AMERICA WEST LANDSCAPE, INC

Robert E Ryan. Community Park

Operations & Maintenance Manual

Version 1.0A

7/11/2011

Robert E Ryan Community Park

City of Rancho Palos Verdes

O&M VERSION: 0.1A

America West Landscape, Inc. 15086 La Palma Dr. Chino, CA 91710 Phone: (909) 393-6300 Fax: (909) 393-6863

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MATERIAL

Guarantee's

America West Landscape, Inc. 15086 La Palma Dr. Chino, CA 91710 Phone: (909) 393-6300 Fax: (909) 393-6863

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Contractor:

America West Landscape, Inc
15086 La Palma Dr, Chino CA 91710
(909) 393-6300

Subcontractor:

Hydro Sprout
460-A Corporate Drive, Escondido, CA 92029
(760) 432-8233

Fensco
697 Wilson Place, Monterey Park CA 91755
(626) 230-3039

Major Suppliers:

Gail Materials
10060 Dawson Canyon Rd, Corona CA 92883
(951) 667-6106

Tomark Sports
P.O. Box 1088, Corona, CA 92878
(800) 884-7270

Imperial Sprinkler Supply
1485 N. Manassero St, Anaheim CA 92807
(714) 792-2920

AMERICA WEST LANDSCAPE, INC.
15086 La Palma Dr.
Chino, CA 91710

Equipment Operations

Section 3.36

JOB NAME: Robert E Ryan Community Park

JOB LOCATION: City of Rancho Palos Verdes

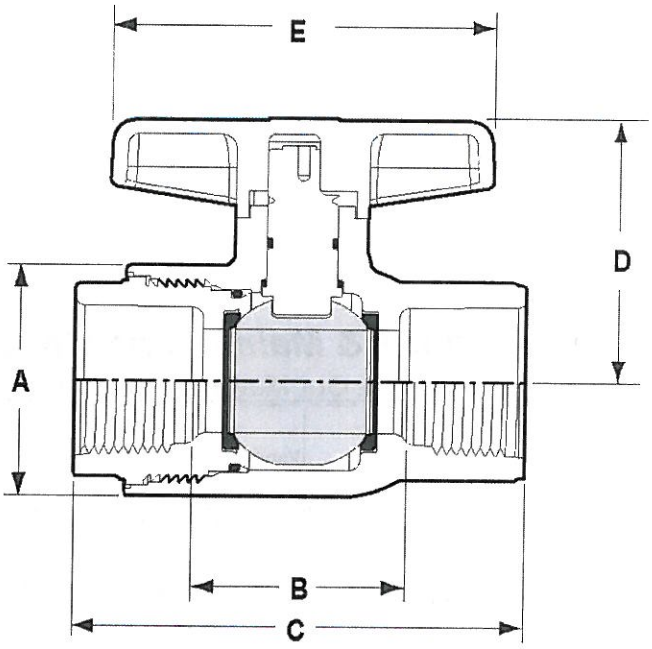
O&M No. : V.01

Operations & Maintenance Index

Irrigation Close Out Material Robert E Ryan

Spec Section	Description / Model	Vendor	Address	Phone #
2.2	Shut-Off Valves / Spears Compact 2000 Industrial Ball Valve	Imperial Sprinkler Supply, Inc	1485 N. Manassero Street, Anaheim CA 92807	(714) 792-2925
2.16	Remote Control Valves / Superior 950DW	Imperial Sprinkler Supply, Inc	1486 N. Manassero Street, Anaheim CA 92807	(714) 792-2925
2.19	Quick Coupling Valves & Assemblies / Rain Bird 44LRC	Imperial Sprinkler Supply, Inc	1487 N. Manassero Street, Anaheim CA 92807	(714) 792-2925
2.21	Sprinkler Heads And Bubblers / Hunter MPR-40-2000	Imperial Sprinkler Supply, Inc	1488 N. Manassero Street, Anaheim CA 92807	(714) 792-2925
2.21	Sprinkler Heads And Bubblers / Hunter I-40	Imperial Sprinkler Supply, Inc	1489 N. Manassero Street, Anaheim CA 92807	(714) 792-2925
2.21	Sprinkler Heads And Bubblers / Hunter I-20	Imperial Sprinkler Supply, Inc	1489 N. Manassero Street, Anaheim CA 92807	(714) 792-2925
2.22	Pressure Regulator / Watts 26AB	Imperial Sprinkler Supply, Inc	1489 N. Manassero Street, Anaheim CA 92807	(714) 792-2925
2.23	Master Valve / Superior 950DW Normally Closed	Imperial Sprinkler Supply, Inc	1490 N. Manassero Street, Anaheim CA 92807	(714) 792-2925
2.24	Flow Sensor / Calsense FM-2	Imperial Sprinkler Supply, Inc	1491 N. Manassero Street, Anaheim CA 92807	(714) 792-2925
2.27	Controller & Accessories / Weathertrak ET PRO 2 - ICA6HP3-36/FS-2/IFSW-500'/HP3SP48-5//ANT-PC/ANT/BK/MP-16/SP/RSE/RMPMUA/MVR	Imperial Sprinkler Supply, Inc	1492 N. Manassero Street, Anaheim CA 92807	(714) 792-2925

COMPACT 2000 BALL VALVES



Dimensions, Weights, Operating Torque & Cv Values

Nominal Size	Dimension Reference (Inches, ± 1/16)						Approx. Wt. (Lbs.)		Oper.[2] Torque (in.-lb.)	Cv[3] Values
	A	B[1]		C	D	E				
		Socket	Threaded				PVC	CPVC		
1/2	1-7/16	1-1/4	1-5/8	3-1/16	1-5/8	1-5/8	.18	.20	10	42
3/4	1-13/16	1-1/2	2-1/16	3-9/16	2	2	.29	.31	20	87
1	2-1/16	1-3/4	2-3/16	4	2-5/16	2-5/16	.44	.46	25	157
1-1/4	2-5/8	2-1/6	2-3/4	4-5/8	2-13/16	2-13/16	.68	.70	30	311
1-1/2	3	2-1/2	3-3/8	5-5/16	3-1/16	3-1/16	.99	1.03	50	429
2	3-5/8	3	4	6	3-3/4	3-3/4	1.64	1.70	90	768

1 Valve Lay Length
2 Torque required at valve maximum internal pressure rating, 5ft/sec Flow velocity
3 Gallons per minute at 1 psi pressure drop. Valves calculated from laying length, based on derivative of Hazen-Williams equation with surface roughness factor of C=150

Temperature Pressure Rating

System Operating Temperature ° F (° C)			100 (38)	110 (43)	120 (49)	130 (54)	140 (60)	150 (66)	160 (71)	170 (77)	180 (82)	190 (88)	200 (93)	210 (99)
Valve Pressure Rating psi (MPa)	1/2" - 2"	PVC	235 (1.62)	211 (1.45)	150 (1.03)	75 (.52)	50 (.34)	-0- (-0-)	-0- (-0-)	-0- (-0-)	-0- (-0-)	-0- (-0-)	-0- (-0-)	-0- (-0-)
		CPVC	235 (1.62)	219 (1.51)	170 (1.17)	145 (1.00)	130 (.90)	110 (.76)	90 (.62)	80 (.55)	70 (.48)	60 (.41)	50 (.34)	-0- (-0-)

NOT FOR USE WITH COMPRESSED AIR OR GASES

COMPACT 2000 BALL VALVES

Features – PVC, CPVC

Economical, low profile quarter-turn shutoff valve is excellent for general purpose and many O.E.M applications. PVC and CPVC valves are available in IPS sizes 1/2" through 2" with socket and regular thread.

- Industrial Grade, Maintenance-Free Sealed Unit
- New Actuator-Ready Body – Accepts Spears® Improved Mini-Mount Actuator Mounting Kits
- New Double O-ring Stem Seal
- Spears® Safe-T-Shear Stem
- PTFE Self Adjusting Floating Seats
- EPDM or Viton® O-ring Seals
- Full 235 psi Pressure Rating @ 73° F
- EPDM valves NSF Certified for Use with Potable Water
- Suitable for Vacuum Service
- Produced in ASTM IPS sizes 1/2" - 2" with Socket or Threaded End Connectors.

Sample Engineering Specification

All thermoplastic ball valves shall be 2000 Compact sealed unit type manufactured to ASTM F 1970 and constructed from PVC Type I, ASTM D 1784 Cell Classification 12454 or CPVC Type IV, ASTM D 1784 Cell Classification 23447. All O-rings shall be EPDM or Viton®. All valves shall have Safe-T-Shear® stem with O-ring stem seal. All handles shall be polypropylene. All EPDM valves shall be certified by NSF International for use with potable water. All 1/2" - 2" valves shall be pressure rated to 235 psi, for water @ 73° F, as manufactured by Spears® Manufacturing Company.

Optional Accessories*

- Round Safety Handles
- Stem Extension Kits
- Square Operator Nuts
- Multi Mount Valve/Actuation Mounting Kits
- Mini-Mount Actuation Mounting Kits

* See *"BALL VALVE ACCESSORIES"* section for details of individual products

Quick-View Valve Selection Chart

Valve Size	O-ring Material	PVC Part Number[1]		Pressure Rating
		Socket	Threaded	
1/2	EPDM	6622-005	6621-005	235 psi Non-Shock Water @73° F
	Viton®	6632-005	6631-005	
3/4	EPDM	6622-007	6621-007	
	Viton®	6632-007	6631-007	
1	EPDM	6622-010	6621-010	
	Viton®	6632-010	6631-010	
1-1/4	EPDM	6622-012	6621-012	
	Viton®	6632-012	6631-012	
1-1/2	EPDM	6622-015	6621-015	
	Viton®	6632-015	6631-015	
2	EPDM	6622-020	6621-020	
	Viton®	6632-020	6631-020	

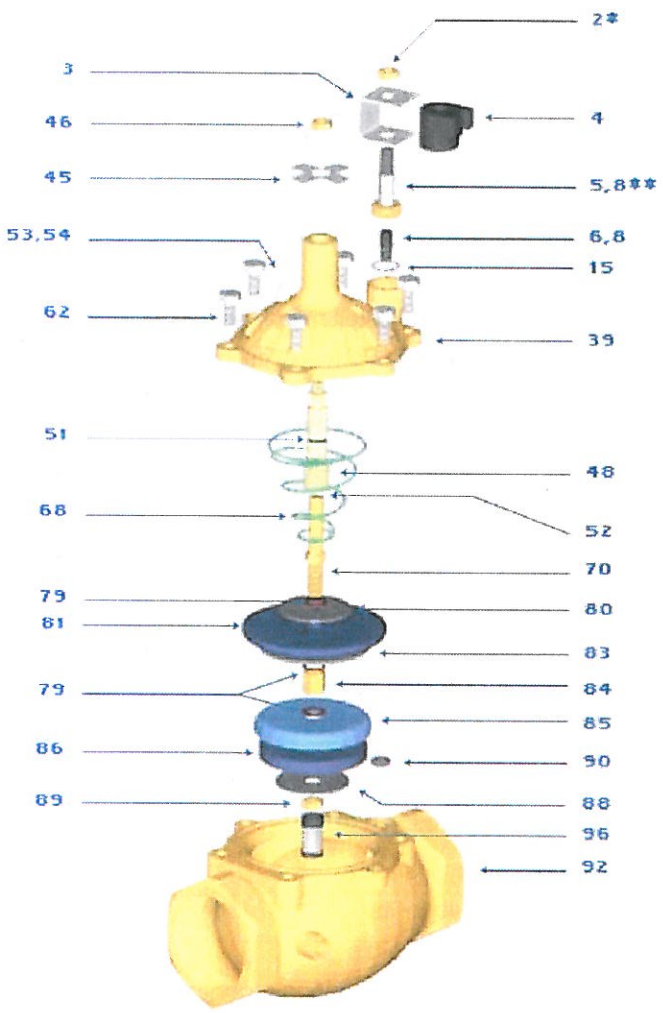
1: For CPVC Valves, add the letter "C" to part numbers listed. (e.g., 6622-005C)

NOT FOR USE WITH COMPRESSED AIR OR GASES

SUPERIOR CONTROLS CO.,INC.

MODEL 950DW - 2"

ADDITIONAL SIZES> .75" 1" 1.25" 1.5" 2" 2.5" 3"



SUB-ASSEMBLIES AND REPAIR KITS

#18 Solenoid Assembly:
Part No 16200G

#195 Repair Kits:
Part No 17312

#201 Top Assembly:
Part No 16205-L

#199 Diaphragm Assembly:
Part No 16215-L

#213 Flow Control Assembly:
Part No 16210-L

* #1 Old Style Solenoid Retainer Cap:
Part No 16007

** Retainer Nut is included with Solenoid Stem

Part Info:

PRINT

#2 Solenoid Retainer Nut:
Part No 16003

#3 solenoid Frame:
Part No 16009

#4 Solenoid Coil: Part No 16008

#5 Solenoid Stem:
Part No 16010-1

#6 Solenoid Plunger: Part No 16010-2

#8 Solenoid Stem and Plunger Assembly:
Part No 16010

#15 Solenoid Seal:
Part No 16011

#39 Diaphragm Cap:
Part No 16049

#45 Flow Control Crosshandle:
Part No 16035

#46 Flow Control Nut:
Part No 16002

#48 Flow Control Stem
(Includes Cleaning Rod & O-Ring)
Part No 16004

#51 Flow Control O-Ring:
Part No 16006

#52 Cleaning Rods: Part No 15001

#53 Drain Cock (Includes O-Ring):
Part No 15013

#54 Drain Cock O-Ring:
Part No 16012-70

#62 Diaphragm Cap Bolts:
Part No 16041

#68 Diaphragm Spring:
Part No 16052

#70 Diaphragm Shaft:
Part No 16016-2

#79 Shaft Fiber Washer:
Part No 16054

#80 Upper Diaphragm Plate:
Part No 16019-A

#81 Diaphragm: Part No 16058

#83 Lower Diaphragm Plate:
Part No 16023

#84 Spacer Nut: Part No 16026

#85 Valve Disc Holder: Part No 16031

#86 Valve Disc Seat Washer:
Part No 16063

#89 Valve Disc Nut:
Part No 16033

#88 Valve Disc Retaining Washer
Part No 16019

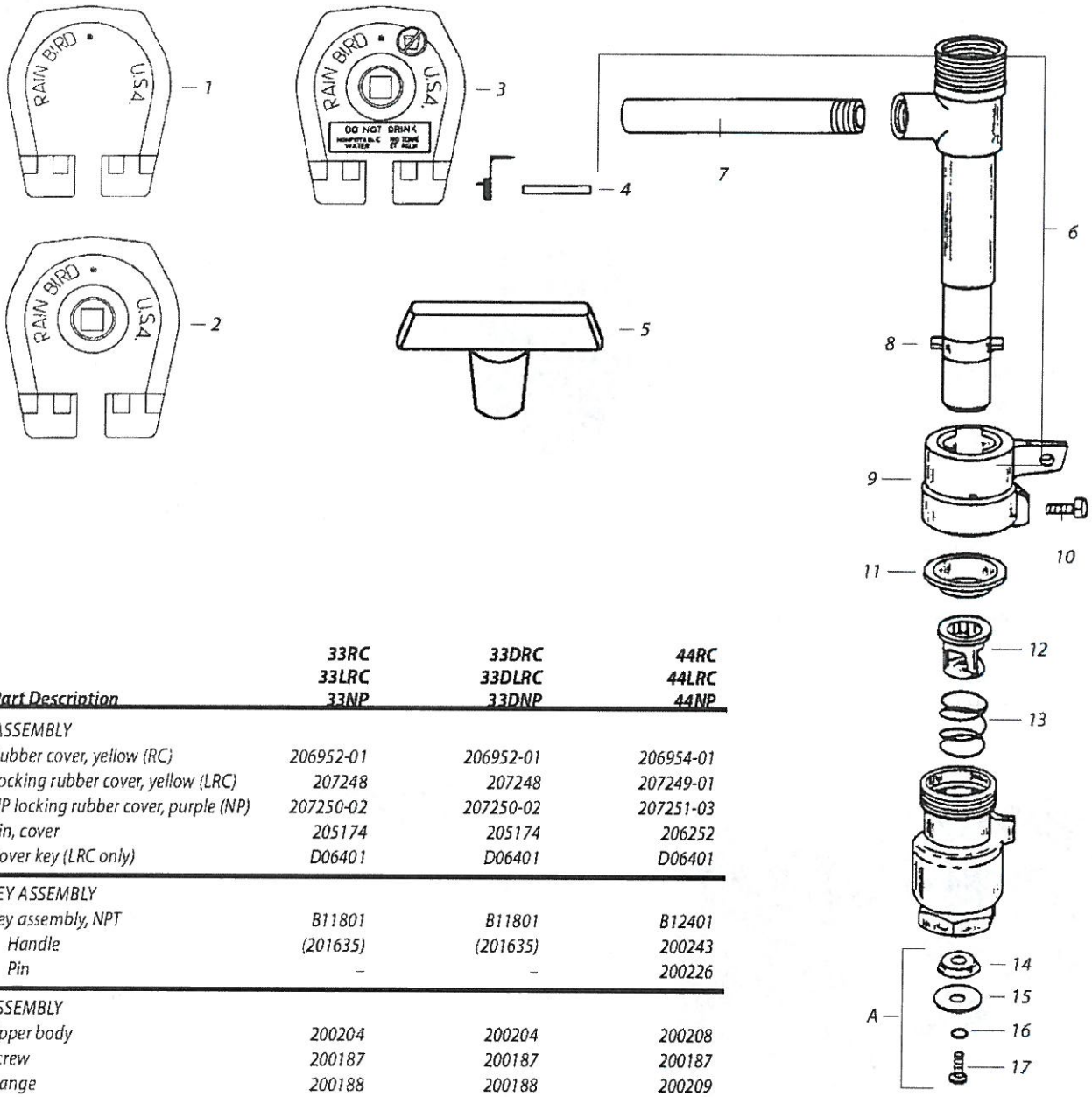
#90 Exhaust O-Ring: Part No 16012-70

#92 Valve Body: Part No 16071

#96 Self Flushing Filter: Part No 16540

RAIN BIRD.

