	(102345)	(102345)
20	Bearing Sleeve	(A) 177466	(A) 177466	(A) 177466	(A) 177466	(A) 177466
24	Bearing Nipple	177504	177504	177504	177504	177504
25	Friction Collar, Wire	(B) 105773	(B) 105773	(B) 105773	(B) 105773	(B) 105773

(A) Bearing Sleeve Includes (2) Friction Trip Collars 105773

(B) Friction Collars 105773 include Quantity 1 per kit

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



Ref.	Part Description	65PJ-TNT	65PJADJ-TNT
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UPPER ASSEMBLY

1	Fulcrum Pin	100348	
2	Arm Spring Assembly PJ	177508	
3	Arm Spring	(100369)	

NOZZLES (Specify nozzle size when ordering)

4	ADJ Nozzle Assembly	10038516	
5	Pin	(100203)	
6	Spring	(100136)	
7	Range Nozzle	100382xx	

TRIP MECHANISM

9	Upper Trip Arm	100370	
11	Lower Trip Arm	100373	
8	Trip Hardware Kit	179991	
10	Trip Spring	(231079)	
12	Spacer Washer (2)	(231077)	
13	E-Ring	(231078)	
14	Trip Shaft	(100365)	

BEARING ASSEMBLY

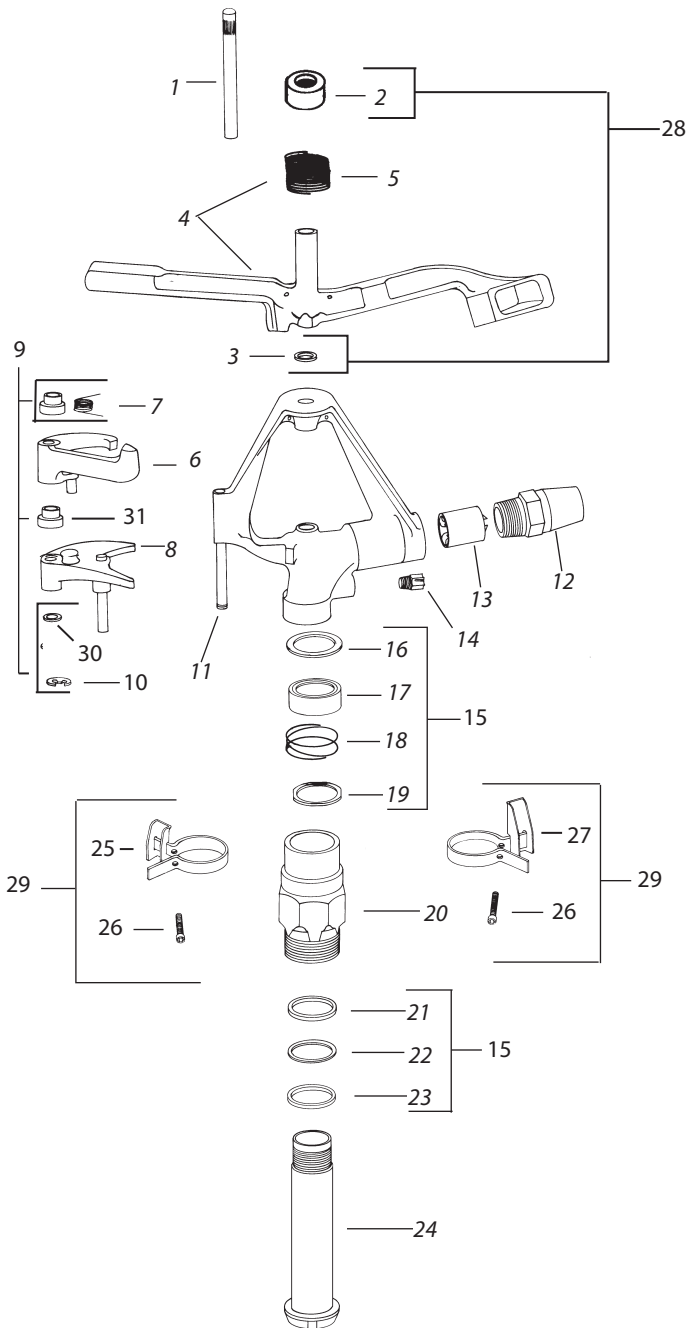
15	Bearing Washer Kit	177475	
16	Bearing Spring	(231064)	
17	Metal Top Seal Washer	(231063)	
18	Top Seal Washer (White)	(100313)	
21	Bearing Washer (2) (Black)	(104038)	
22	Wear Washer (Orange)	(104037)	
19	Friction (Trip) Collar	(B) 105774	
20	Bearing Sleeve (FNPT)	177500	
20	Bearing Sleeve (BSP)	177499	
23	Bearing Nipple	177518	

(A) 65D arm is no longer available, use current PJ arm.

(B) Friction Trip Collars available individually or with sleeve.