TWO-PIECE QUICK COUPLER VALVES
33 AND 44 SERIES



Ref	Part Description	33RC 33LRC 33NP	33DRC 33DLRC 33DNP	44RC 44LRC 44NP
COVER ASSEMBLY				
1	Rubber cover, yellow (RC)	206952-01	206952-01	206954-01
2	Locking rubber cover, yellow (LRC)	207248	207248	207249-01
3	NP locking rubber cover, purple (NP)	207250-02	207250-02	207251-03
4	Pin, cover	205174	205174	206252
5	Cover key (LRC only)	D06401	D06401	D06401
VALVE KEY ASSEMBLY				
6	Key assembly, NPT	B11801	B11801	B12401
7	Handle	(201635)	(201635)	200243
8	Pin	–	–	200226
VALVE ASSEMBLY				
9	Upper body	200204	200204	200208
10	Screw	200187	200187	200187
11	Flange	200188	200188	200209
12	Cage	200503	200503	200210
13	Spring	200502	200502	200211
14	Rubber disc (Buna-N)	200192	200192	200213
15	Retainer	200193	200193	200214
16	Washer	200194	200194	200215
17	Screw	200195	200195	205806
A	Repair kit (33 series includes 12 and 13)	204146	204146	(203747)

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

The MPR40 Sprinkler Body

Models

MPR40-00 – Shrub
MPR40-04-CV – 4" Pop-up (10 cm)
MPR40-06-CV – 6" Pop-up (15 cm)
MPR40-12-CV – 12" Pop-up (30 cm)

Dimensions

- Overall height:
  MPR40-04-CV – 5⅞" (15.5 cm)
  MPR40-06-CV – 8¾" (22.5 cm)
  MPR40-12-CV – 16⅛" (41 cm)
- ½" female inlet NPT
- Exposed diameter: 2¼" (5.7 cm)

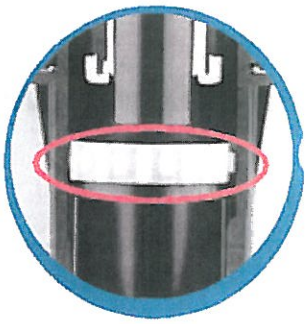
Operating Specifications

- Recommended pressure range:
  15 to 100 PSI (1.0 to 6.9 bars; 103 to 689 kPa)
- Flow-by: 0 at 10 PSI (0.7 bars; 68 kPa) or greater;
  0.1 GPM (0.02 m³/hr; 0.4 l/min) otherwise
- Check height: Up to 14' (4.3 m) elevation change

Options Available

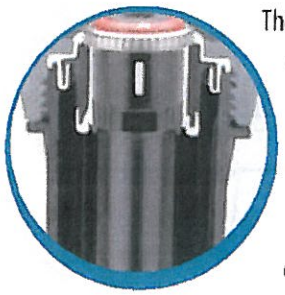
- Field-installed black rubber cover (part # 469805)
- Field-installed reclaimed water identification snap-on cover (part # PROSRCCAP)
- Field-installed reclaimed water identification body cap (part # 458545)
- Field-installed vandal-proof cap (part # INST-VPC)

What Makes Hunter Sprinklers the Easiest to Adjust?



Our new two-piece ratchet design—with independent ratcheting ring—facilitates quicker, more precise sprinkler head adjustment. With its tough-as-nails, abrasion resistant, high impact material, it withstands any impact in higher pressure systems. Incredibly dirt tolerant, too. What more can we say?

The Wiper Seal that Works



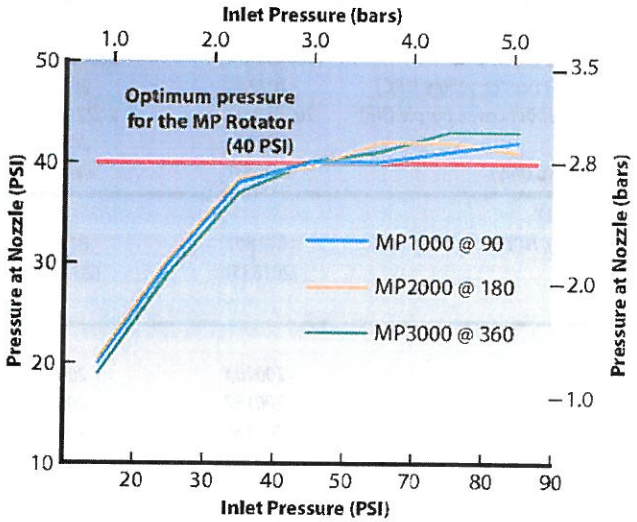
The MPR40's pressure activated, multifunction wiper seal has been designed to reduce flow-by. The zero flush seal gives you surefire operation at low pressures and enables more sprinkler heads on the same zone. The wiper seal is designed to grip the riser when operating and keep debris out of the seal when retracted. No more body cap leaks either. Put debris in its place, and end riser stick-ups.

Shrub model not shown.

The MPR40 Sprinkler Body

Built-in regulator set at 40 PSI • New easy-to-identify gray cap • Factory-installed drain check valve

MPR40 Optimal Performance



SPECIFICATION GUIDE

EXAMPLE: **MPR40 - 04 - CV - MP200090**

MODEL
MPR40 = MPR40 (includes factory-installed 40 PSI pressure regulator)

POP-UP HEIGHT
00 = Shrub
04 = 4" Pop-up
06 = 6" Pop-up
12 = 12" Pop-up

OPTIONS
CV = Factory-installed check valve (Pop-up models only)

MP ROTATORS
See MP Rotator Specification Guide for details

Hunter®
The Irrigation Innovators

Hunter Industries Incorporated
1940 Diamond Street, San Marcos, California 92078
www.HunterIndustries.com • www.MPRotator.com

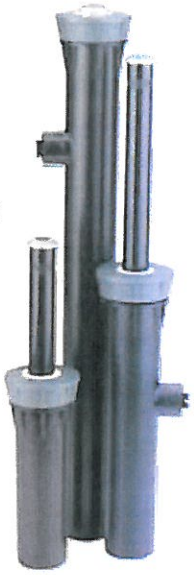
427 11.07

MADE EXCLUSIVELY FOR THE

MP ROTATOR®

MPR40

The MP Rotator and The MPR40: The Partnership that Performs.



From our work with the revolutionary MP Rotator evolved the origins of a great idea. To maximize the results of this multi-stream rotor, we pursued the next logical step. Introducing the MPR40—Calibrated at a consistent 40 PSI, it is designed to provide optimal performance when combined with the MP Rotator. Together, the two are a true blend of technology and performance. In fact, the MPR40 is the only product of its kind. Discover the MPR40. Paired with the MP Rotator, it's a partnership that performs.

Hunter®

Hunter®

PRODUCT INFORMATION

I-40 Rotors

The Best in its Class; High Flow, Long Throw, and Built Super-Tough to Withstand the Harshest Environments

PRODUCT FEATURES AND BENEFITS

Ultimate in Nozzle Efficiency and Performance...

The triple nozzle system

With every sprinkler in the I-40 group you get six free interchangeable mainstream nozzles, accurately going the distance up to 74 feet (22.6 m). Two built-in secondary nozzles provide complete mid-range and close-in coverage. Precise, engineered design of the nozzles gives them excellent sprinkler profiles and ensures an even distribution of water.

Patented Pressure Port™ System...

Bigger droplets through the secondary nozzles; excellent close-in coverage

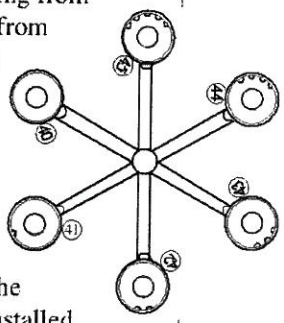
Providing enough water close to the head had always been a difficult challenge with high flow, high pressure rotors. This is because the tremendous force of the primary stream tends to draw water away from the smaller, secondary nozzle, limiting the efficiency of the nozzles intended for short and medium range coverage.

Now, Hunter's patented Pressure Port system reduces velocity and pressure and increases the droplet size from the secondary nozzles. The result: excellent close-in coverage. The water droplets are larger, making them less affected by the primary nozzle and less likely to be carried away by the wind.

Six Interchangeable Nozzles...

Uniform coverage with a wide range of versatility

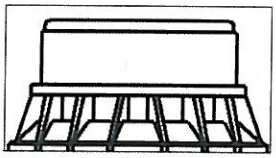
With every sprinkler in the I-40 group you get six free interchangeable primary nozzles, accurately going the distance ranging from 45 to 74 feet (13.7 to 22.6 m) and from 7.0 to 27.5 gpm (1.59 to 6.2 m^3/hr; 26.5 to 104.1 l/min). Each nozzle has a numbered ID button that can be snapped into the rubber cover for quick and easy identification when the sprinkler is retracted. When pre-inserted nozzles are ordered from the factory, the numbered ID buttons are factory installed.



ProTech™ Safety System...

When safety is the primary issue

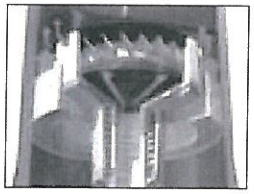
The I-40 has the smallest exposed diameter rubber cover in this category of rotors. Couple the safety of the small exposed flat rubber cover with the tapered rubber collar and you have the ProTech safety system — the ultimate in protection whether it be for the child at play in the park or the professional athlete on game day. No hard plastics or metals, only cushioned rubber is next to the playing surface.



Patented VStat® Stator...

Self adjusting for customer convenience

The I-40 requires no special instructions to ensure constant speed rotation. With the self-adjusting VStat, the I-40 is provided up to twice the driving force to the gear drive while adding years to the sprinkler's life. This is accomplished through the stator's patented turbine isolation technology, a breakthrough that all but eliminates gearbox wear due to upward and lateral water thrust.



I-40 Rotors

Standard Stainless Steel Riser...
Reliable retraction; longer riser seal life

The standard stainless steel riser protects the riser and riser seal from scratches and wear due to its increased durability in sandy and harsh soil conditions. Stainless steel eliminates possible scoring on the riser and riser seal, which can lead to premature leaking and unsafe riser "stick-ups."

Extra Thick Ribs on Body and Cap...
Durability with a grip

With super heavy-duty external ribbing on the body and body cap, the sprinkler can be disassembled and handled with ease, especially when it's wet and muddy!

Brute Strong Stainless Steel Spring...
Long term positive retraction

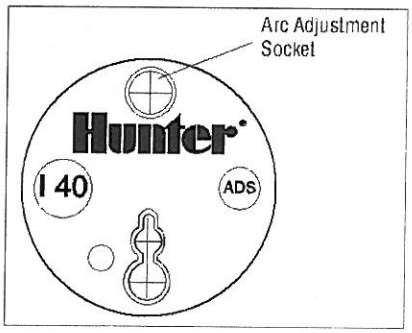
Any playing surface is unsafe when sprinklers stay up long after they've quit running. Because of the extra beefy stainless steel spring, the I-40 rotors retract every time, all the time.

Drain Check Valve...
Saves water, reduces liability

The built-in drain check valve is standard in the I-40. The check valve will hold back water pressure for up to 15 feet (4.6 m) of elevation change. Preventing low head drainage prevents accidents, pests, diseases and the wasting of that most valuable resource...water.

Easy Arc Adjustment...
From the top: wet or dry, up or down

Curving outfields? Dirt skinned areas? Keep the water where it's supposed to go with the adjustable arc. During all phases of installation and maintenance, the 40° to 360° arc is easily fine tuned with a quick turn of the Hunter wrench. An 8:1 adjustment ratio changes the arc 45° for each full turn of the wrench.

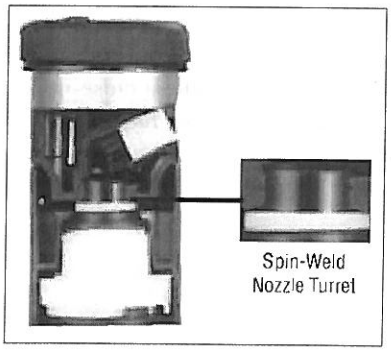


Patented 3-Spring Reversing...
Reliability when it's needed

Adjustable arc rotors not only need to rotate, they need to shift directions reliably every time. And, with our patented 3-spring reversing technology, the I-40 will be out there working for you...all the time.

Spin Weld Nozzle Turret...
Durable in toughest conditions

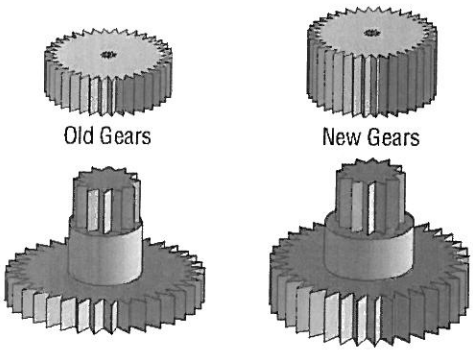
With the spin weld process, the rotating nozzle turret is actually welded (not snap-fit) to the bull gear (output tube) of the sprinkler. This welding adds years to the life of the I-40 and extra durability for the acid-test of all sprinklers...the winterization process.



PRODUCT FEATURES AND BENEFITS *(continued)*

Beefier Gears, Beefier Sprinkler...
#1 in reliability

Hunter is known for having the #1 gear drives in the industry and now the I-40 has beefier gears to withstand the rigors of high flow and high pressures. These new improvements increase life by at least four times, ensuring reliability and time proven, optimum performance.



I-42: High Speed Model...
When speed is a need

For quick, light wetdowns of clay tennis courts, baseball infields, or any areas that require dust control or normal turf irrigation, Hunter offers the I-42. The rotation speed for a 360° revolution is increased from three minutes to one, making it perfect for the quick syringing and humidifying of selected areas.

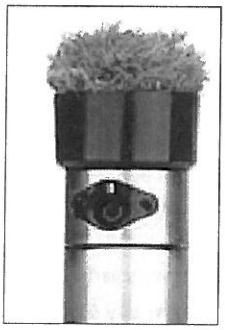
The brown rubber cover on the high speed model, makes for quick and easy identification in the field.

I-40-ON: Opposing Nozzle Model...
You'll favor this "opposing" idea

A reduced version of popular golf type sprinklers, designed specifically for parks, sports fields and public areas. All the same great features as our other I-40 models plus an "opposing" nozzle design where the primary and secondary nozzles are on opposite sides of the nozzle turret and send their streams in opposite directions as the sprinkler rotates.

Turf Cup Kit...
When perfection is essential

The turf cup kit attaches to the popular I-40 rotor and allows grass to actually grow in the top of the sprinkler (out of sight, out of mind). The kit is used on golf greens, grass tennis courts or any area requiring invisible sprinklers and perfect playing surfaces. Order Hunter's turf cup kit (p/n 46-0000) to retrofit current I-40 sprinklers.



Note: The turf cup kit will not work with I-40-36S-ON models.

PRODUCT COMPARISONS

Features	Hunter I-40	Toro 640	Rain Bird Talon	Nelson 7500
Patented Pressure Port™ secondary nozzle system	✔			
Radius adjustment available	✔	✔		✔
Radius adjustment without disassembly of parts	✔	✔		
Exposed diameter (inches)	2"	2½"	4¾"	2½"
Vandal resistant, permanent rubber cover	✔	✔		
ProTech™ safety system	✔			
Super compact design – overall height	7⅞"	9"	9⅞"	9½"
Nozzles available	6	5	6	6
Nozzles can be installed without removing parts	✔			
Heavy-duty & coarse buttress threads on body cap	✔	✔		
Self adjusting stator increases life and has consistent speed	Patented VStat®			
Self adjusting stator convenience	✔		✔	✔
"Jar top" convenience with no loose parts or special tools required	✔	✔		✔
Patented and proven reliable 3 spring reversing mechanism	✔			
Arc adjustment, without removing parts	✔		✔	
Adjustable Arc Range	40°-360°	12 fixed	30°-345°	40°-360°
Up, down, wet or dry arc adjustment	✔		✔	
Quick check of arc setting	✔	✔	✔	
Check valve check height (feet)	15	15	10	15
Pull-up socket for easy servicing	✔			
Optional reclaimed water versions	✔	✔		✔
Water lubricated gear drive	✔	✔	✔	✔

Rain Bird® is a registered trademark of Rain Bird Sprinkler Manufacturing Corporation
Nelson® is a registered trademark of L. R. Nelson Corporation
Toro® is a registered trademark of The Toro Company

SPECIFICATION GUIDE

EXAMPLE: **I-40 - ADS - 43**

MODEL
I-40, I-41* = 3" Pop-up
I-42, I-43* = High-Speed

* Metric Model Number (BSP Threaded Inlet)

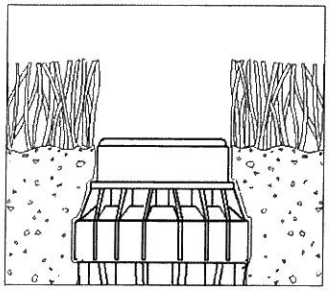
FEATURES
ADS, 36S, ARS, 3RS, 36S-ON, 3RS-ON
ADS, 36S, ARS, 3RS

OPTIONS
XX = Standard Set of 5 Nozzles
40 – 45 = Factory-Installed Nozzle Number (Models ADS, 36S, ARS, 3RS)
15 – 28 = Factory-Installed Nozzle Number (Models 36S-ON, 3RS-ON)

KEY TO FEATURES:
ADS = Adjustable with Check Valve and Stainless Steel Riser
36S = Full-Circle with Check Valve and Stainless Steel Riser
ARS = Adjustable with Check Valve, Reclaimed Water and Stainless Steel Riser
3RS = Full-Circle with Check Valve, Reclaimed Water and Stainless Steel Riser
36S-ON = Full-Circle, Dual Opposing Nozzle, with Check Valve and Stainless Steel Riser
3RS-ON = Full-Circle, Dual Opposing Nozzle, with Check Valve, Reclaimed Water ID and Stainless Steel Riser

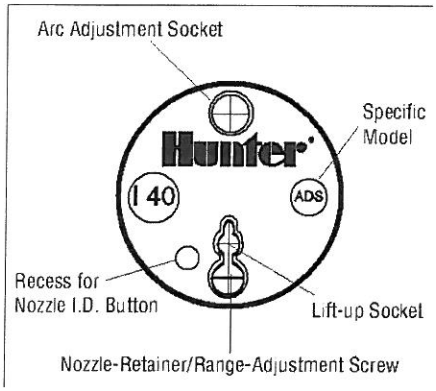
INSTALLATION & MAINTENANCE

Installation Height



The I-40 sprinkler should be installed at finish grade as shown in the illustration above.

Arc Adjustment



(All I-40 adjustable heads are PRESET to approximately 180°)

1. Rotate the nozzle turret counter-clockwise to the left stop.
2. Now, rotate the nozzle turret clockwise to the right stop. This is the fixed side of the arc. The nozzle turret must be held in this position for all arc adjustments.

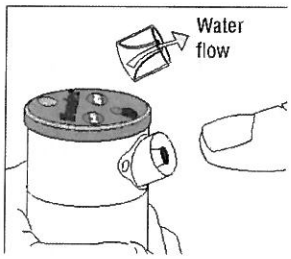
To increase arc:

1. Insert the key end of the Hunter wrench into the adjustment socket on top of the sprinkler.
2. While holding the nozzle turret at the right stop, turn the wrench clockwise.
3. Wrench will stop turning when adjusted to the maximum arc (360°).
4. Adjust to any arc between 40° to 360°.

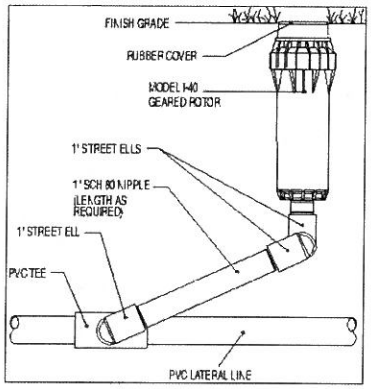
To decrease arc:

1. Insert the key end of the Hunter wrench into the adjustment socket.
2. While holding the nozzle turret at the right stop, turn the wrench counterclockwise.
3. Wrench will stop turning when adjusted to the minimum arc (40°).
4. Adjust to any arc between 40° to 360°.

Nozzle Installation

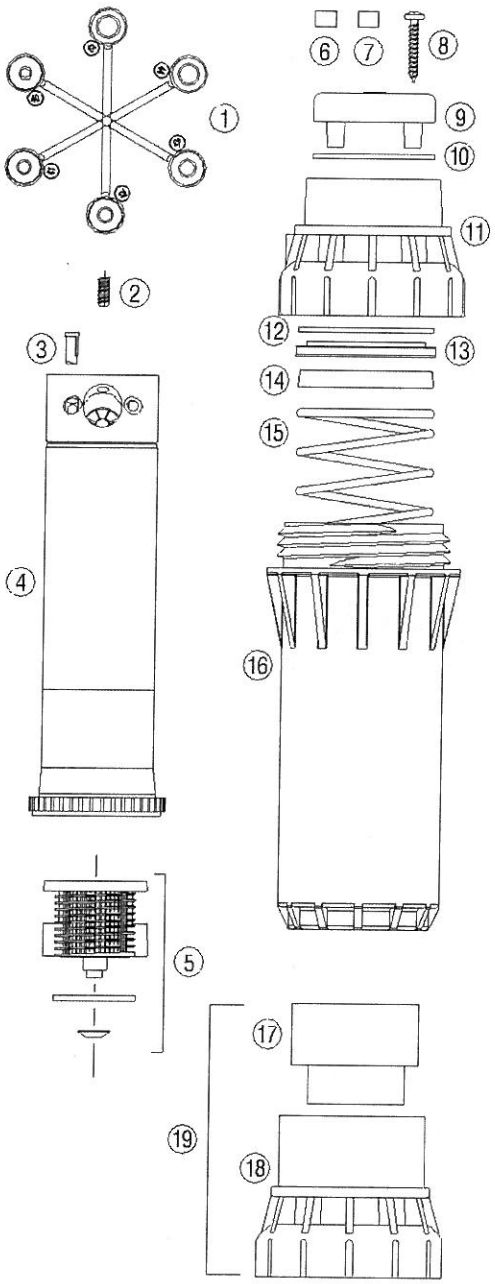


Note: The special orientation of the nozzle with the open end of the "Funnel" facing inside the sprinkler.

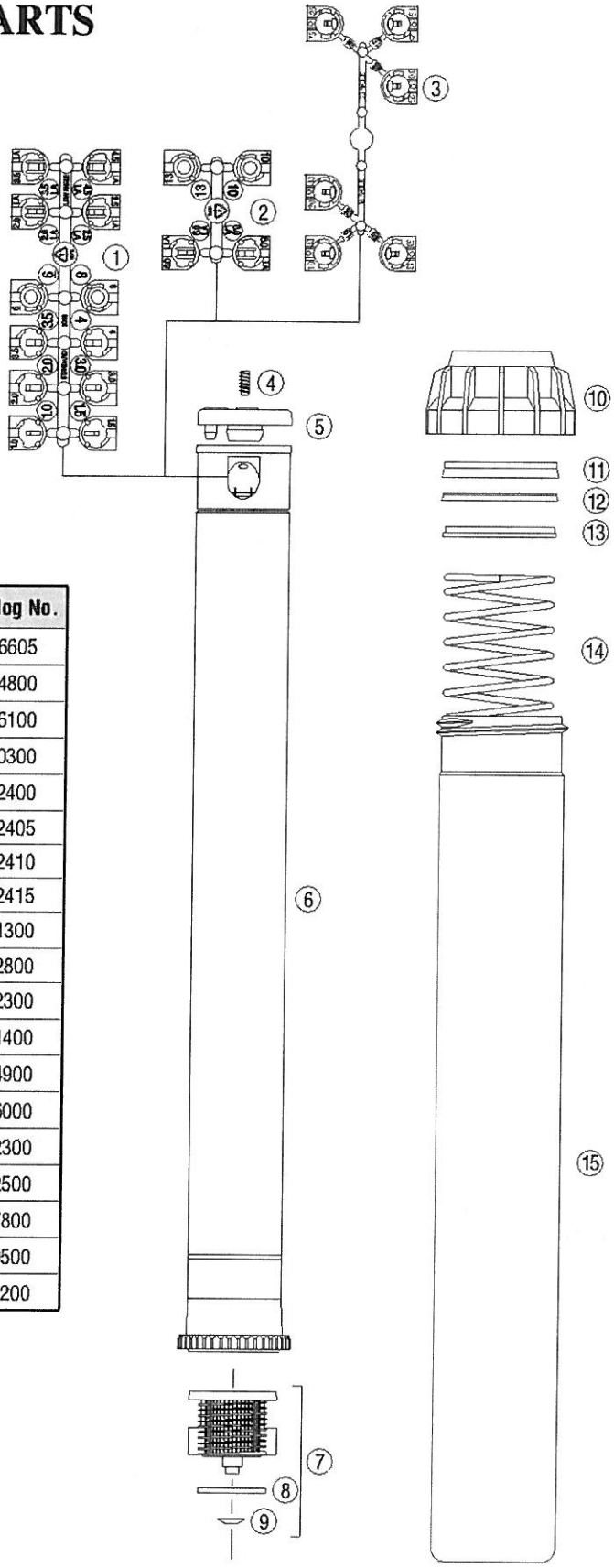


I-40/41 REPLACEMENT PARTS

Item	Description		Catalog No.
①	Nozzle Rack *(6 Black)*	ADS/36S	462458
		I40-ON	462459
②	Nozzle Retainer Screw		333900
③	Diffuser Pin		245400
④	Riser Assembly	I-40/41/44/45 – ADS, ARS	342200
		I-40/41/44/45 – 36S, 3RS	342300
		I-40/41 – 36S – ON	373100
		I-42/43 – ADS, ARS	343100
		I-42/43 – 36S, 3RS	343200
⑤	Filter Screen/Check Valve Assembly *(White)* *Date Codes 9410 and After – VStat*		303700
⑥	Model Number Button	I-40	252705
		I-41	252715
		I-42	252720
		I-43	252725
		Blank	252735
⑦	Feature Designation Button	ADS	252805
		36S	252810
		ON	252850
		Blank	252845
⑧	Rubber Cover Screw *(2 Required)*		334000
⑨	Rubber Cover Assembly *(Includes Part 10)*	Black	345005
		Brown	345010
		Purple	345015
⑩	Rubber Cover Washer		253000
⑪	Body Cap Assembly		221600
⑫	Riser Seal Slip Washer		221800
⑬	Riser Seal		221200
⑭	Spring Seat		221100
⑮	Retraction Spring		221300
⑯	Body	NPT	336405
		BSP	336410
⑰	Cup & Retainer Assembly – I-44 Turf Cup		344400
⑱	Body Cap Assembly – I-44 Turf Cup		224600
⑲	Turf Cup Kit – I-44 – Date Codes 9510 and After *(Includes Parts 17 and 18 Plus Instructions)*		460000



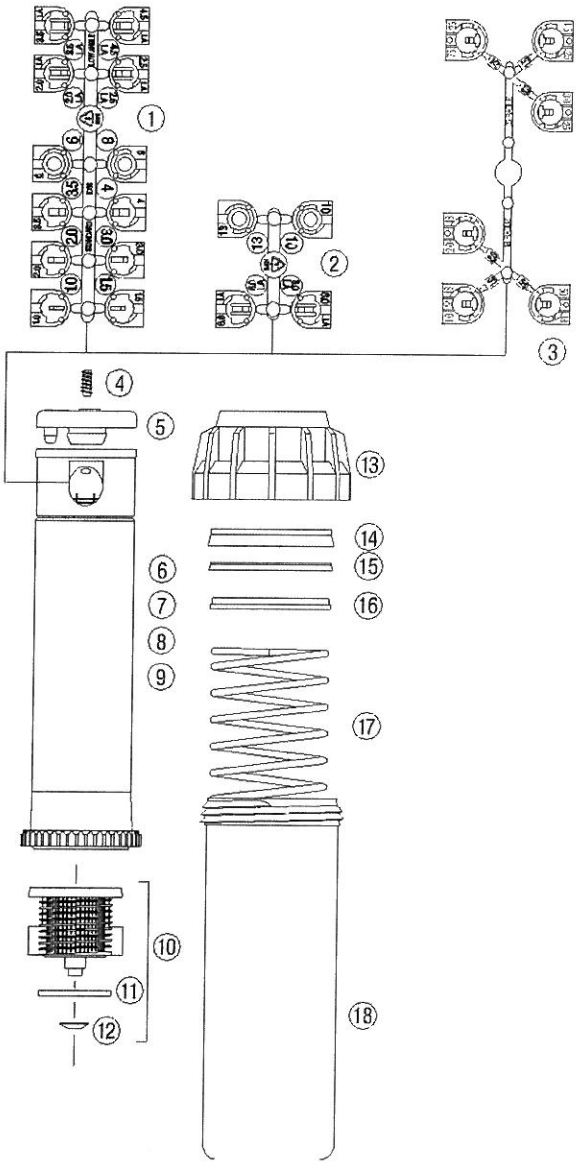
I-20-HP REPLACEMENT PARTS



Item	Description		Catalog No.
①	Standard and Low Angle Nozzle Set (12)		356605
②	High Flow Standard & Low Angle Nozzle Set (4)		444800
③	Short Radius Nozzles		466100
④	Universal Screw		120300
⑤	Rubber Cover	ADV (Black)	352400
		36V (Black)	352405
		ARV (Purple)	352410
		3RV (Purple)	352415
⑥	Riser Assembly	ADV, ARV	361300
		36V, 3RV	362800
⑦	Filter Screen/Check Valve Assembly *(Black)*		142300
⑧	Check Valve Seal		101400
⑨	Retainer Clip		204900
⑩	Body Cap		356000
⑪	Seal Support		102300
⑫	Riser Seal		252500
⑬	Spring Seat		227800
⑭	Retraction Spring		179500
⑮	Pop-Up Body		404200

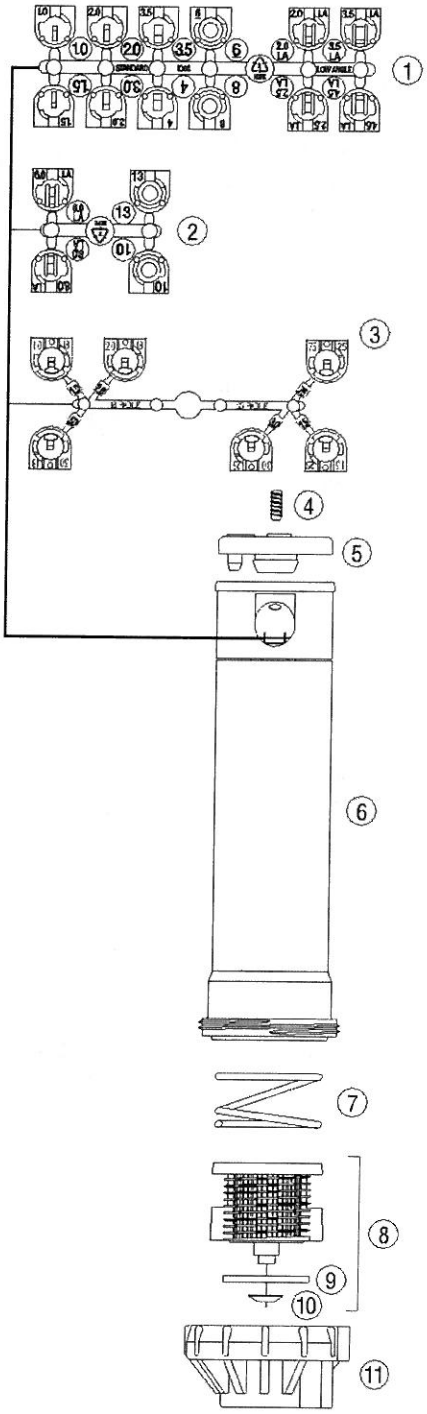
I-20 & I-20-6P REPLACEMENT PARTS

Item	Description		Catalog No.
①	Standard and Low Angle Nozzle Set (12)		356605
②	High Flow Standard & Low Angle Nozzle Set (4)		444800
③	Short Radius Nozzles		466100
④	Universal Screw		120300
⑤	Rubber Cover	ADV (Black)	352400
		36V (Black)	352405
		ADS (Black)	352420
		36S (Black)	352425
		ADJ (Black)	352460
		360 (Black)	352465
		ADJ-SS (Black)	352470
		360-SS (Black)	352475
		ARV (Purple)	352410
		3RV (Purple)	352415
		ARS (Purple)	352430
		3RS (Purple)	352435
⑥	4" Riser Assembly	ADV, ARV	361300
		36V, 3RV	362800
⑦	Stainless Steel 4" Riser Assembly		
		ADS, ARS	361200
		36S, 3RS	362900
⑧	6" Riser Assembly	ADV, ARV	434300
		36V, 3RV	472600
⑨	Stainless Steel 6" Riser Assembly		
		ADS, ARS	434400
		36S, 3RS	472700
⑩	Filter Screen/Check Valve Assembly *(Black)*		142300
⑪	Check Valve Seal		101400
⑫	Retainer Clip		204900
⑬	Body Cap		356000
⑭	Seal Support		102300
⑮	Riser Seal		252500
⑯	Spring Seal		227800
⑰	Retraction Spring	4"	150600
		6"	460300
⑱	Pop-Up Body	4"	229200
		6"	434700



I-10 REPLACEMENT PARTS

Item	Description		Catalog No.
①	Standard and Low Angle Nozzle Set (12)		356605
②	High Flow Standard & Low Angle Nozzle Set (4)		444800
③	Short Radius Nozzles		466100
④	Universal Screw		120300
⑤	Rubber Cover	ADV (Black)	307900
		36V (Black)	308400
		ARV (Purple)	297900
		3RV (Purple)	298000
⑥	Riser Assembly	ADV, ARV	361400
		36V, 3RV	364700
⑦	Check Valve Spring		235000
⑧	Filter Screen/Check Valve Assembly *(Black)*		142300
⑨	Check Valve Seal		101400
⑩	Retainer Clip		204900
⑪	Shrub Head Base for Check Valve Use		234900



INSTALLATION AND ADJUSTMENT GUIDE
(continued)

Nozzle Installation

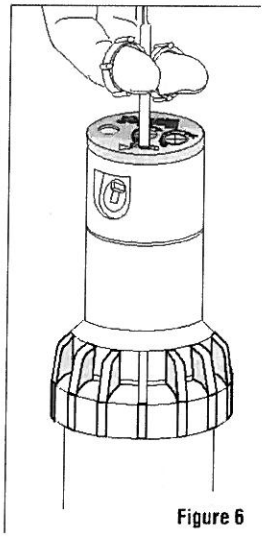


Figure 6

1. Insert the plastic key end of the Hunter wrench into the lifting socket of the sprinkler and turn 90 degrees. Pull the riser up to gain access the nozzle socket (Fig 6).
2. Using the hex key end of the Hunter wrench, turn the nozzle range-adjustment screw counterclockwise to be sure it is not blocking the nozzle socket opening. If a nozzle is already installed, it can be removed by backing out the adjustment screw and turning on the water, or by pulling outward on the nozzle removal post with a pair of needle-nosed pliers.
3. Slip the desired nozzle into the socket (Fig. 7). Note that the socket is angled up 25 degrees. Then tighten the nozzle range screw. The triangle on the rubber cover will always indicate the direction of the nozzle when the sprinkler is retracted.