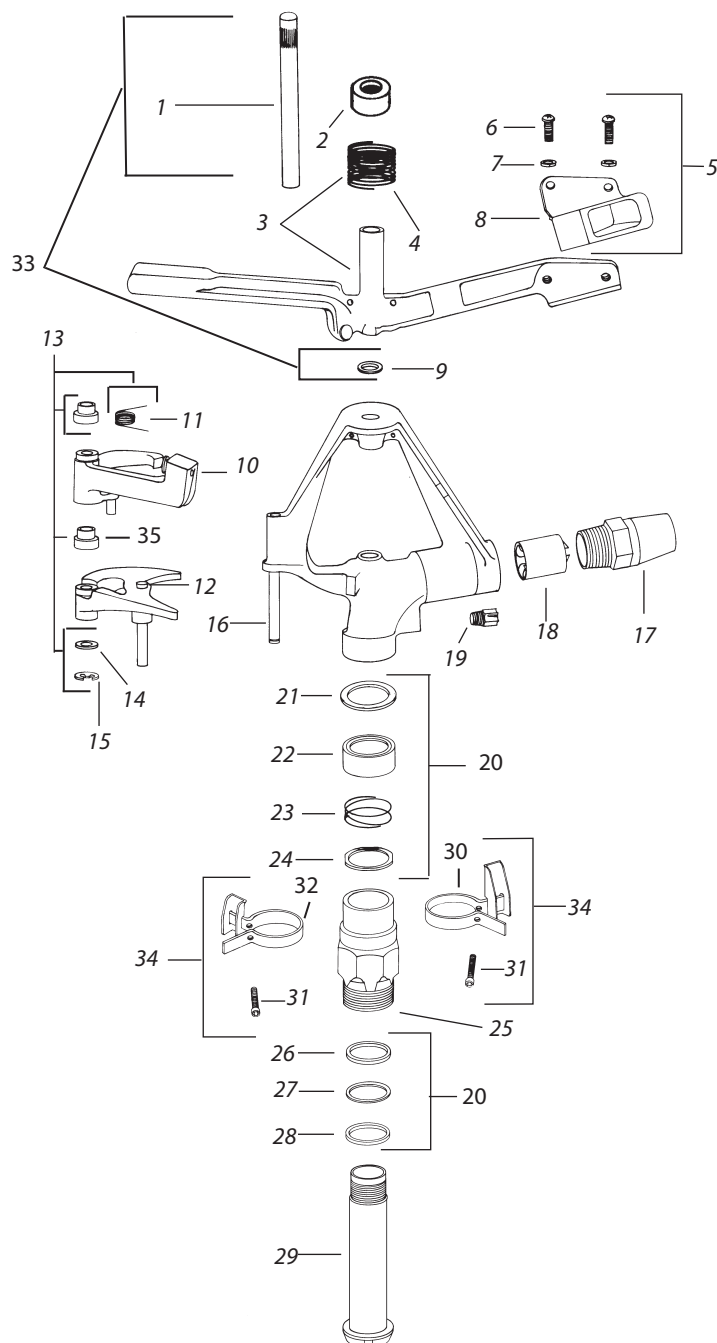
Kit 105774 includes Quantity of 1

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



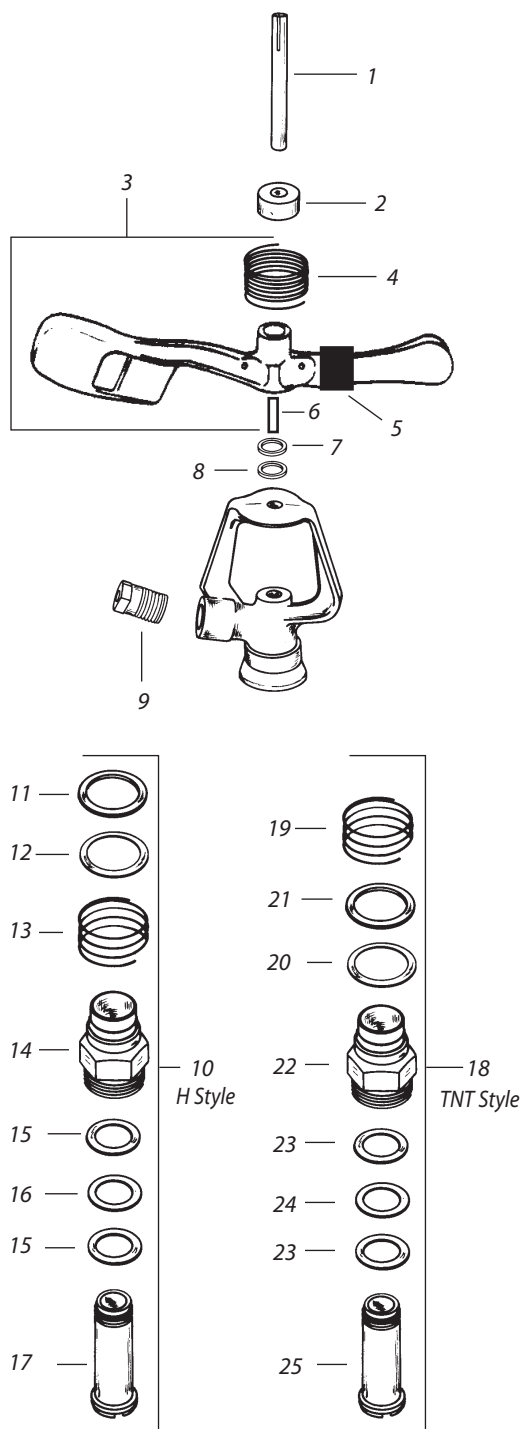
Ref.	Part Description	85EHD	85EHD-BSP
UPPER ASSEMBLY			
28	Fulcrum Kit	177421	177421
1	Fulcrum Pin	(100430)	(100430)
2	Arm Hood	(108556)	(108556)
3	Arm Washer (2)	(100432)	(100432)
4	Arm Spring Assembly	177470	177470
5	Arm Spring	(100431)	(100431)
TRIP MECHANISM			
6	Trip Arm, Upper	108318	108318
8	Trip Arm, Lower	111129	111129
9	Trip Hardware Kit	179992	179992
7	Trip Spring	(112858)	(112858)
10	E-Ring	(231078)	(231078)
30	Spacer Washer	(231077)	(231077)
31	Trip Hood (2)	(111812)	(111812)
11	Trip Shaft	(108321)	(108321)
NOZZLES (Specify nozzle size when ordering)			
12	Range Nozzle	103043xx	103043xx
13	Body Vane	101275	101275
12	Low Pressure Nozzle	108149xx	108149xx
14	20 Deg. Spreader Nozzle	100226-14	—
—	Nozzle Plug	100255	—
15	Bearing Washer Kit	177474	177474
16	Seal Washer, Upper	(104638)	(104638)
17	Bearing Hood	(113098)	(113098)
18	Bearing Spring	(100449)	(100449)
19	Wear Washer, Top (Black)	(113309)	(113309)
21	Bearing Washer (Black)	(113099)	(113099)
22	Wear Washer (Orange)	(104639)	(104639)
23	Bearing Washer, Seal	(113100)	(113100)
20	Bearing Sleeve	177515	177467
24	Bearing Nipple	177506	177506
29	Collar Kit	179993	179993
25	Friction Collars (Top)	(107959)	(107959)
26	Screw (2)	(111126)	(111126)
27	Friction Collars (Bottom)	(107960)	(107960)

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



Ref.	Part Description	85EHD-LA	85EHD-LA-BSP
UPPER ASSEMBLY			
33	Fulcrum Kit	177421	177421
1	Fulcrum Pin	(100430)	(100430)
9	Washer	(100432)	(100432)
2	Hood Arm	(108556)	(108556)
3	Arm Spring Assy HD (With Spoon)	177471	177471
4	Arm Spring	(100431)	(100431)
5	Detachable Spoon Kit HD	113878	113878
6	Screw (2)	(111204-02)	(111204-02)
7	Washer (2)	(111809)	(111809)
8	Spoon	(111804)	(111804)
TRIP MECHANISM			
10	Trip Arm, Upper	108318	108318
12	Trip Arm, Lower	111129	111129
13	Trip Hardware Kit	179992	179992
11	Trip Spring	(112858)	(112858)
14	Spacer Washer	(231077)	(231077)
15	E-Ring	(231078)	(231078)
35	Trip Hood (2)	(111812)	(111812)
16	Trip Shaft	(108321)	(108321)
NOZZLES (Specify nozzle size when ordering)			
17	Range Nozzle	103043xx	103043xx
18	Body Vane	101275	101275
18	Low Pressure Nozzle	108149xx	108149xx
19	Spreader Nozzle, 20Deg. (85ES)	—	—
BEARING ASSEMBLY			
20	Bearing Washer Kit	177474	177474
21	Seal Washer	(104638)	(104638)
22	Bearing Hood (Black)	(113098)	(113098)
23	Bearing Spring	(100449)	(100449)
24	Wear Washer, Top (Black)	(113309)	(113309)
26	Bearing Washer (Black)	(113099)	(113099)
27	Wear Washer (Orange)	(104639)	(104639)
28	Bearing Washer, Seal (Gray)	(113100)	(113100)
25	Bearing Sleeve	177515	177467
29	Bearing Nipple	177506	177506
34	Collar Kit	179993	179993
30	Friction Collars (Top)	(107959)	(107959)
31	Screw (2)	(111126)	(111126)
32	Friction Collars (Bottom)	(107960)	(107960)