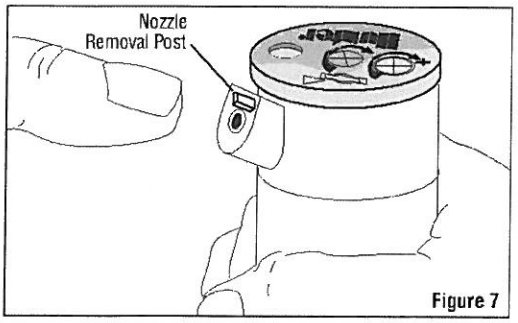


Figure 7

Aligning the Right (Fixed) Side of the Arc

There are two ways to align the right stop.

1. Turn the whole sprinkler body assembly and the fitting below it, left or right to the desired position.
2. Unscrew the body cap counter-clockwise and remove the internal assembly from the body (Fig. 8). Once removed, rotate the nozzle turret to the right stop, screw the internal assembly back into the body with the nozzle aligned to the right side of the area you want irrigated. At this point you have realigned the right arc stop, you can now adjust the left arc to an appropriate setting.

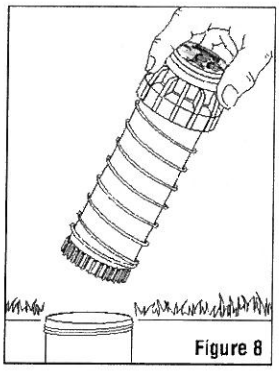


Figure 8

Note: It is not necessary to dig up and remove the whole sprinkler to realign the right arc.

Adjusting the Flow

Insert the plastic key end of the Hunter wrench into the FloStop® flow adjustment socket (Fig. 9). Turn wrench clockwise to shut off the flow. Turn the wrench counterclockwise to turn the flow back on.

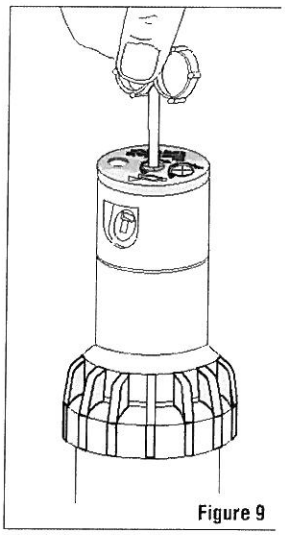


Figure 9

INSTALLATION AND ADJUSTMENT GUIDE

The I-20 *Ultra* pop-up sprinkler should be installed at finished grade as shown in the illustration (Fig. 1).

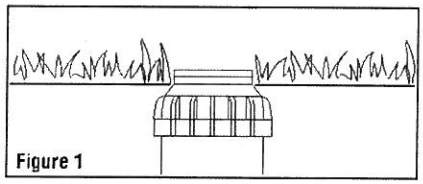


Figure 1

Arc Adjustments

Adjustable heads are preset to approximately 180 degrees. Sprinklers may be adjusted with water on or off. It is recommended that initial adjustments be made before installation.

1. Using the palm of your hand, rotate the nozzle turret counterclockwise to the left stop to complete any interrupted rotation cycle (Fig. 2).

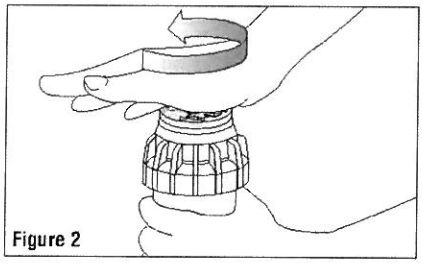


Figure 2

2. Rotate the nozzle turret clockwise to the right stop. The nozzle turret must be held in this position for all arc adjustments. The right stop does not change.
3. You can adjust to any arc between 40 and 360 degrees.
4. The wrench will stop turning, or there will be a ratcheting noise when the minimum arc of 40 degrees or the maximum arc of 360 degrees (full circle) has been reached (Fig. 3).

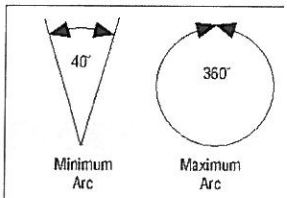


Figure 3

5. Insert the plastic key end of the Hunter wrench into the adjustment socket (Fig. 4).

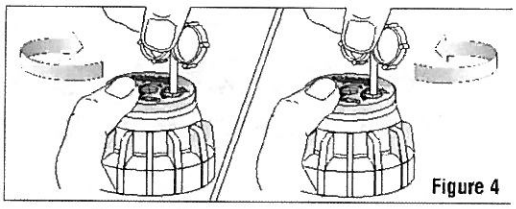


Figure 4

Increase Arc Decrease Arc

To Increase Arc:

While holding the nozzle turret at the right stop, turn the wrench **clockwise.**

To Decrease Arc:

While holding the nozzle turret at the right stop, turn the wrench counter-clockwise. Each full 360 degree turn of the wrench decreases the arc 90 degrees.

Note: It is not necessary to disassemble the sprinkler to make arc adjustments.

Radius / Distance of Throw

1. Insert the hex end of the Hunter wrench into the nozzle/range-adjustment screw (Fig 5).
2. Turn the screw clockwise (into the stream of water) to decrease the radius, or counterclockwise to increase the radius.

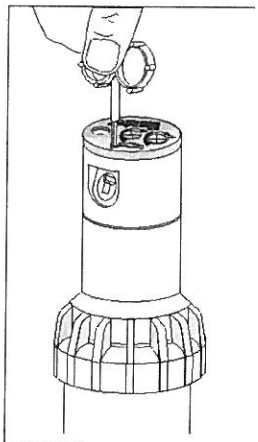


Figure 5

Note: Reducing the radius more than 25% will distort the even distribution of water. Turning the adjustment screw clockwise more than five full turns may result in a lost radius adjustment screw.

Precipitation Rate Adjustment

If you have excessively wet or dry areas, you can change the nozzle in the sprinkler to increase or decrease the precipitation rate. For dry areas, install a larger nozzle. For wet areas, install a smaller nozzle.

For Residential and Commercial Applications

Job Name _____ Contractor _____

Job Location _____ Approval _____

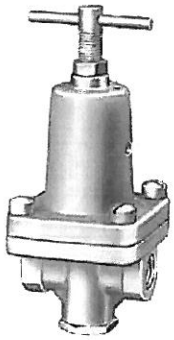
Engineer _____ Contractor's P.O. No. _____

Approval _____ Representative _____

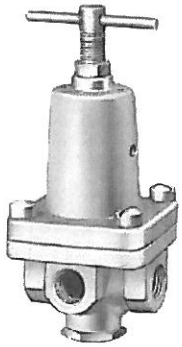
Series 26A, 263A
Small Pressure Regulators

Sizes: 26A: ⅛" – ½" (3 – 15mm)
263A: ¼" – ½" (8 – 15mm)

Series 26A, 263A Small Pressure Regulators are general purpose pressure regulators for water and no. 2 fuel oil. These regulators are ideal for use in beverage dispensers, ice cube machines, paint sprayers, humidifiers and other similar applications.



26A
2-Way



263A
3-Way

Features

- Rugged forged brass body
- Tee handle adjustment
- Oversized orifice

Models

26A 2-way regulator
263A 3-way regulator

Materials

Body: Brass
Spring Cage: Aluminum
Disc: Buna-N stainless steel
Diaphragm: Reinforced Buna-N

Pressure – Temperature

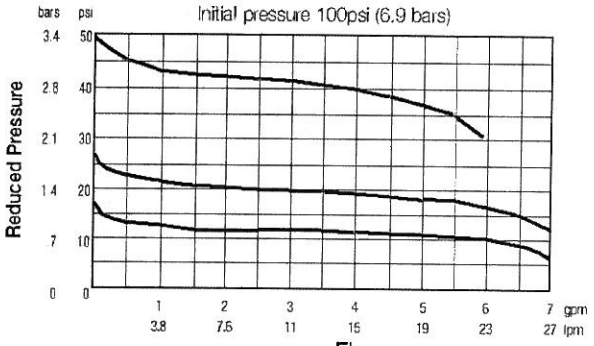
Temperature Range: 0°F – 140°F (-18°C – 60°C)
Maximum Working Pressure: 300psi (21 bars)
Reduced Pressure Range:

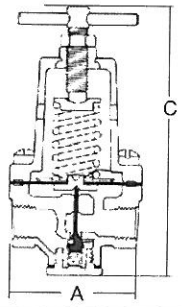
Suffix	Range		Std. Set at	
	psi	bars	psi	bars
A	1 – 25	0.1 – 1.7	10	0.7
B	3 – 50	0.2 – 3.4	15	1.0
C	10 – 125	0.7 – 8.6	25	1.7
D	50 – 175	3.4 – 12.1	50	3.4

Options

G Pressure gauge
SS All stainless steel construction
X Slotted adjusting screw

Capacity





Dimensions – Weights

Model	Size (DN)		A		C		Weight	
	in.	mm	in.	mm	in.	mm	lbs	kgs
26A	⅛	3	2⅛	54	4⅜	111	1	.45
26A/263A	¼	8	2⅛	54	4⅜	111	1	.45
26A/263A	⅜	10	2⅛	54	4⅜	111	1	.45
26A/263A	½	15	2⅛	54	4⅜	111	1	.45

ISO 9001-2000 CERTIFIED

MEMBER

WATTS®
A Watts Water Technologies Company

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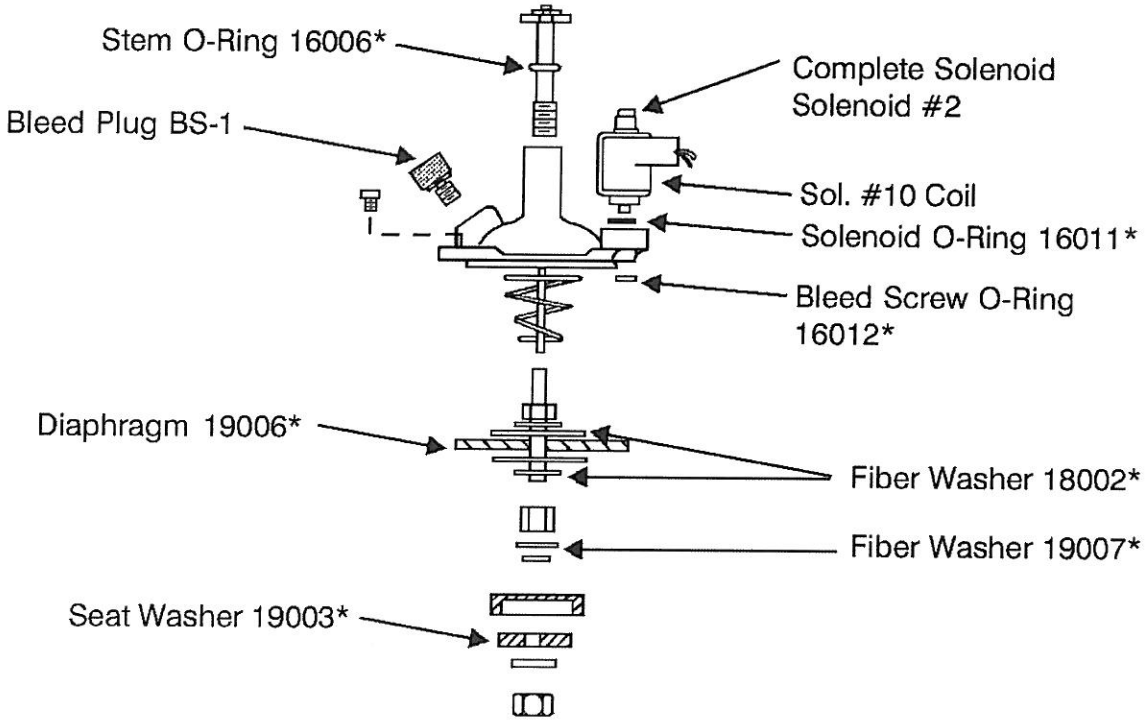
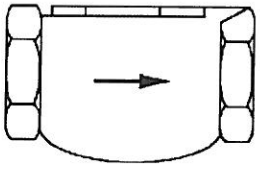
Canada: 5435 North Service Rd . Burlington. ONT. L7L 5H7; www.wattscanada.ca

3" 950 Series
Electric Valve





REPAIR KITS BPS-8
(includes Asterisk Items)

1	**19006**	**Diaphragm**
1	**19003**	**Seat Washer**
2	**18002**	**Fiber Washer**
1	**19007**	**Fiber Washer**
1	**16012**	**Bleed Screw O-Ring**
1	**16006**	**Stem O-Ring**
1	**16011**	**Solenoid O-Ring**

4780 Eucalyptus Avenue • Chino, CA 91710 • (909) 614-1910 Fax: (909) 614-1905

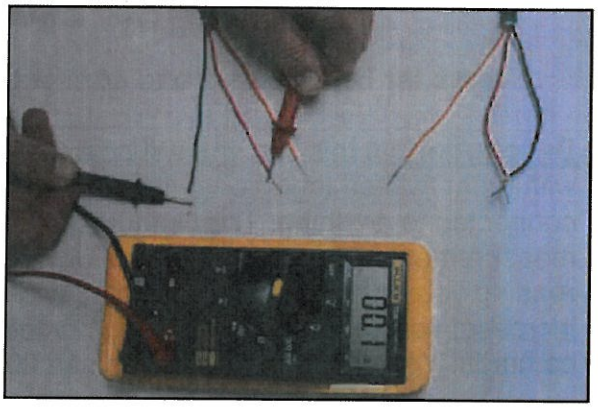
CALSENSE®
2075 Corte del Nogal, Suite P, Carlsbad CA 92011
1-(800)-572-8608 FAX: 1-(760)-438-2619
www.calsense.com

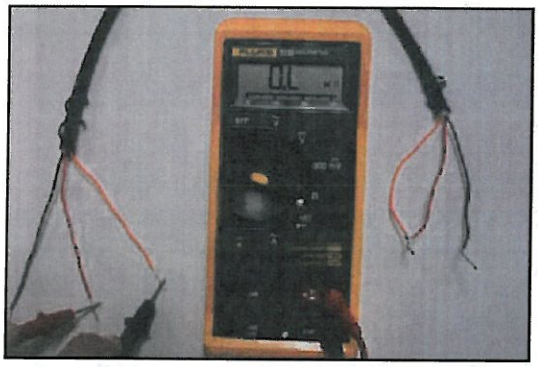
Stock Number: PG1-FM-E1

Rev. 03/06

LOOP OHM TEST
STEP 3

Make OHM measurements between the pieces of wire that are twisted together. You should see low readings.





LOOP OHM TEST
STEP 4

Repeat the tests changing the groups of wires. For example, if your first pairs were RED / BLUE and BLACK / ORANGE repeat the test using RED / ORANGE and BLUE / BLACK pairs. (You repeat the test to find crossed pairs. No matter how many wires involved, you only need to change your pairs once).

NOTE

THIS WILL CONCLUDE THE WIRE VERIFICATION TESTS

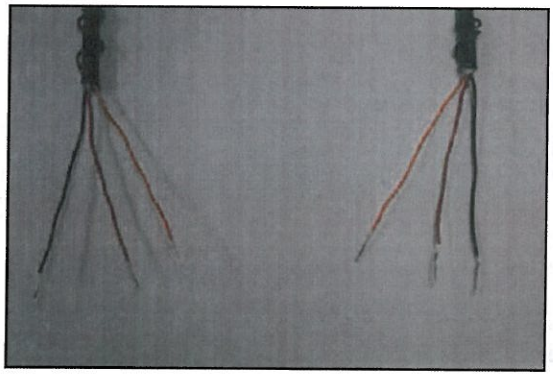
LOOP OHM TEST

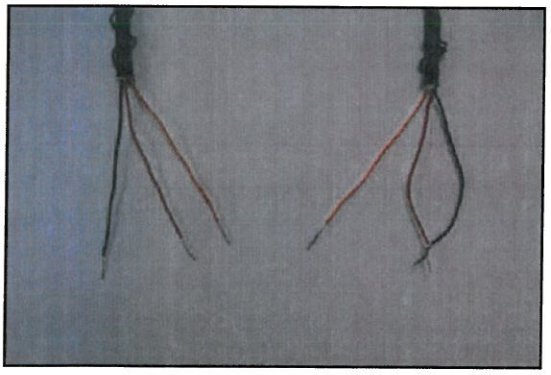
Tests for bad splices, bad connections, broken wires and crossed pairs.

Description: In this test you will be making OHM measurements between the wires with them twisted together at the other end of the cable. The wires are not to be connected to anything. They should not be touching the ground. When making OHM measurements between the pieces of wire you should have readings similar to the reading you get when you touch your two-meter leads together. As the wire lengths increase, you will start to see OHM numbers. Numbers like 1 or 2 OHMs may be common. You should not expect to see 20 OHMs however.

LOOP OHM TEST
STEP 1

Isolate all wires involved. This means disconnect at both ends. (Recommend you perform the ISOLATION OHM TEST at this point, if you have not done it already).



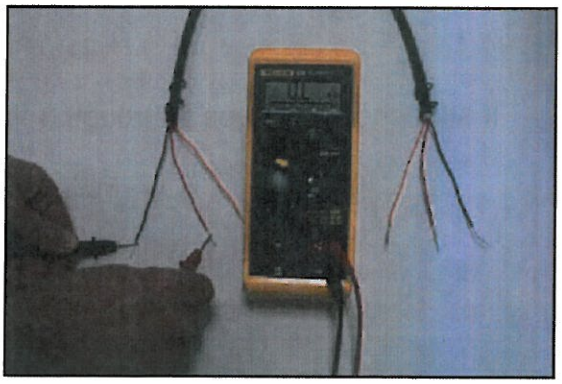


LOOP OHM TEST
STEP 2

At one end of the cable, take two wires and twist them together. If there are more than two wires, you may repeat ending up with more than one twist. Each twist involves only two wires.

ISOLATION OHM TEST
STEP 2

Make OHM measurement between the various pieces of wire and each other. Test all combinations. You should see a reading of OL . (OL stands for overload).

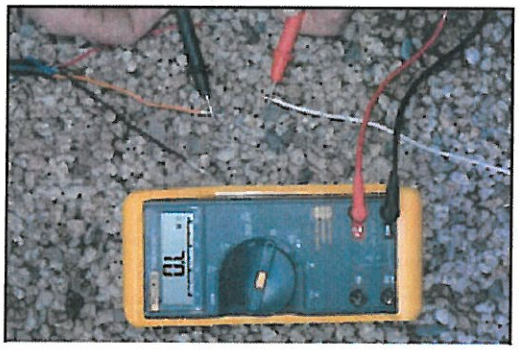


ISOLATION OHM TEST
STEP 3

Make OHM measurements between the various pieces of wire and the ground rod. If no ground rod is available, jab your meter probe straight into the ground. You should read OL on the meter.

ISOLATION OHM TEST
STEP 4

Make OHM measurements between the various pieces of wire and the field common. You should read OL on the meter.



NOTE

If after checking steps 1 through 3 "Installing the Flow Meter" everything does not check okay.
Follow the procedure for:

"**Wire verification test**"

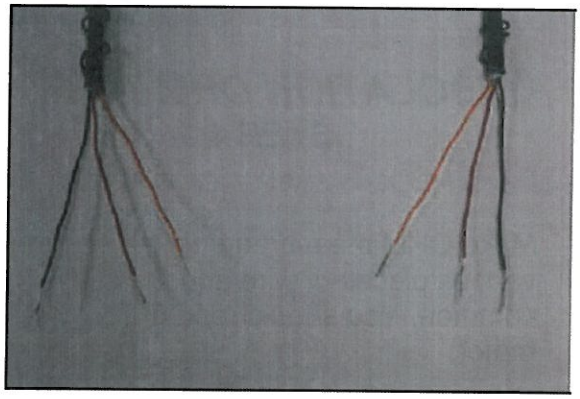
ISOLATION OHM TEST

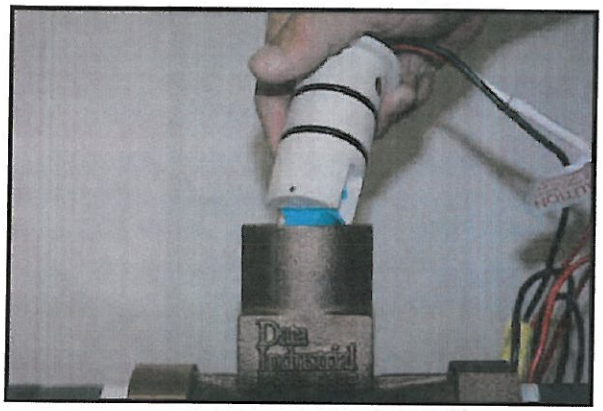
Tests for nicks, bad splices and loose strands on terminal blocks.

Description: In this test you will be making OHM measurements between the wires you are testing. The wires are not to be connected at either end to anything. They should not be touching the ground. When making OHM measurements between pieces of wire, you should see no difference in the meter reading than if meter leads aren't touching anything. The meter should read infinite or "OL" as the Fluke meters show (OL stands for overload).

ISOLATION OHM TEST
STEP 1

Isolate all wires involved. This means disconnect at both ends.



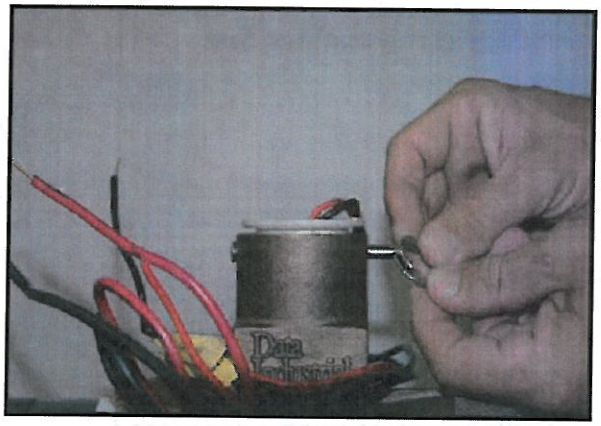


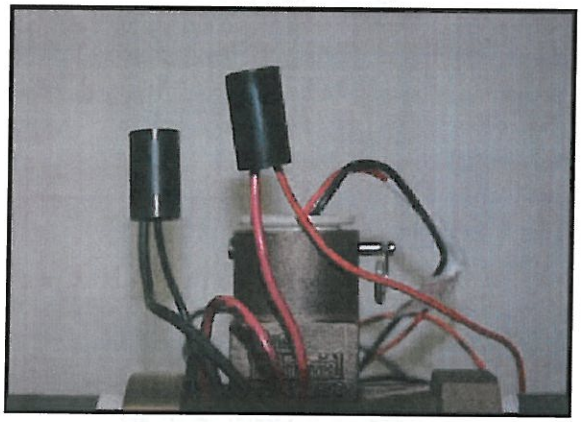
INSTALLING THE FLOW METER INSERT STEP 1

Insert the new Flow Meter insert into the body of the Flow Meter, making sure that the arrow on the top of the Flow Meter insert is pointing in the same direction as the direction of flow.

INSTALLING THE FLOW METER INSERT STEP 2

Re-insert the stainless steel pin and reconnect the ring to the end of the stainless steel pin.





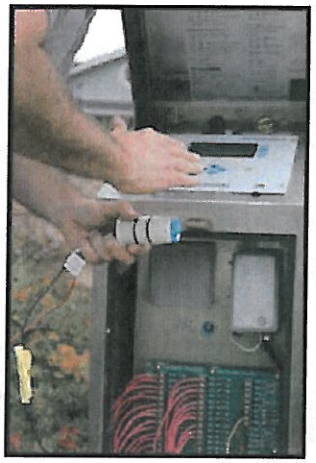
INSTALLING THE FLOW METER INSERT STEP 3

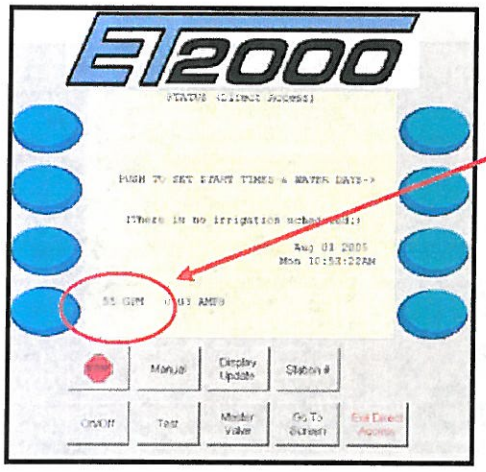
Reconnect the field wires with recommended water proof connections.

This concludes Flow MeterTroubleshooting

TESTING THE FLOW METER INSERT STEP 1

Take the removed Flow meter insert to the controller. Connect the Flow Meter insert to the Flow RED and Flow BLACK terminals.



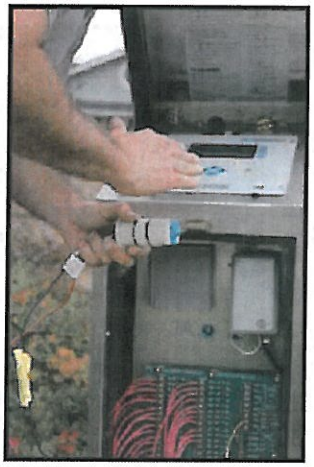


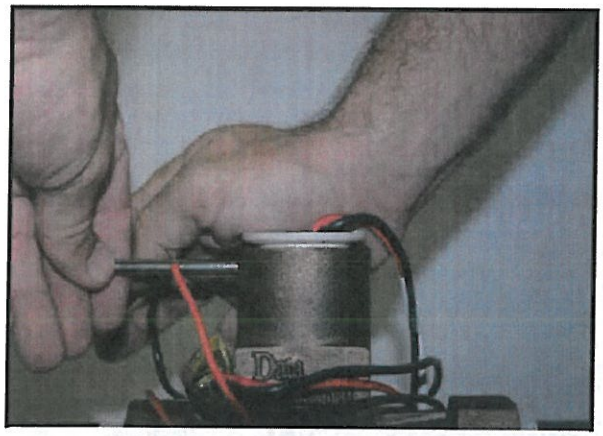
TESTING THE FLOW METER INSERT STEP 2

Spin the paddle wheel. You should observe a flow reading in the lower left hand corner of the display move from 0.0 GPM to a higher number. When the paddle wheel stops the number should return to 0.0 GPM.
If no number appears or the numbers jump around without spinning the paddle wheel the Flow Meter insert is bad.

TESTING THE FLOW METER INSERT STEP 3

At the controller, connect the new Flow Meter insert to the Flow RED and Flow BLACK terminals. Spin the paddle wheel. You should observe a flow reading in the lower left hand corner of the controllers display move from 0.0 GPM to a higher number. When the paddle wheel stops the number should return to 0.0 GPM.



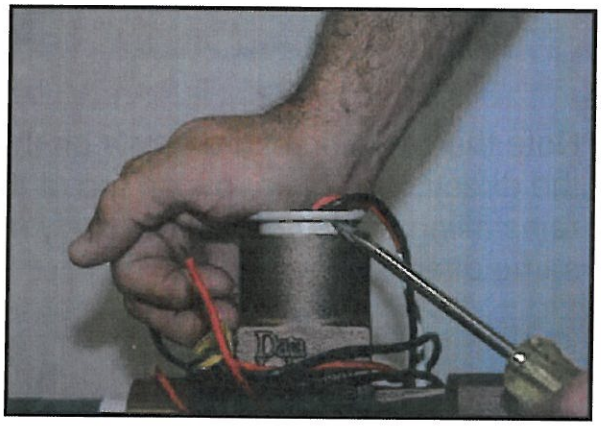


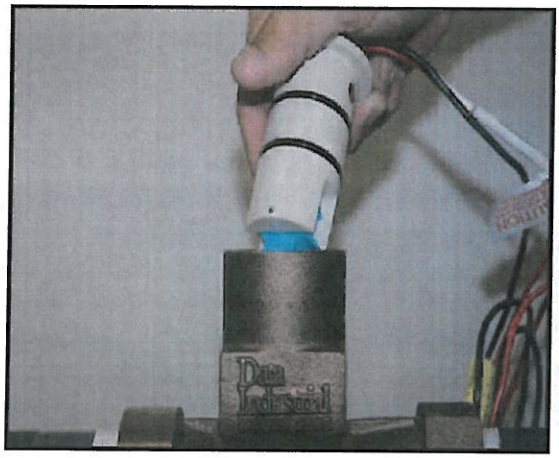
REMOVING THE FLOW METER INSERT STEP 3

With the palm of your hand still firmly on top of the insert. Completely remove the stainless steel pin from the body of the flow meter insert.

REMOVING THE FLOW METER INSERT STEP 4

With the palm of your hand still firmly on top of the insert. Gently pry up the lip of the Flow Meter insert with a common screwdriver moving the insert about a ¼ inch past the first O-Ring.





REMOVING THE FLOW METER INSERT STEP 5

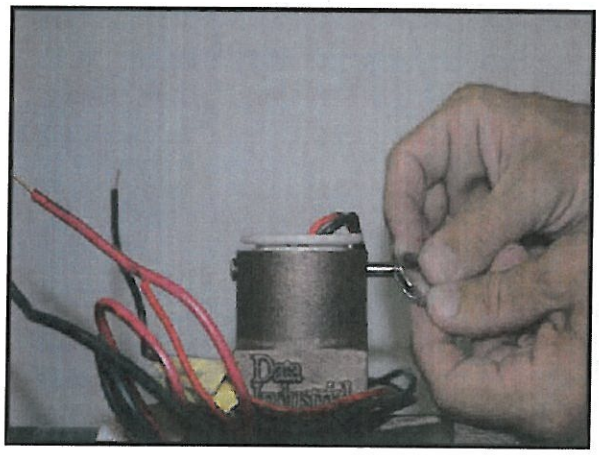
With your hand that you are using to hold down the top of the flow meter insert, firmly grab the Flow Meter insert. Slowly lift the Flow Meter insert out of the body of the Flow Meter being careful not to allow any debris to enter the body of the Flow Meter. Check the paddle wheel for any damage. Check the inside of the Flow Meter body for any debris.

REMOVING THE FLOW METER INSERT STEP 1

CAUTION:

Do not position your head or body directly over the Flow Meter.

Remove the ring from the stainless steel pin that holds the insert in the flow body.

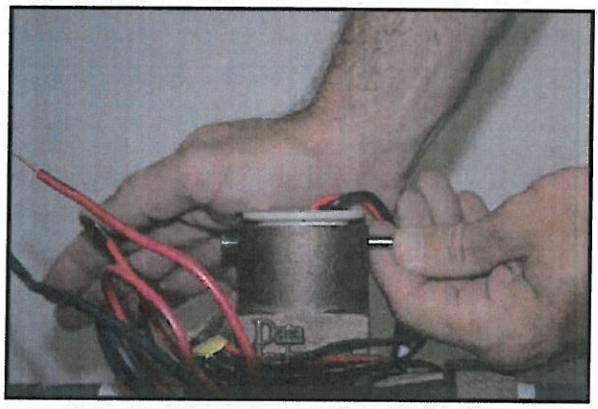


NOTE

Note the direction of the arrow on the top of the insert in the flow body. Note the direction of the arrow on top of the insert. It is important that when reinstalling the insert into the body of the Flow Meter that the arrow be in the same direction as the flow.