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



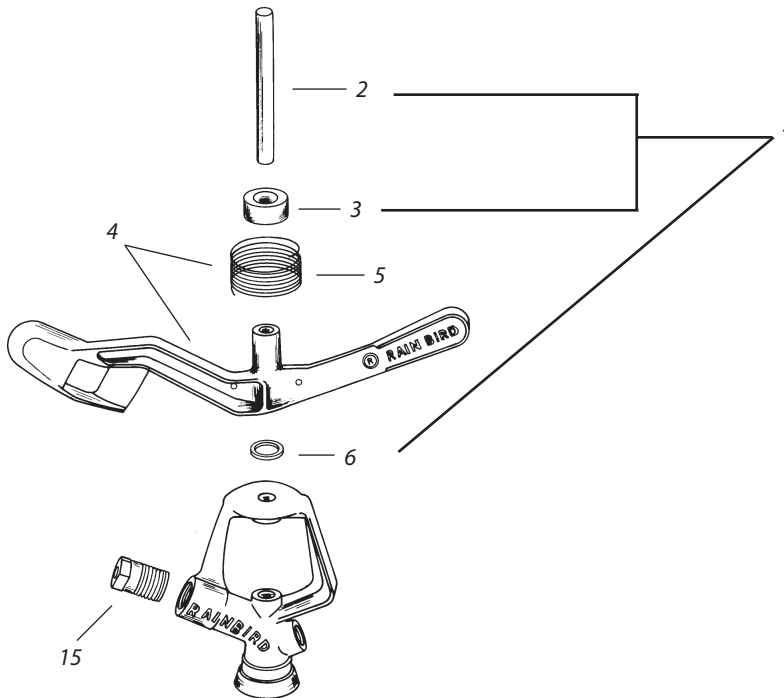
Ref.	Part Description	20AH 20A TNT ALUM	20AH PM ALUM	20AH 20A TNT (C) BRONZE
UPPER ASSEMBLY				
1	Fulcrum Pin	100793	100793	100793
2	Arm Hood	100775	100775	100775
3	Arm Spring Assembly	115306	115306	(102254)
4	Arm Spring	100172	100172	100133
5	Arm Bumper (Since 93/94)	101156	101156	101156
5	Arm Bumper (Old Style round arm)	101156	101156	101156
6	Arm Bushing	111731	111731	-
7	Arm Washer	100173	100173	100173
8	Arm Wear Washer	103080	103080	-
NOZZLES (Specify nozzle size when ordering)				
9	Straight Bore	105780	105780	105780
-	Low Angle 5 Degree	104590	104590	-
-	Low Angle 7 Degree	100225	100225	100225
-	Low Angle 12 Degree	100622	100622	100622
-	Low Angle 20 Degree	100226	100226	100226
-	Low Angle 23 Degree	100227	100227	100227
-	Low Pressure 0 Degree	104571	-	-
-	Plastic Quick Fit SBN (B)	117324	117324	-
BEARING ASSEMBLY				
10	Bearing Assembly (H Style)	118343	104792	(108963)
11	Top Seal Washer (Black)	104183	104183	104183
12	Metal Top Seal Washer	100280	100280	100280
13	Bearing Spring	105431	105431	100272
14	Bearing Sleeve (Brass)	104153	-	104153
14	Bearing Sleeve (Plastic)	-	(104631)	-
15	Bearing Washer (2) (Black)	104181	104181	104181
16	Wear Washer (O-Orange, W-White) (W)	104696	(W)104696	(O)104184
17	Bearing Nipple	102020	102020	102020
Bearing Assembly (Old TNT Style) (A)				
19	Bearing Spring	100182	-	100182
20	Skirted Top Seal Washer (Black)	100180	-	100180
21	Top Seal Washer (White)	100181	-	100181
22	Bearing Sleeve (A)	(A)	-	(A)
23	Wearing Ring (T-Ring)(Orange)	(102704)	-	(102704)
24	Bearing Washer (Black)	104181	-	104181
25	Bearing Nipple	100178	-	100178
Bearing Assembly (TNT Replacment)				
18	Bearing Assembly (TNT Replacment)	110949	-	110949
19	Bearing Spring	100182	-	100182
20	Skirted Top Seal Washer (Black)	100180	-	100180
21	Top Seal Washer (White)	100181	-	100181
22	Bearing Sleeve (A)	(A)	-	(A)
23	Bearing Washer (2) (Black)	104181	-	104181
24	Wear Washer (Orange)	104184	-	104184
25	Bearing Nipple	100178	-	100178

(A) Bearing sleeve not available. Use 110949 Bearing Assembly.

(B) To be used with 117312 Quick Fit Connector.

(C) Not available; no replacement

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



Ref.	Part Description	29JH
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UPPER ASSEMBLY

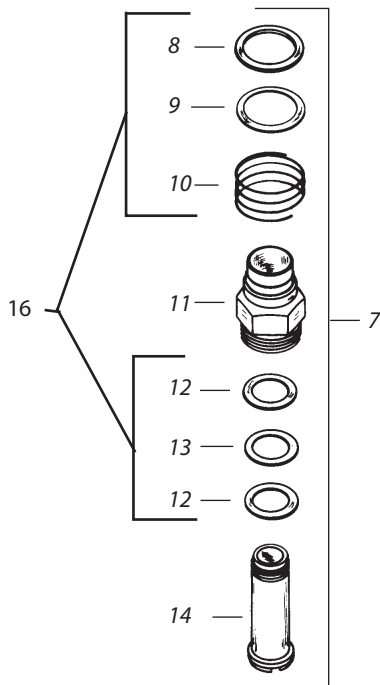
1	Fulcrum Kit	177417
2	Fulcrum Pin	(100271)
3	Arm Hood	(100968)
6	Arm Washer	(100270)
4	Arm Spring Assembly	177526
5	Arm Spring	(231061)

NOZZLES (Specify nozzle size when ordering)

15	Straight Bore	105842xx
-	Straight Bore/w Vane	106131xx
-	Keyhole	106353xx

BEARING ASSEMBLY (H Style)

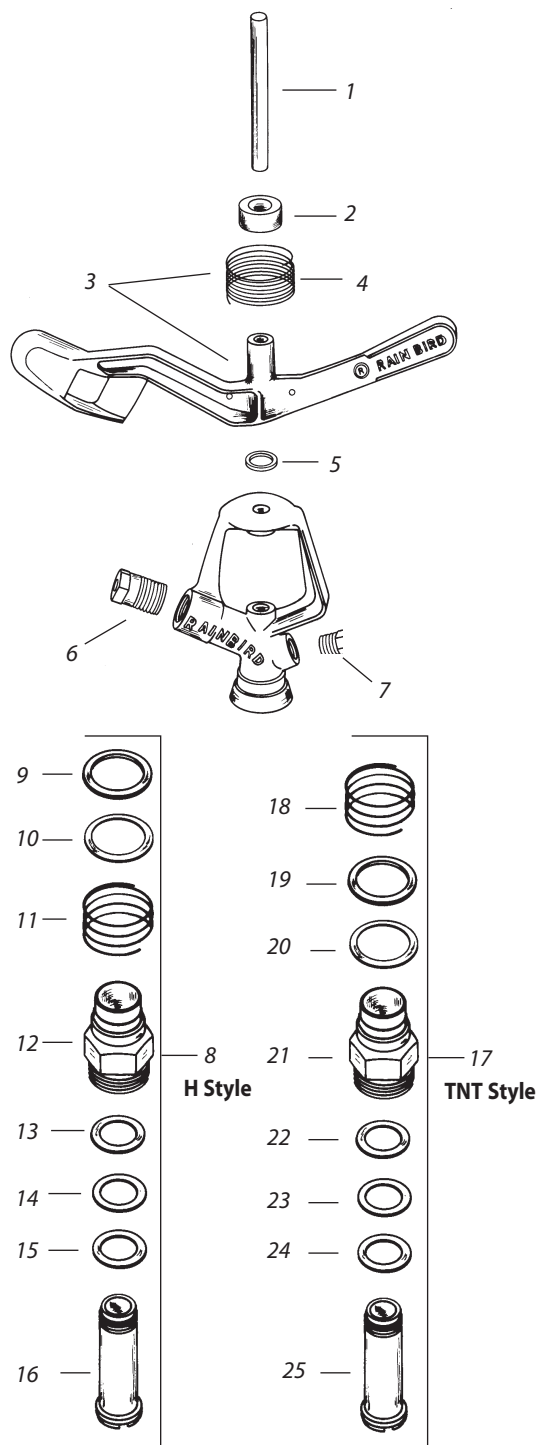
7	Bearing Assembly	104919
8	Top Seal Washer (White)	(100279)
9	Metal Top Seal Washer	(100280)
10	Bearing Spring	(100272)
11	Bearing Sleeve (Brass)	177510
12	Bearing Washer (2) (Black)	(104181)
13	Wear Washer (Orange)	(104184)
14	Bearing Nipple	177516
16	Bearing Washer Kit	179990
8	Top Seal Washer (White)	(100279)
9	Metal Top Seal Washer	(100280)
10	Bearing Spring	(100272)
12	Bearing Washer (2) (Black)	(104181)
13	Wear Washer (Orange)	(104184)



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

30B TNT / 30BW TNT / 30BH

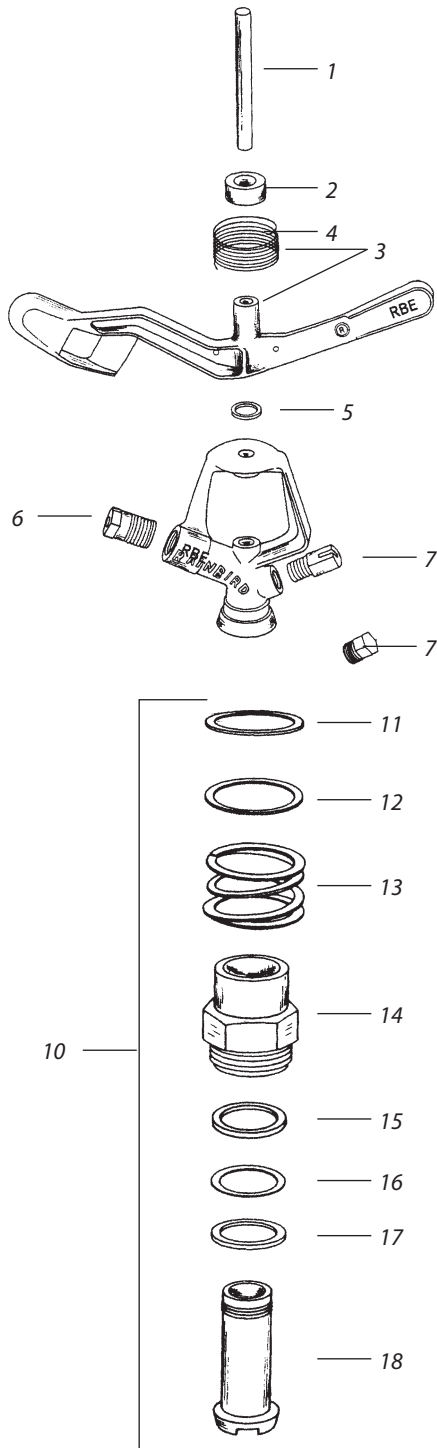
30BEH / 30BWH / 30BEWH



Ref.	Part Description	30B TNT 30BW TNT	30B H 30BE H 30BW H 30BEW H
UPPER ASSEMBLY			
1	Fulcrum Pin	100271	100271
2	Arm Hood	100968	100968
3	Arm Spring Assembly	104236	104236
4	Arm Spring	100305	100305
5	Arm Washer	100270	100270
NOZZLES (Specify nozzle size when ordering)			
6	Straight Bore	105842	105842
-	Straight Bore w/Vane (E Model)	-	106131
-	Keyhole	106353	106353
7	Spreader 7 Degree	100225	100225
7	Spreader 20 Degree	100226	100226
-	Rain Flow	111089	111089
7	Spreader Plug (W Model)	100255	100255
-	Vane (E Model)	105816	105816
BEARING ASSEMBLY			
8	Bearing Assembly (H Style)	104761	104761
9	Top Seal Washer (White)	100313	100313
10	Metal Top Seal Washer	100312	100312
11	Bearing Spring	106237	106237
12	Bearing Sleeve	103670	103670
13	Bearing Washer (Black)	100726	100726
14	Wear Washer (White)	104762	104762
15	Seal Washer (Gray)	102345	102345
16	Bearing Nipple	103669	103669
17	Bearing Assembly (Old TNT Style)	(A)	
18	Bearing Spring	106237	-
19	Top Seal Washer (White)	100313	-
20	Metal Top Seal Washer	100312	-
21	Bearing Sleeve	(A) (102486)	-
22	Wear Washer (T-Ring)(Orange)	102076	-
23	Bearing Washer (Black)	100726	-
24	Seal Washer (Gray)	102345	-
25	Bearing Nipple	(A) (100316)	-

(A) Not Available. Use Bearing Assembly # 104761. (H Style)

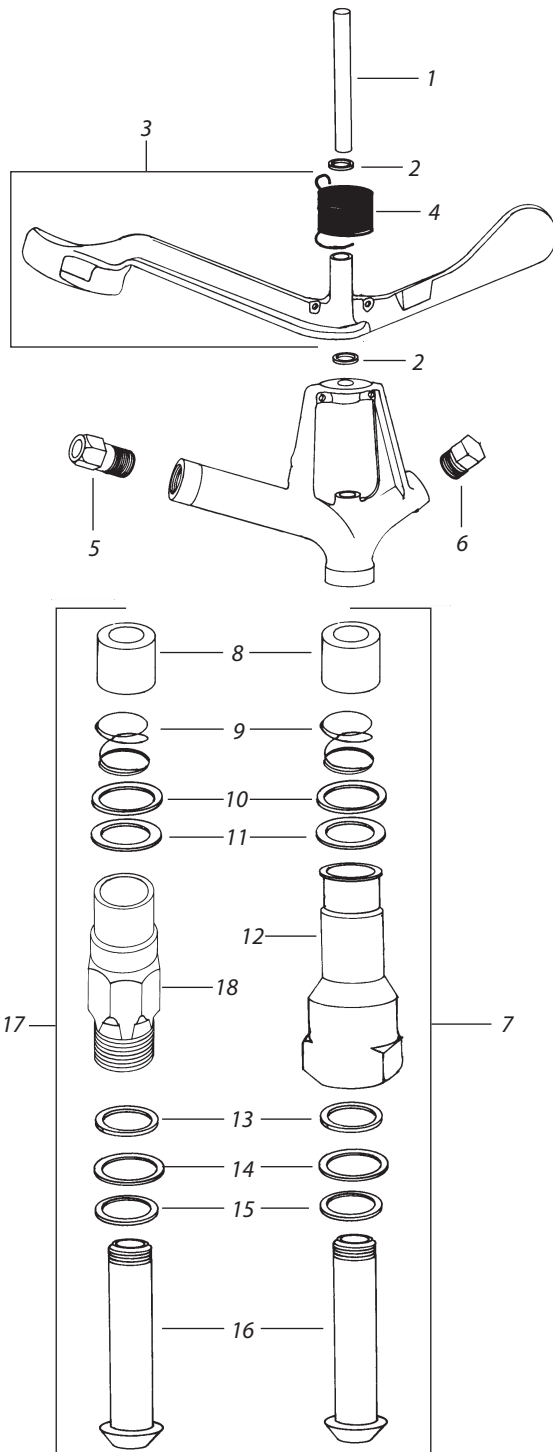
Note: Part numbers enclosed in brackets () are not available individually, but may be sold in assemblies or kits.