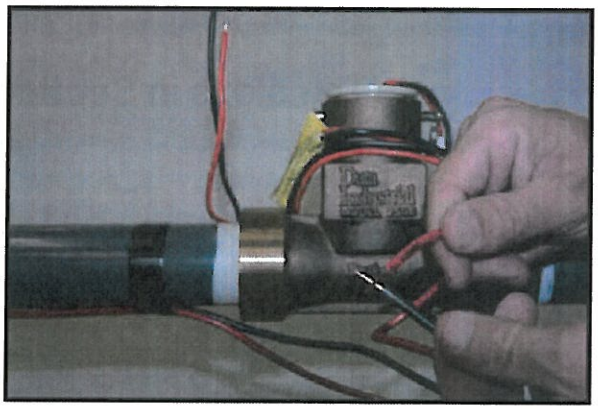
REMOVING THE FLOW METER INSERT STEP 2

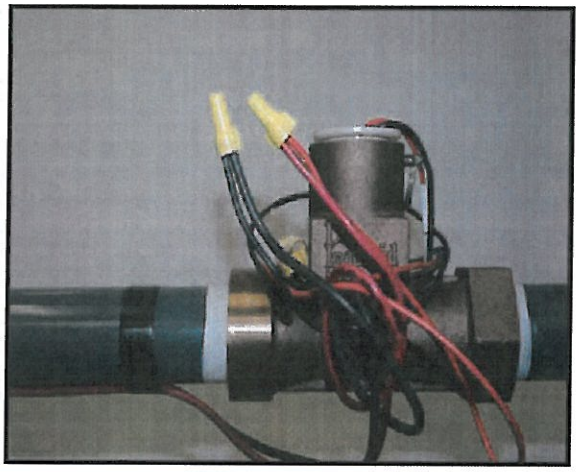
With the palm of your hand firmly on top of the insert, push the ring end of the stainless steel pin toward the body of the Flow Meter insert with your other hand.



TESTING AT THE FLOW METER STEP 3

In the case where a digital Multi-meter is not available, have someone located at the controller to view the controller screen. Begin tapping together the two field wires going to the controller. You should see a flow reading in the lower left corner of the controller display move from 0.0 GPM to a higher number. No flow indicates bad wiring.





TESTING AT THE FLOW METER STEP 4

Reconnect the field wires to the Flow Meter using two (2) yellow wire nuts. At the controller test the same station as before to see if the controller reads flow.

REMOVING THE FLOW METER INSERT

CAUTION:

This next step requires the removal of the Flow Meter insert. Extreme care must be taken when removing the Flow Meter insert. Turn **OFF** the water supply to the irrigation system. (This should include all Water Meters, Isolation Valves, Hose bibs, etc. to relieve the pressure off of the mainline).

NOTE

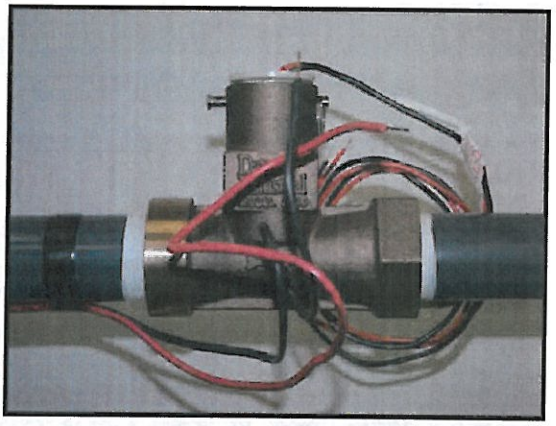
(The steps in **Section 2** verify that the controller Is good).

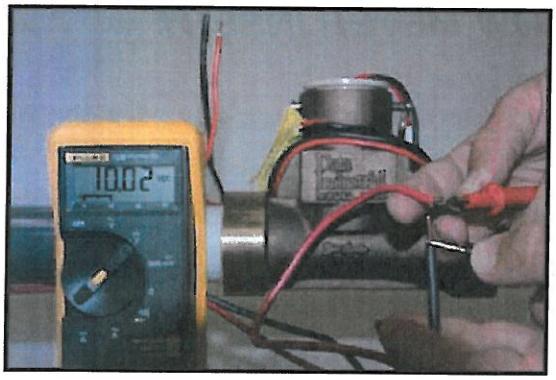
If **Section 2** Steps 1 through 6 check out okay, reconnect your wires and proceed to

"TESTING AT THE FLOW METER".

TESTING AT THE FLOW METER STEP 1

At the Flow Meter location, cut out the wire connections. Strip the Flow meter and field wire ends. Check for discolored or corroded wire connections. This would be an indication of an improper connection.



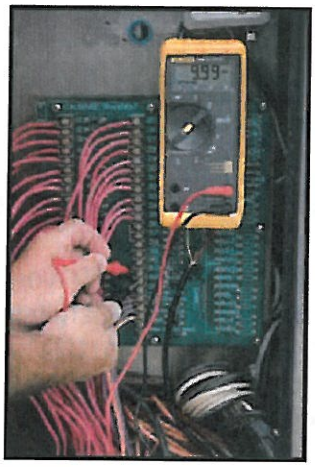


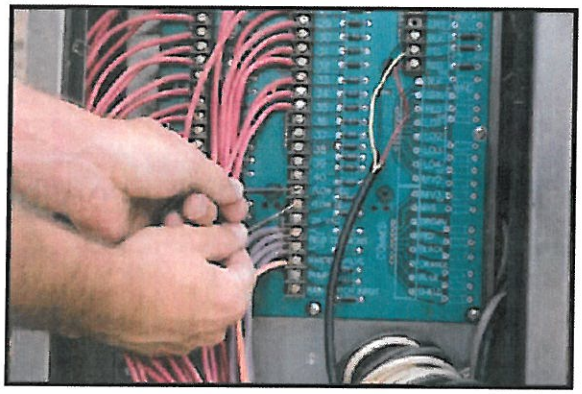
TESTING AT THE FLOW METER STEP 2

With the field wires connected at the TP-1 Board, check the DC voltage on the field wires to the controller. You should read between 9.5 to 11.0 volts DC. This would be an indication of good field wires. If you do not read voltage the field wiring is faulty.

SECTION 2
STEP 2

With a Digital Multi-Meter measure the DC voltage on the terminal strip. You should read 9.5 to 12.0 volts DC.



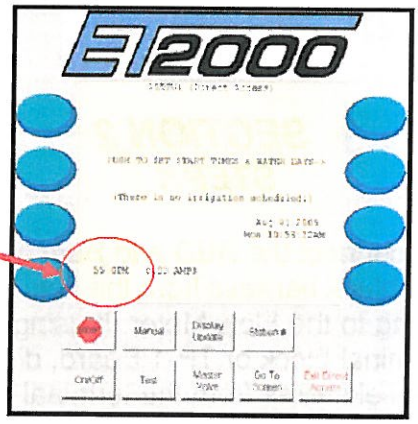


SECTION 2
STEP 3

Tap the RED and BLACK wires together to see if you get flow readings on the controller display.

SECTION 2
STEP 4

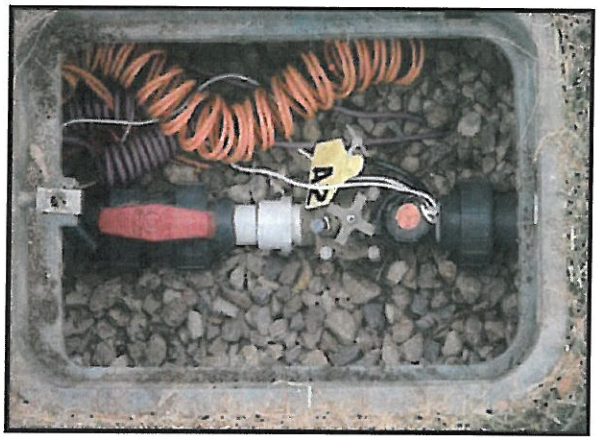
You should see a flow reading in the lower left corner of the controller display move from 0.0 GPM to a higher number.



SECTION 1
STEP 6

RCV (Remote Control Valves):

Check for any RCV Valves that might have been recently worked on. It is possible that the flow control on the RCV Valve has been turned down.



NOTE

After checking **Section 1** items 1 through 4 and finding everything okay. Proceed to **Section 2**.

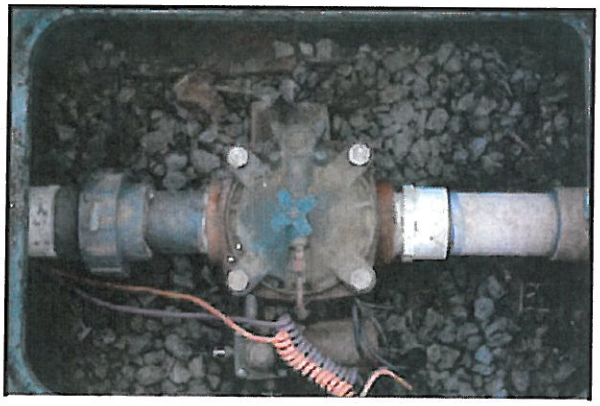
SECTION 2
STEP 1

Disconnect the RED and BLACK wires in the black harness from the field wires going to the Flow Meter. If using a terminal block or TP-1 Board, disconnect the field wires from the terminal block or TP-1 Board.

SECTION 1
STEP 3

Master Valve:

Check the Master Valve setup in the controller for correct entry:
Normally Open, Normally closed. Also check for the flow control turned down, wires not connected, or bad solenoid.



SECTION 1
STEP 4

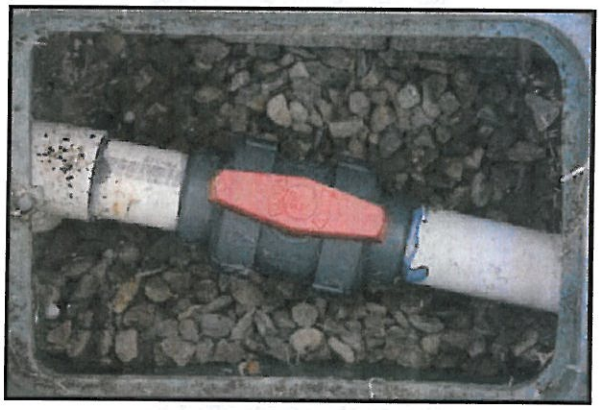
Isolation Valves:

Inspect the Mainline and RCV manifolds. Check that these valves have not been turned down.

SECTION 1
STEP 5

Isolation Valves:

Check for isolation valves to make sure that they have not been turned OFF.



TEST

Using the **TEST** key, test a station that you can see from the controller for two (2) minutes. Verify that the station you have turned on is running and has stabilized. If after verifying that the system is working properly and no flow readings appear on the display screen, proceed to **SECTION 2**.

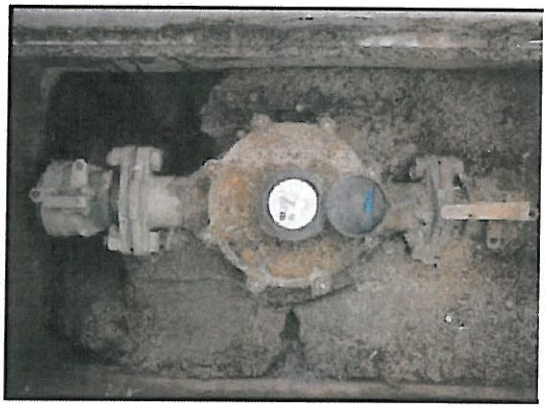
If after testing and verifying that there is no water running from the system and no flow readings from the controller display, follow the steps in **SECTION 1** before proceeding to **SECTION 2**.

SECTION 1
STEP 1

Do not remove the controller or the flow insert. Check the following first.

Water meter:

Check that the Water Meter is not locked for non-payment, or turned OFF for repairs in the system.



SECTION 1
STEP 2

Back flow Preventer:

Check that the curb stop and ball / gate valves on the back flow device are in the OPEN position.

FLOW METER TROUBLESHOOTING

The *Calsense* Flow Meter enables all *Calsense* Irrigation Controllers to measure the flow rate of an irrigation system, making it an important management tool in detecting mainline breaks, broken risers, and closed or stuck valves and tracking water usage for management reports. It is installed in the main line, after the water meter or backflow preventer.

REQUIRED TOOLS

- Digital Multi-meter.
- Common Screwdriver
- Philips Screwdriver
- Wire Strippers
- 2 Dri-Splice Connectors (Hardening Type)
- 2 Yellow Wire Nuts
- Calsense FMI Insert
- 10" 14 AWG wire

PROBLEM: NO FLOW

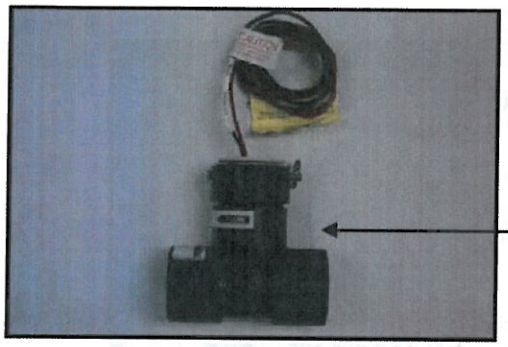
EXAMPLE:

NORMAL FLOW 9.0 GPM **MEASURED 0.0 GPM**

Description: This is an alert that appears on the display screen of the 2100, ET1, and ET2000 controllers when a **NO FLOW** condition occurs in the system. If a **NO FLOW** alert is detected on all stations or a group of stations on the controller, there could be a problem in a number of places in the irrigation system. The following areas that these problems could arise from are the water meter, back flow, master valve isolation valve, field wiring, flow meter or the controller. The following procedures will help in determining where a problem has occurred.