Ref.	Part Description	30IBH 30IEBH
UPPER ASSEMBLY		
1	Fulcrum Pin	100271
2	Arm Hood	100968
3	Arm Spring Assembly	104236
4	Arm Spring	100305
5	Arm Washer	100270
NOZZLES (Specify nozzle size when ordering)		
6	Straight Bore w/Vane	106131
7	Spreader 7 Degree	100225
7	Spreader 20 Degree	100226
7	Spreader Plug (W Model)	100255
BEARING ASSEMBLY		
10	Bearing Assembly (Standard H Style)	104152
11	Top Seal Washer	103709
12	Metal Top Seal Washer	100312
13	Bearing Spring	106237
14	Bearing Sleeve	103670
15	Bearing Washer (Black)	100726
16	Wear Washer (T-Ring) (Orange)	103058
17	Seal Washer (Gray)	102345
18	Bearing Nipple	103669

Consult current Agricultural Equipment Price List.

70EH / 70 E TNT / 70EWH / 70EW TNT / 70ESPH
70ESP TNT / 70CWH / 70CW TNT / 70CSPH / 70CSP TNT



		70EWH 70EW TNT	70CWH 70CW TNT	
Ref.	Part Description	70EH 70E TNT	70ESPH 70ESP TNT	70CSPH 70CSP TNT
UPPER ASSEMBLY				
1	Fulcrum Pin	100348	100348	100348
2	Arm Washer (2)	100163	100163	100163
3	Arm Spring Assembly (A)	—	105879	105879
4	Arm Spring	100369	100369	100369
NOZZLES (Specify nozzle size when ordering)				
5	Straight Bore	100382	100382	100382
6	Plug	—	100417	100417
—	Bushing	—	100418	100418
—	20 Degree Spreader Nozzle	—	100226-08	100226-08
—	Spreader Nozzle Assembly	(100407)	—	—
—	Body Vane	100695	100695	100695
BEARING ASSEMBLY				
7	Bearing Assy (Female H Style)(NPT Assy)	104041	104041	104041
8	Bearing Hood	103119	103119	103119
9	Bearing Spring	100620	100620	100620
10	Metal Top Seal Washer	100312	100312	100312
11	Top Seal Washer (White)	103115	103115	103115
12	Bearing Sleeve (NPT)	105907	104040	104040
13	Bearing Washer (Black)	104038	104038	104038
14	Wear Washer (Orange)	104037	104037	104037
15	Bearing Washer (Black)	104038	104038	104038
16	Bearing Nipple	100390	100390	100390
17	Bearing Assy (Male H Style)(NPT Assy)	108726	108726	108726
8	Bearing Hood	103119	103119	103119
9	Bearing Spring	100620	100620	100620
10	Metal Top Seal Washer	100312	100312	100312
11	Top Seal Washer (White)	103115	103115	103115
18	Bearing Sleeve	(108725)	(108725)	(108725)
13	Bearing Washer (Black)	104038	104038	104038
14	Wear Washer (Orange)	104037	104037	104037
15	Bearing Washer (Black)	104038	104038	104038
16	Bearing Nipple	100390	100390	100390
—	Bearing Assy (Male or Female TNT Style)			
8	Bearing Hood	103119	103119	103119
9	Bearing Spring	100620	100620	100620
10	Metal Top Seal Washer	100312	100312	100312
11	Top Seal Washer (Black)	103115	103115	103115
12\18	Bearing Sleeve	(B)	(B)	(B)
13	Wearing Ring (T-Ring)(Orange)	100389	100389	100389
14	Bearing Seal Washer (Black)	101323	101323	101323
15	Wear Washer (Black)	104038	104038	104038
16	Bearing Nipple	100390	100390	100390

(A) Old style 70E arm is not available. Only replacement is 70EW arm spring # (102562).

(B) When replacing older TNT style bearing sleeve use MALE

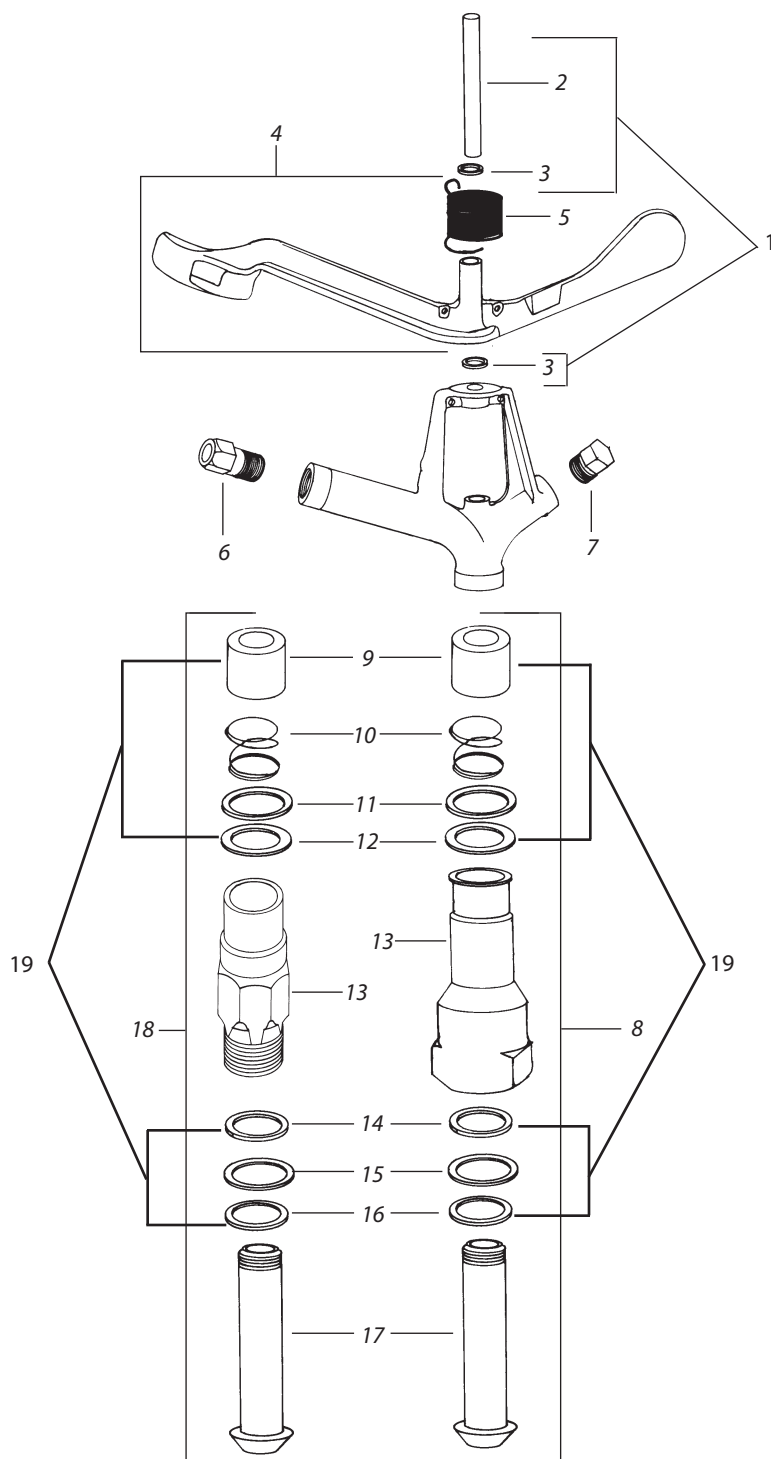
H bearing assembly

P/N 108726, or use FEMALE H bearing sleeve P/N 104040(NPT) or (104070)(BSP).

With H bearing sleeve also install 2 washers P/N 104038 and 1 washer P/N 104037.

Call Ag customer service to order parts at 1-800-435-5624.

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



Ref.	Part Description	70CH / 70CHM
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UPPER ASSEMBLY

1	Fulcrum Kit	177420
2	Fulcrum Pin	(100348)
3	Arm Washer (2)	(100163)
4	Arm Spring Assembly	177532
5	Arm Spring	(100369)

NOZZLES (Specify nozzle size when ordering)

6	Straight Bore	100382xx
7	Plug	100417
-	Bushing (3/8" MNPT x 1/8" FNPT)	100418
-	20 Degree Spreader Nozzle	100226-08
-	Body Vane (Not Shown)	100695

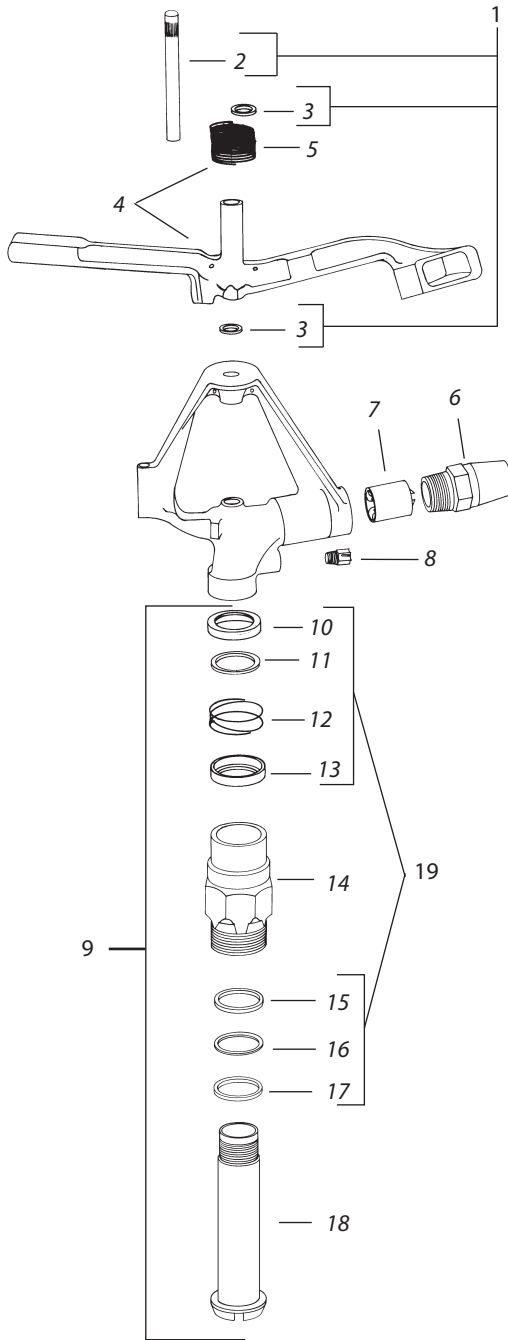
BEARING ASSEMBLY

8	Bearing Assy (Female H Style)(NPT Assy)	177514
9	Bearing Hood	(103119)
10	Bearing Spring	(100620)
11	Metal Top Seal Washer	(100312)
12	Top Seal Washer (White)	(103115)
13	Bearing Sleeve (FNPT)	231071
14	Bearing Washer (Black)	(104038)
15	Wear Washer (Orange)	(104037)
16	Bearing Washer (Black)	(104038)
17	Bearing Nipple	177518
19	Bearing Washer Kit	177426

18	Bearing Assy (Male H Style)(NPT Assy)	177512
9	Bearing Hood	(103119)
10	Bearing Spring	(100620)
11	Metal Top Seal Washer	(100312)
12	Top Seal Washer (White)	(103115)
13	Bearing Sleeve (MNPT)	108725
14	Bearing Washer (Black)	(104038)
15	Wear Washer (Orange)	(104037)
16	Bearing Washer (Black)	(104038)
17	Bearing Nipple	177518
19	Bearing Washer Kit	177426