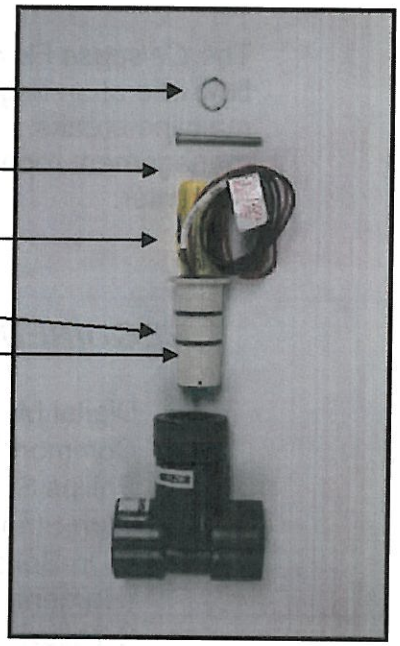
FLOW METER PARTS IDENTIFICATION

FLOW METER ASSEMBLY



FLOW METER HOUSING

FLOW METER PARTS



RETAINING PIN RING

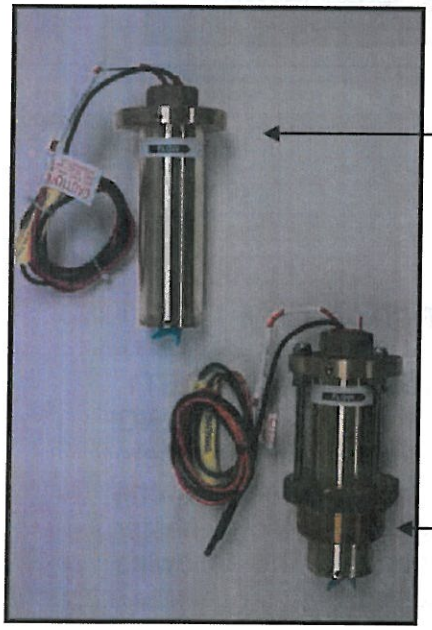
RETAINING PIN

FIELD WIRING

FLOW METER INSERT

IMPELLER PIN

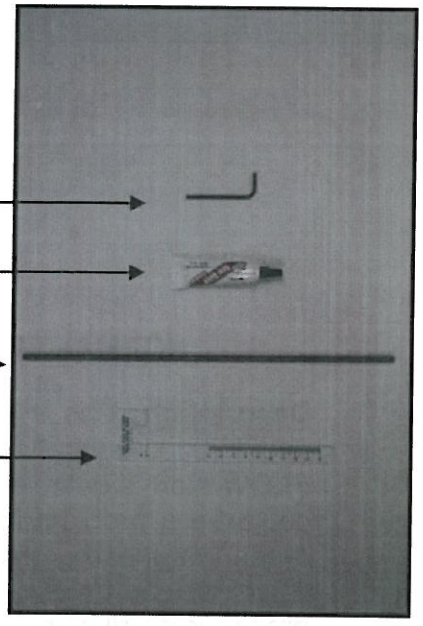
IMPELLER



FMIX FLOW METER INSERT

FMBX FLOW METER INSERT

FMIX / FMBX INSERTS



ALLEN WRENCH

ANTI-SEIZE LUBRICATION

ALIGNMENT TOOL

INSTALLATION DEPTH GAUGE

FMIX / FMBX TOOLS

FLOW METER

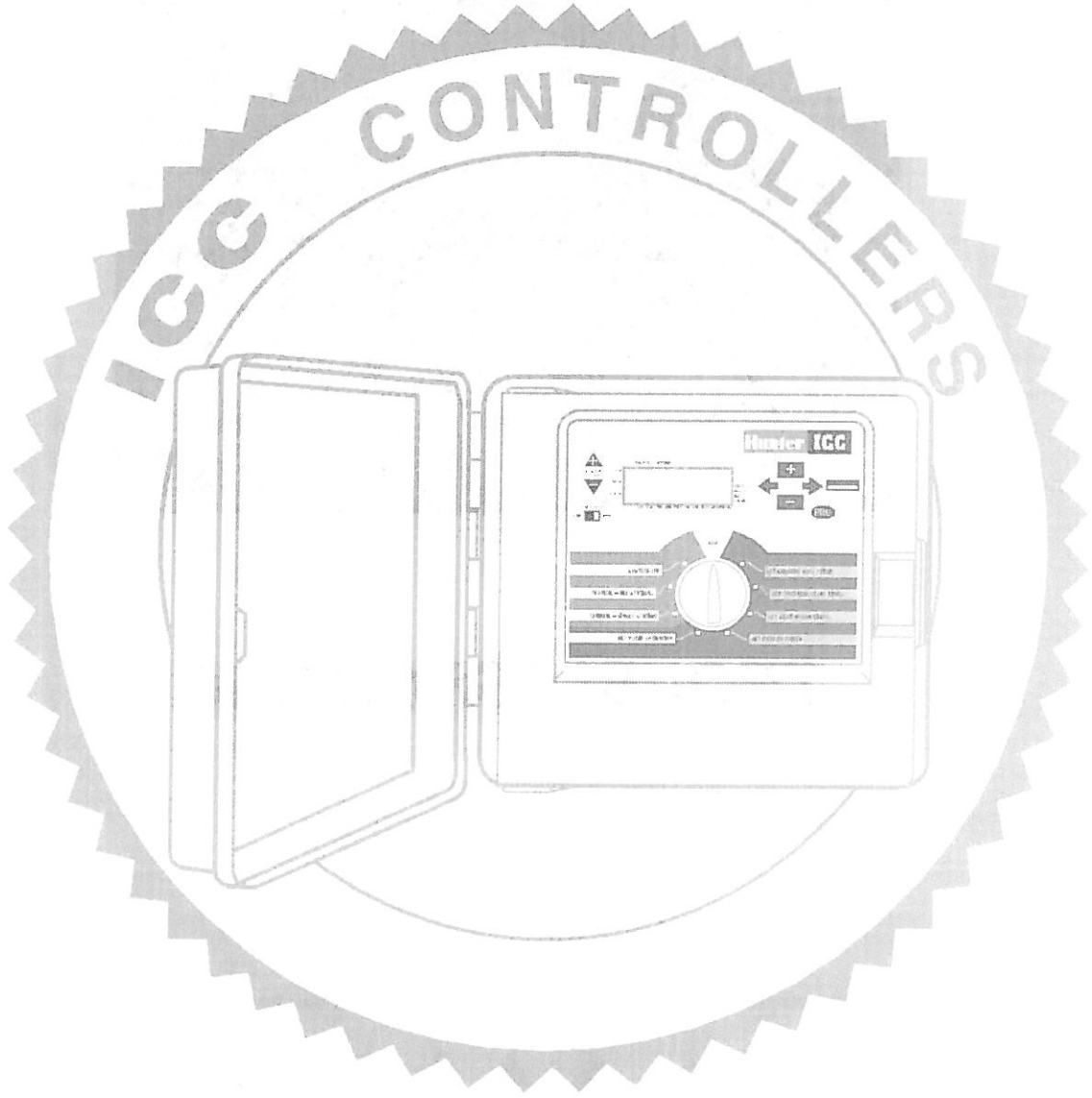
TROUBLESHOOTING

Hunter®

PRODUCT INFORMATION

ICC Controllers

Institutional Series Controllers for Heavy Duty Residential and Commercial Applications



Hunter®

TABLE OF CONTENTS

PRODUCT OVERVIEW

Rounding out the Institutional Series product line is the high-end residential and commercial controller that everyone has been asking for–the versatile ICC outdoor controller.

A Full Range of Controllers for All Applications

From a top-of-the-line 8-station small-project controller, up to an incredible 48-station commercial work horse, this is the largest most versatile controller for residential, commercial, sports field, and public works projects. With the simple addition of station modules, one ICC will go from 8 stations to 48 stations in 4 station increments. This controller is absolutely perfect for sports fields, parks, office buildings, shopping centers, cemeteries, schools, large residences, factories, highway planting areas, and anywhere else an easy to program, solidly constructed wall mount or pedestal mount irrigation controller is needed.

Programming Flexibility

With the ICC's extremely flexible programming capabilities, watering landscapes planted in unique soils or fitting the watering into special scheduling windows is a snap. Whether drip watering ornamentals, or applying water to turf and shrubs with rotors or sprays, the Hunter ICC has the ability to accept the watering schedule for any project. And in the event of a power outage, once that schedule is in place it will stay there virtually forever because of the ICC's nonvolatile memory.

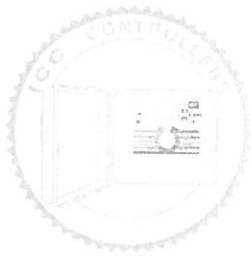
Remote Compatible and Central Control Capable

The ICC Controller is shipped remote-control compatible for instant use of the SRR and ICR remote controls. The ICC is also central control compatible with the Hunter Irrigation Management and Monitoring System™ (IMMS™). With IMMS, automatic irrigation systems at multiple sites or multiple controllers at a single site can be programmed for functions that would be typically handled directly at each controller. Scheduling of days to water, run times, start times, cycle and soak operations and more can be done from a single computer at a desk miles away from the actual installation. A key function of the IMMS is its ability to monitor changing conditions. With the aid of Hunter's Clik family of sensors, IMMS can report the status of every site and perform turf and water saving shutdowns in rain or emergencies. It's able to network Hunter controllers from the SRC to the Pro-C and ICC.

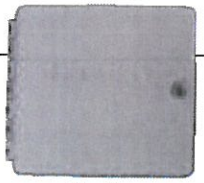
Distributors and Contractors Will Love the Modular Design

With the modular designed ICC, inventory management is easy, while the inventory investment is low. With the ICC, there are fewer SKUs and less shelf space requirements; one locking heavy-duty plastic controller and one locking metal controller and a combination of the four station module and/or the eight station module produces eighteen possible controller configurations. The right controller is always in stock. This translates into higher inventory turns per square foot and an incredible return on inventory investment.

With the time saving mounting and wiring features, dial-style intuitive programming, and the modular design for inventory management, this is the most convenient and versatile controller on the market.



PRODUCT FEATURES AND BENEFITS



Plastic
8 to 32 Stations

Metal or Stainless
8 to 48 Stations

Heavy-Duty Plastic or Metal Cabinets
Built to overcome the elements– for a long time

The ICC is offered with a robust heavy-duty plastic UL listed and NEMA 3R rated cabinet, or in a metal or stainless steel cabinet. For faster installation, the cabinet door hinge pin is removable when the door is unlocked and open. The ICC cabinet is also designed with a ¾"- 1½" knockout option on the back of the cabinet, and a 1½" opening for low voltage and a ½" opening for high voltage in the bottom of the cabinet to accommodate the wiring needs of any job. The metal and stainless controllers can be installed on an optional pedestal.

Rugged Pedestals
Flexibility when wall mounting is not an option

The ICC metal and stainless steel cabinets can be mounted on optional pedestals for outdoor installations. In addition, the ICC is also available assembled in a rugged plastic pedestal that is built to withstand the elements in virtually any environment.

Modular Design
One controller does it all; no need to stock or carry multiple units

Hunter is a leader in fulfilling customer wishes and the ICC controller simply the latest in a long history of quality irrigation products. Here is an impressive controller, with its modular design for inventory management, eight stations factory installed, and the ability to easily add more stations, this is one well-conceived controller that will satisfy both contractor and end user alike.

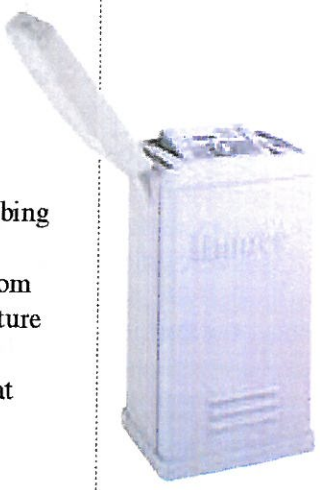
Removable Front Panel for Remote Programming
Set up the controller without having to stand in front of it

A removable hinge design allows easy removal of the front panel without disturbing field wiring. With the use of a 9-volt battery, you can set the program away from the cabinet location. This timesaving feature allows the contractor to program before going out to the job (also serves as a great sales demo when talking to a potential client). The contractor can also give the homeowner the front panel while the job is being installed to allow the homeowner to try the programming functions early on. When it comes time to actually set up the

controller, the homeowner is completely clued in, making the whole programming process a very simple one.

Eight Start Times Per Program and Extended Station Run Times
Maximum programming flexibility

Hunter's ICC controller has eight start times per program available for as many as 24 start times per zone. Stations can be assigned to programs A, B, and C, and can be set to run as long as 1 hour and 59 minutes per start time. If that is not enough watering time, switch to program D where there is 12 hours of available station run time.



Plastic Pedestal 8 to 48 Stations (can also house IMMS Interfaces)

One Touch Manual Start and Rapid Advance
Simple operation for a quick check of zones

The One Touch Start and Rapid Manual Advance feature increases user-friendliness of the controller by using fewer steps to activate stations. This feature is great for a quick cycle when extra watering is needed or if you would like to scroll through the stations to inspect the system.

Cycle and Soak Capability
For maximum programming flexibility

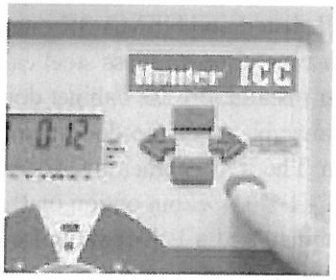
In addition to all of the other programming features, the ICC also has a cycle and soak feature which is perfect for bringing up new seed or when watering slopes or landscapes with clay soils. Program how long you want the station to run and the minimum amount of time you want to allow the water to soak in, and the ICC divides up the run time automatically.

Seasonal Adjust
Compensates for weather changes

The simple-to-use global seasonal adjust compensates for weather changes–adjust the station run times from 10% to 150% (in 10% increments) without reprogramming. The easy-to-read adjusted level is always immediately apparent with the thermometer type display.

Choice of Independent Day Scheduling Options
Days of the week or 31-day interval for maximum flexibility

The watering day schedules in programs A, B or C may be set up independently from each other. In each program, the choice of Custom (day of the week), Interval (up to 31-days), Odd or Even days may be selected. This allows the user to water on certain days of the week such as Monday, Wednesday and Friday or water on a repeating day cycle (Interval) such as every third day, or odd/even days in any or all three of the programs.



3 Programs (A, B, C) with Multiple Start Times
Different watering requirements are met with independent programming

The ICC allows for many different irrigation applications using three completely independent programs. This is ideal for various types of plants that have separate watering day requirements. Each program has the ability to water up to four start times per day. The user has complete flexibility with watering schedules for new seed or sod lawns, multiple cycles for low infiltration-rate soils, slopes, morning or evening irrigation and other watering window restrictions.

Concurrent Station Operation with Program D
Run two stations at once

The A, B, and C programs will stack start times, while program D will run concurrently with all other programs. This program D feature is great for large projects with drip systems. Generally, the watering window on large projects is limited, while the length of necessary watering time is high. The GPM requirements are usually low on drip watering systems; the ICC will permit this low volume watering to run concurrently with other programs, allowing the project to complete watering in less time. The ICC has the capability of running up to two valves

PRODUCT FEATURES AND BENEFITS *(continued)*

per station, plus a master valve. This means up to 4 valves and a pump start relay or master valve can be operated at the same time.

Non-volatile Memory
Holds programs indefinitely; excellent insurance against unreliable power

The ICC has what every user of electronic controllers has wished for: the ability to keep all programs in memory without a backup battery. In the event of a power failure or if AC power is suspended from the controller by the user, the ICC's non-volatile memory will maintain programs forever, without need for a battery. Normal watering will resume when AC power is restored.

Superior Surge Protection
All microcircuits are protected from electrical spikes/lightning

The ICC is equipped with electronic components called MOVs (Metal-Oxide Varistor). These MOVs are designed to shunt electrical surges away from microcircuits through the controller's grounding circuit. The ICC uses these MOVs to protect the controller from minor power surges coming in through the primary (110/230VAC) input side and also the secondary output side (24VAC).

Self-Diagnostic Electronic Short Circuit Protection
No fuses to worry about; only faulty stations stop watering

The ICC automatically skips shorted stations allowing the rest of the system to operate as normal. The self-diagnostic electronic short circuit protection system is very beneficial to the user because of its ability to aid in identifying field wiring problems. It is almost as if the controller can troubleshoot the system itself.

The self-diagnostic system detects a high current path–a "short"–through an operating station (the most common causes of shorts are faulty solenoids or when a bare valve common wire touches a bare station control wire). When a short circuit is detected on a station, instead of blowing a fuse which would shut down the entire irrigation system, the controller will skip over that station and continue to water the rest of the zones in the program. The controller will indicate what zone is shorting by showing the station number followed by ERR in the LCD display. The controller will continue to "jump over" that zone during every watering until the zone is repaired. To remove the ERR message from the display, just turn the dial or push any button.

Hunter Quick Check™
Quickly diagnose field wiring problems

The ICC also provides irrigation professionals with the ability to efficiently and effectively diagnose problems in the field. Instead of having to physically check each field wiring circuit for potential problems, the user can run the Hunter Quick Check™ circuit test procedure. This circuit diagnostic is very beneficial because of its ability to aid in quickly identifying "shorts" in control wiring.

Programmable Delay Between Stations
Slow closing valves and well recovery will never be an issue

A programmable delay between stations solves the problem of slow closing valves because of a hydraulic overload condition. The delay also solves the problem of a system operating off of a slow filling well, allowing the well to recover between zones. The ICC's programming will allow it to fit into any situation where a delay is necessary, as the delay is programmable up to

ten hours. Delays from 0 to 60 seconds are allocated in 5-second increments and then up to 10 hours in 1-minute increments.

Note: If the MV circuit is programmed to operate on the zone, it will stay hot for the first minute of any programmed delay.

Test Program

Simple operation allows user to run all zones for a specified amount of time

The ICC allows the user a simplified method for running a test program. This feature operates each station in numerical sequence, from the lowest to the highest. You can start with any station. This is a great feature to check the operation of your irrigation system.

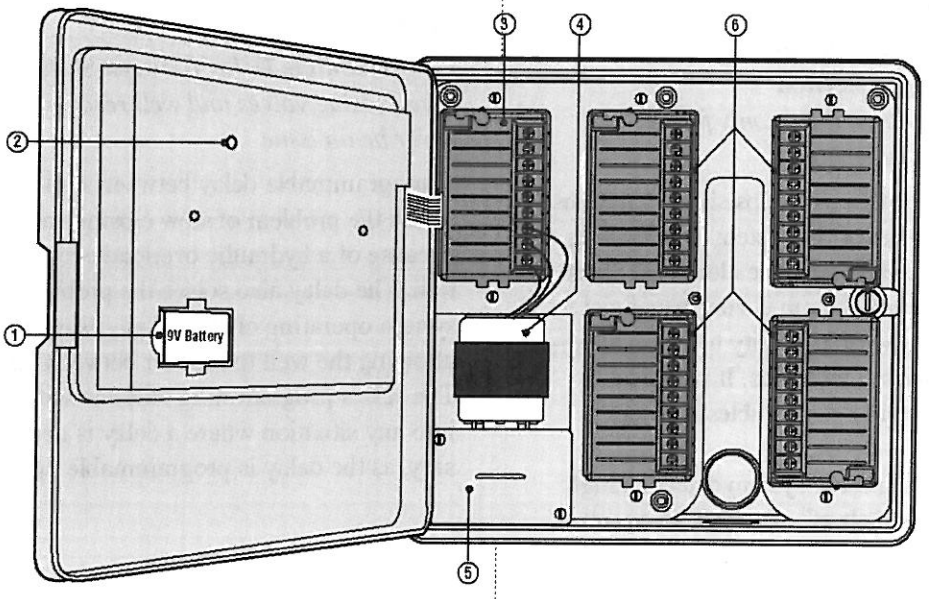
Easy Access Wire Compartment

Simplified wire hookups

The ICC permits fast and easy connection of wiring in the spacious wiring compartment. With the sturdy terminal block, the wire can be inserted without bending for simplified installation. The primary terminal block has dedicated terminal screws for both a sensor hookup and a 24VAC connection for accessories. Each terminal will accommodate two 20-12 gauge wires.