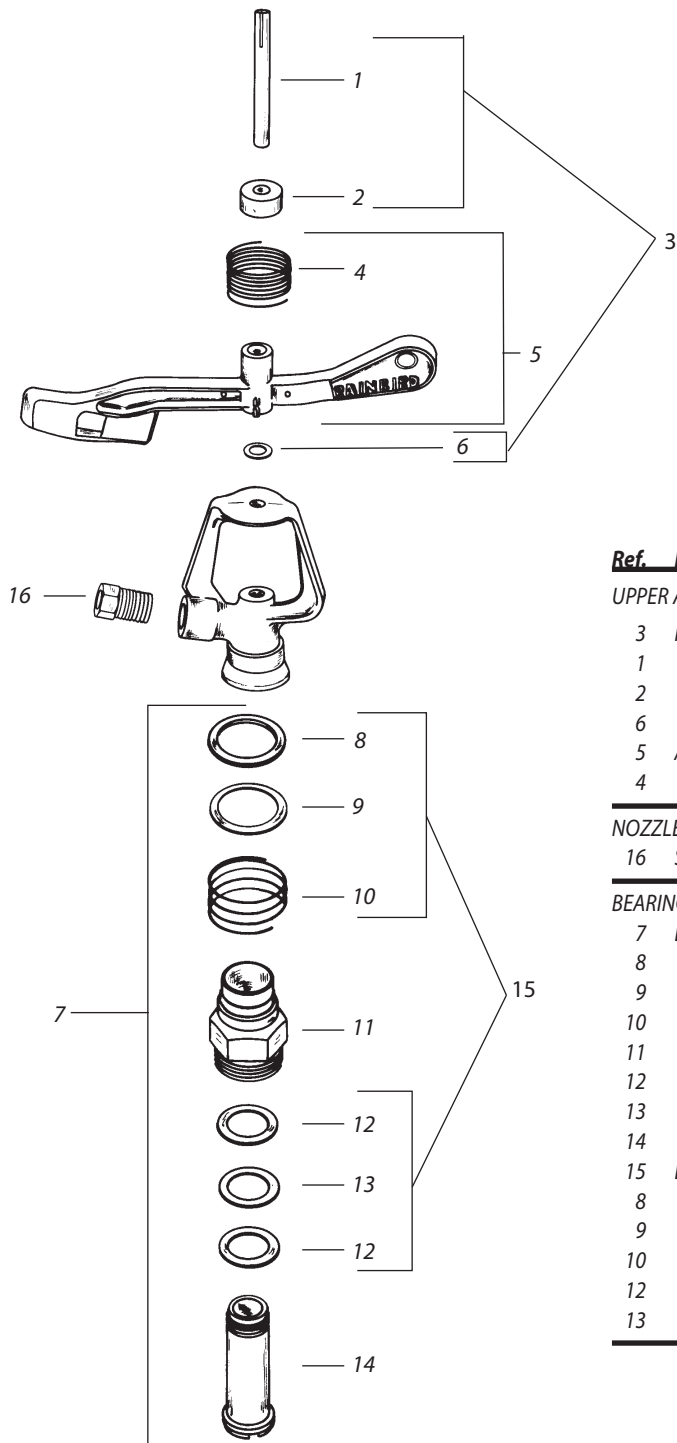
8	Bearing Assy (Female BSP Style)	177513
9	Bearing Hood	(103119)
10	Bearing Spring	(100620)
11	Metal Top Seal Washer	(100312)
12	Top Seal Washer (Black)	(103115)
13	Bearing Sleeve (FBSP)	231070
14	Bearing Washer (Black)	(104038)
15	Wear Washer (Orange)	(104037)
16	Bearing Washer (Black)	(104038)
17	Bearing Nipple	177518
19	Bearing Washer Kit	177426

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



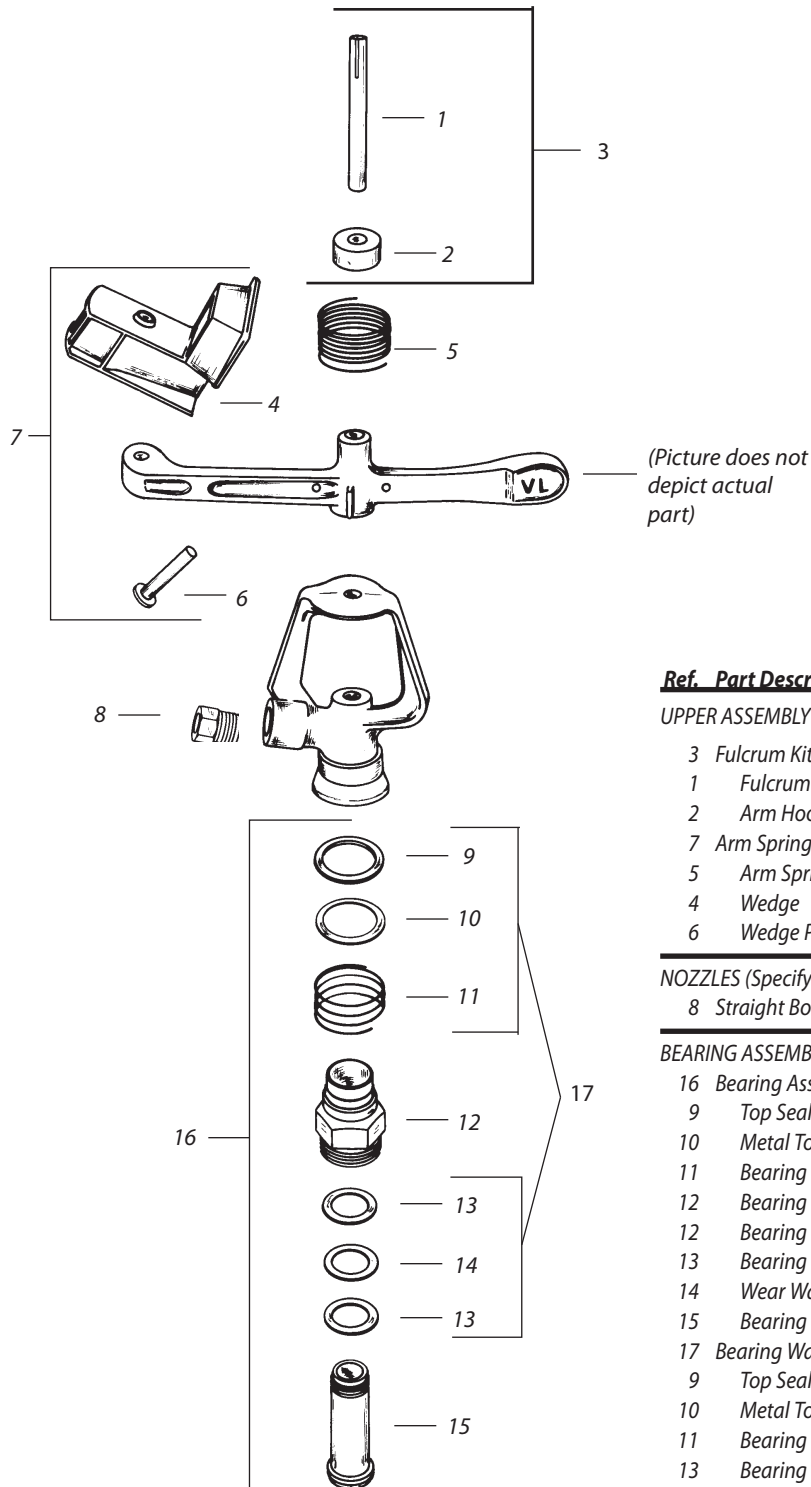
Ref.	Part Description	80EHD	80EHD-LA	80EHD-BSP
UPPER ASSEMBLY				
1	Fulcrum Kit	177421	177421	177421
2	Fulcrum Pin	(100430)	(100430)	(100430)
3	Arm Washer (2)	(100432)	(100432)	(100432)
4	Arm Spring Assembly	177533	177533	177533
5	Arm Spring	(100431)	(100431)	(100431)
NOZZLES (Specify nozzle size when ordering)				
6	Range Nozzle	103043xx	103043xx	103043xx
7	Nozzle Vane	101275	101275	101275
8	Spreader 20 Degree	100226-14	—	100226-14
—	Plug	100255	—	100255
BEARING ASSEMBLY				
9	Bearing Assembly (H Style)	177427	177427	118039
10	Top Seal Washer, Upper (Black)	(113100)	(113100)	(113100)
11	Hood Bearing	(113098)	(113098)	(113098)
12	Bearing Spring	(100449)	(100449)	(100449)
13	Top Seal Washer, Lower (Black)	(113309)	(113309)	(113309)
14	Bearing Sleeve	177515	177515	177467
15	Bearing Washer (Black)	(113099)	(113099)	(113099)
16	Wear Washer (Orange)	(104639)	(104639)	(104639)
17	Bearing Washer, Seal (Black)	(104638)	(104638)	(104638)
18	Bearing Nipple	177506	177506	177506
19	Bearing Washer Kit	177474	177474	177474
10	Top Seal Washer, Upper (Black)	(113100)	(113100)	(113100)
11	Hood Bearing	(113098)	(113098)	(113098)
12	Bearing Spring	(100449)	(100449)	(100449)
13	Top Seal Washer, Lower (Black)	(113309)	(113309)	(113309)
15	Bearing Washer (Black)	(113099)	(113099)	(113099)
16	Wear Washer (Orange)	(104639)	(104639)	(104639)
17	Bearing Washer, Seal (Black)	(104638)	(104638)	(104638)

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



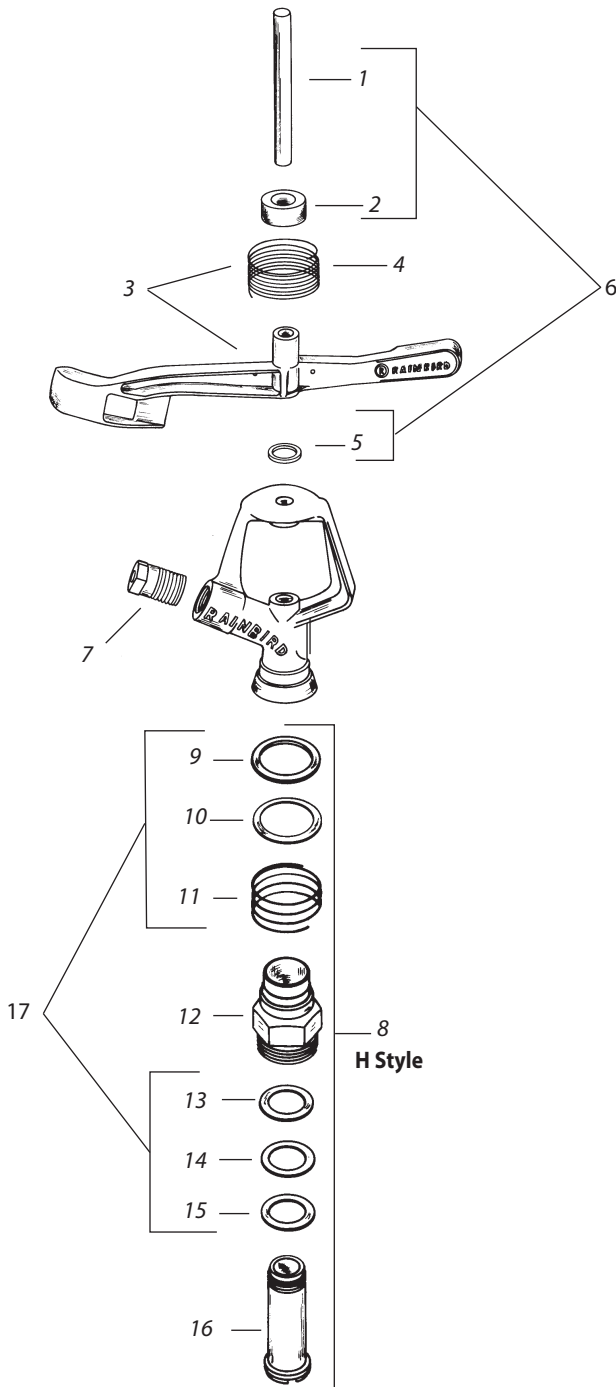
Ref.	Part Description	L20H
UPPER ASSEMBLY		
3	Fulcrum Kit	177415
1	Fulcrum Pin	(100793)
2	Arm Hood	(100775)
6	Arm Washer	(100173)
5	Arm Spring Assembly	177522
4	Arm Spring	(100172)
NOZZLES (Specify nozzle size when ordering)		
16	Straight Bore	105780xx
BEARING ASSEMBLY		
7	Bearing Assembly	177422
8	Top Seal Washer (White)	(100279)
9	Metal Top Seal Washer	(100280)
10	Bearing Spring	(105431)
11	Bearing Sleeve (Brass)	177510
12	Bearing Washer (2) (Black)	(104181)
13	Wear Washer (White)	(104696)
14	Bearing Nipple	177516
15	Bearing Washer Kit	177445
8	Top Seal Washer (White)	(100279)
9	Metal Top Seal Washer	(100280)
10	Bearing Spring	(105431)
12	Bearing Washer (2) (Black)	(104181)
13	Wear Washer (White)	(104696)

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



Ref.	Part Description	L20VH	M20VH-PM
UPPER ASSEMBLY			
3	Fulcrum Kit	177415	177415
1	Fulcrum Pin	(100793)	(100793)
2	Arm Hood	(100775)	(100775)
7	Arm Spring Assembly	177523	177523
5	Arm Spring	(100172)	(100172)
4	Wedge	(111188)	(111188)
6	Wedge Pin	116046	116046
NOZZLES (Specify nozzle size when ordering)			
8	Straight Bore	105780xx	105780xx
BEARING ASSEMBLY			
16	Bearing Assembly (Complete)	177535	177423
9	Top Seal Washer (Black)	(104183)	(104183)
10	Metal Top Seal Washer	(100280)	(100280)
11	Bearing Spring	(105431)	(105431)
12	Bearing Sleeve (Brass)	177510	-
12	Bearing Sleeve (Plastic)	-	177509
13	Bearing Washer (2) (Black)	(104181)	(104181)
14	Wear Washer (White)	(104696)	(104696)
15	Bearing Nipple	177516	177516
17	Bearing Washer Kit	177536	177536
9	Top Seal Washer (Black)	(104183)	(104183)
10	Metal Top Seal Washer	(100280)	(100280)
11	Bearing Spring	(105431)	(105431)
13	Bearing Washer (2) (Black)	(104181)	(104181)
14	Wear Washer (White)	(104696)	(104696)

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



Ref.	Part Description	L3030H
UPPER ASSEMBLY		
6	Fulcrum Kit	177419
1	Fulcrum Pin	(100271)
2	Arm Hood	(100968)
5	Arm Washer	(100270)
3	Arm Spring Assembly	177528
4	Arm Spring	(231061)
NOZZLES (Specify nozzle size when ordering)		
7	Straight Bore	105842xx
-	Plug	100289
BEARING ASSEMBLY		
8	Bearing Assembly	177424
9	Top Seal Washer (Green)	(103709)
10	Metal Top Seal Washer	(100312)
11	Bearing Spring	(106237)
12	Bearing Sleeve	177511
13	Bearing Washer (Black)	(100726)
14	Wear Washer (Orange)	(103058)
15	Seal Washer (Gray)	(102345)
16	Bearing Nipple	177517
17	Bearing Washer Kit	177447
9	Top Seal Washer (Green)	(103709)
10	Metal Top Seal Washer	(100312)
11	Bearing Spring	(106237)
13	Bearing Washer (Black)	(100726)
14	Wear Washer (Orange)	(103058)
15	Seal Washer (Gray)	(102345)

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