Wiring Cabinet

1. **9-Volt Battery** – The alkaline battery keeps time during power outages or if the transformer is disconnected. The user may also program the controller without AC power.
2. **Reset Button** – This button will restart the computer in case of power surge or display freezing. No programmed data will be lost.
3. **Power Module Area** – Used to attach transformer, master valve, and other systems from their source to the controller.
4. **Transformer** – A transformer is installed in the controller to route AC power from the power cable to the terminal strip area and to ground the controller.
5. **Junction Box** – This box contains connections for 115 volt and 230 volt power connections.
6. **Station Modules** – There are 4 (plastic cabinet) or 6 (metal or stainless steel cabinet and plastic pedestal) modular positions inside the controller. With the addition of 4 or 8 station ICM modules, you have the ability to run anywhere from 8 to 32 stations (plastic cabinet), and 8 to 48 stations (metal, stainless steel cabinet, and plastic pedestal).



PRODUCT FEATURES AND BENEFITS *(continued)*

Programmable 0-7 Day Rain Delay
No need to return to the controller to turn it back on

The ICC allows you to turn off the controller for a predetermined period of time (1-7 days) during rainy weather. All programs are affected, as this delay is global. After the specified period has elapsed, the controller will return to automatic mode and water as scheduled. This delay feature is very convenient because when the controller is turned off for an event such as rain or a social activity, the operator will not have to make a trip to the site to reactivate the controller. In residential systems, when the operator uses the watering delay feature there's no need to worry about remembering that the controller has been turned off.

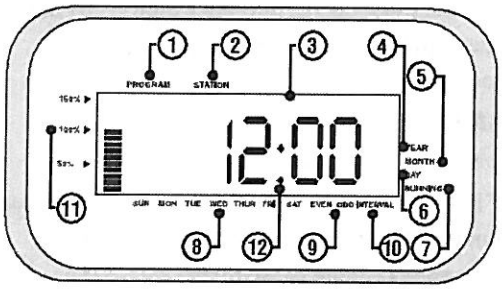
Note: If the controller is programmed with a 3-day or higher interval-watering schedule in a program, the controller will operate at the next watering start time, regardless of the interval period, effectively resetting the start of the interval period.

Weather Sensor Compatible
Built-in bypass switch eliminates extra watering

The ICC allows easy connection of any rain or weather sensor device including the Hunter Mini-Clik®. With the sensor circuit on the controller, wiring is fast and easy. There's a built-in bypass switch to turn off the sensor for maintenance. Best of all, the controller will display **Sen Off** in the LCD display indicating when the sensor is interrupting irrigation. In all cases, use of the sensor does not alter any programmed watering schedule. The hookup is as simple as removing the jumper that is attached across the SEN terminals of the controller and connecting the sensor wires to the terminals.

Large LCD Display
Easy to read for schedule entry and review

The huge 1" by 3" display (2.5 by 7.6 cm) makes entries easy to read and verify. With the ICC controller, Hunter simplified programming at every step.



LCD Display

1. **Program Selector** – Identifies the program in use A, B, C, or D.
2. **Station Number** – Identifies currently selected station number.
3. **Main Display** – Indicates various times, values, and programmed information.
4. **Year** – Arrow identifies current calendar year.
5. **Month** – Arrow identifies current calendar month.
6. **Day** – Arrow identifies current calendar day.
7. **Running** – Arrow indicates when watering is occurring.
8. **Day of the Week** – Arrow identifies days of the week to water. You can also select odd or even and an interval watering schedule.
9. **Odd/Even Watering** – Arrow identifies if odd or even watering is selected
10. **Interval** – Arrow identifies if interval watering has been selected.
11. **Seasonal Adjust** – Displays in increments of 10%, the percentage of seasonal adjust that has been selected.
12. **Start time** – Identifies selected start time. (Only appears on LCD main display when **SET WATERING START TIMES** is selected.)

Intuitive Dial Programming
For easy program entry

For contractors and homeowners alike, the ICC provides step by step programming. No complicated entry functions or repetitive keystrokes. Just turn the dial to the section of the program that needs to be changed and use the plus, minus and next buttons to make the adjustments. No other programming method is easier.

Multi-language Capability
User friendly in all parts of the world

The ICC line is available as a multi-language controller family. Separate customization kits are available in Spanish (INT-321), French (INT-322), Italian (INT-323), and German (INT-370). These kits include an owner's operation manual, door instruction card and a faceplate overlay that replaces the English version included with the controller.

Semi-Automatic Operation
Quick manual watering of all stations

Simply turn the dial to "Manual-All Stations" and choose either a program or a specific station within that program to start irrigating. Then turn the dial back to "Run," and the ICC runs through the remaining stations. Station run times can be changed during semi-automatic operation to create a custom manual program. After the controller completes the manual watering, it will return to the original schedule.

Single Station Manual Start
If all that is needed is a little extra on a single zone

Many times throughout the year and for many reasons (e.g., watering fertilizer or pesticides into the soil, spot seeding), the user will want to add extra water to a particular zone. With single station manual start, the ICC is able to accomplish that task. Just turn the dial to Manual-Single Station, use the arrow button to move to the desired station, then turn the dial to the Run position. The user may also increase or decrease the run time setting if preferred. After the zone is finished, the controller will return to automatic mode with its original schedule, even if modified for the manual operation.

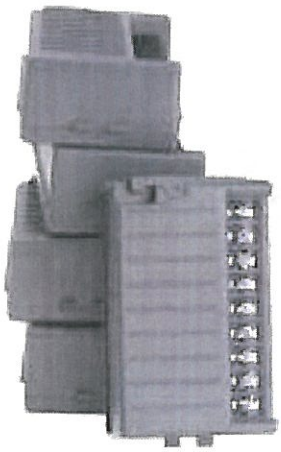
Remote Ready
Provide your controller with simple and reliable operation away from its mounting location

The ICC is remote ready! A SmartPort® wire harness is supplied with the ICC controller to permit the attachment of a Hunter SRR or ICR remote receiver. The easy-to-install handy option can help save time and effort by allowing remote valve operation away from the controller. The receiver and transmitter can be used on several jobs by simply installing a wiring harness at each controller; the receiver can be unplugged at one site and plugged into a wiring harness at another ICC site.

Optional pedestal allows free-standing installations.

PRODUCT COMPARISONS

Features	Hunter® ICC	Rain Bird® ESP-LX	Rain Bird® ESP-MC	Hardie® Total Control	Irritrol® MC	Rain Master® Sentar	Nelson® Smart Zone
Number of Stations	8-48	6-24	8-40	6-18	4-42	4-36	8-36
Modular Design	✔						✔
Dial Programming	✔	✔	✔	✔			✔
Number of Programs	4	4	4	4	4	4	4
Watering Day Scheduling Options	4	4	4	4	1	2	4
Interval Day Programming	31	31	99	30	16	30	30
True Odd/Even Scheduling	✔	✔	✔	✔			✔
Start Times per Program	8	6	8	16	3	5	4
Maximum Station Run Time (minutes)	720	720	720	600	1440	599	599
Season Adjust/Water Budget	✔	✔	✔	✔	✔	✔	✔
Cycle and Soak Feature	✔		✔				
Programmable Delay Between Stations	✔	✔	✔		✔	✔	✔
Simultaneous Program Operation	✔	✔	✔			✔	✔
Non-Volatile Memory	✔	✔	✔	✔	✔	✔	✔
Plastic or Metal Cabinet	both	plastic	both	plastic	metal	metal	both
Rain Sensor Bypass Switch	✔	✔	✔	✔		program	✔
Programmable Rain Delay	✔	✔	✔	✔	✔	✔	✔
Valves per Station (Plus Master Valve)	2+1	2+1	2+1	2+1	2+1	2+1	2+1
Programmable Master Valve by Station	✔	✔	✔	✔			✔
Diagnostic Circuit Breaker	✔	✔	✔	✔	✔	✔	
Factory Remote Ready	✔	✔				✔	
Central Control Compatible	✔		✔				
Warranty (years)	5	3	3	1/5	1/5	5	2



Interchangeable modules reduce inventory requirements.

ICC QUICK REFERENCE CHART

PLASTIC CABINET (8 to 32 Stations)

Number of Stations	Controller	Number of Add-on Modules	Specify as:
8	ICC-800-PL	No additional module needed	ICC-800-PL
12	ICC-800-PL	One ICM-400	ICC-1200-PL
16	ICC-800-PL	One ICM-800	ICC-1600-PL
20	ICC-800-PL	One ICM-400 & one ICM-800	ICC-2000-PL
24	ICC-800-PL	Two ICM-800	ICC-2400-PL
28	ICC-800-PL	One ICM-400 & two ICM-800	ICC-2800-PL
32	ICC-800-PL	Three ICM-800	ICC-3200-PL

METAL, STAINLESS STEEL CABINET or Plastic Pedestal (8 to 48 Stations)

Number of Stations	Controller	Number of Add-on Modules	Specify as:
8	ICC-800-M	No additional module needed	ICC-800-M
12	ICC-800-M	One ICM-400	ICC-1200-M
16	ICC-800-M	One ICM-800	ICC-1600-M
20	ICC-800-M	One ICM-400 & one ICM-800	ICC-2000-M
24	ICC-800-M	Two ICM-800	ICC-2400-M
28	ICC-800-M	One ICM-400 & two ICM-800	ICC-2800-M
32	ICC-800-M	Three ICM-800	ICC-3200-M
36	ICC-800-M	One ICM-400 & three ICM-800	ICC-3600-M
40	ICC-800-M	Four ICM-800	ICC-4000-M
44	ICC-800-M	One ICM-400 & four ICM-800	ICC-4400-M
48	ICC-800-M	Five ICM-800	ICC-4800-M

Note: For stainless steel cabinet, replace "M" with "SS".
For plastic pedestal, replace "M" with "PP".

SPECIFICATION GUIDE

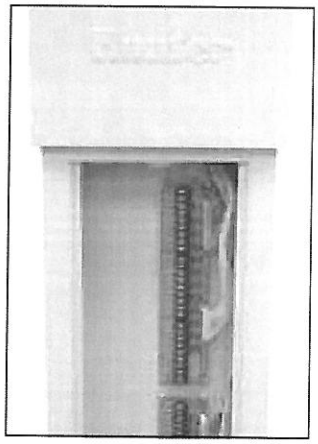
EXAMPLE: **ICC - 800-PL**

MODEL
ICC

FEATURES
800-PL = 8-Station Base Unit Controller, Plastic Cabinet, Internal Transformer, Expands to 32 Stations
800-M = 8-Station Base Unit Controller, Metal Cabinet, Internal Transformer, Expands to 48 Stations
800-SS = 8-Station Base Unit Controller, Stainless Steel Cabinet, Internal Transformer, Expands to 48 Stations
800-PP = 8-Station Base Unit Controller, Plastic Pedestal, Expands to 48 Stations

ICM
400 = 4-Station Plug-in Module for use with any ICC Controller Model
800 = 8-Station Plug-in Module for use with any ICC Controller Model

OPTIONS
PED = Optional Metal Pedestal
PED-SS = Optional Stainless Steel Pedestal
PWB = Pedestal Wiring Board



Optional pedestal wiring boards (PWB) simplify field wiring.

TECHNICAL INFORMATION

Operating Specifications

- *Station Run Time:*
  0 to 1 hour and 59 minutes in 1 minute increments for programs A, B, C; 0 to 12 hours in 1 minute increments in program D; global seasonal adjust from 10-150% in 10% increments.
- *Start Times:*
  Eight start times per program, programmable delay between stations, programmable master valve circuit.
- *Programs:*
  A, B, C programs have independent day cycles, will stack start times, program D will run concurrently with all programs.
  Built-in test program, 2 minutes each station.
  Programmable delay between stations of up to 10 hours.
- *Watering Schedule:*
  Four schedule options–any day on or off with 7 day calendar; any day on or off with 31 day calendar; odd day programming; or even day programming with 365 day, leap year intelligent calendar.
- *Cycle/Soak:*
  Cycle can be programmed for up to 60 minutes; Soak can be programmed for up to 60 minutes.
- *Rain Delay:*
  1 to 7 day delay can be programmed to temporarily interrupt the watering schedule.

Default Settings

- *None pre programmed. With a non-volatile memory, a default setting is not necessary.*

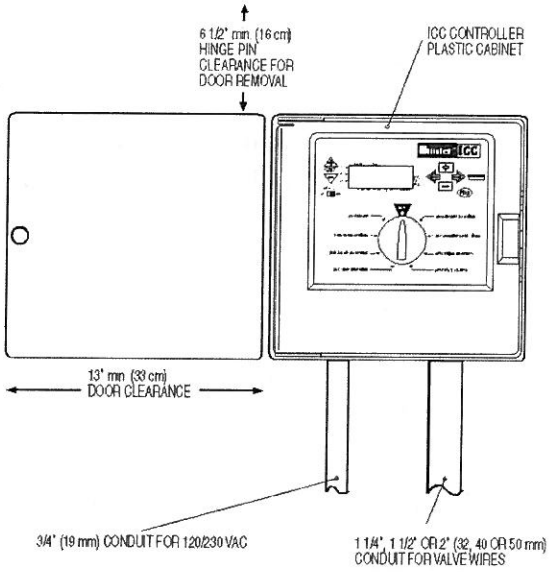
Electrical Specifications

- *Transformer input:* *115VAC, 60Hz/230-240VAC, 50Hz*
- *Transformer output:* *24VAC, 1.5A (40VA)*
- *Station Output:* *24VAC, 0.56A*
- *Master Valve output:* *24VAC, 0.28A*
- *Maximum total output:* *24VAC, 1.4A (up to two zone valves per station output plus master valve or pump start relay)*
- *Program Backup:* *Non-volatile memory, battery programmable*

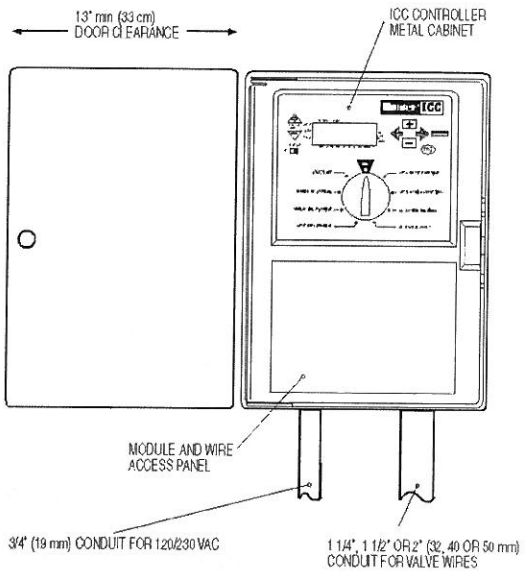
Dimensions

Plastic Cabinet	Metal or Stainless Steel Cabinet	Metal or Stainless Steel Pedestal	Plastic Pedestal
• *Height: 11" (28 cm)*	• *Height: 15¾" (40 cm)*	• *Height: 30" (76 cm)*	• *Height: 38" (97 cm)*
• *Width: 12" (30.5 cm)*	• *Width: 11⅜" (29 cm)*	• *Width: 11⅜" (29 cm)*	• *Width: 21½" (55 cm)*
• *Depth: 3¾" (9.5 cm)*	• *Depth: 4½" (11.4 cm)*	• *Depth: 4" (10 cm)*	• *Depth: 15½" (40 cm)*

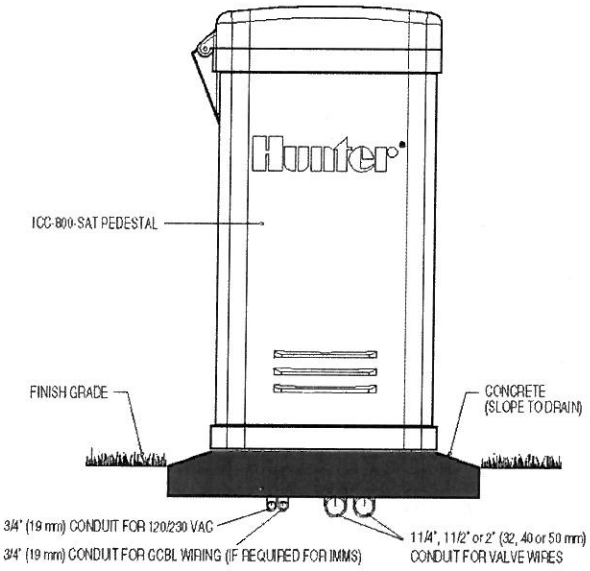
INSTALLATION DETAIL



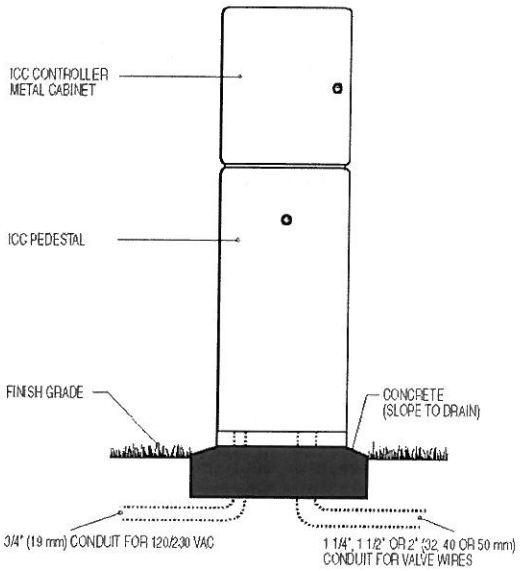
Hunter® ICC-PL



Hunter® ICC-M



Hunter® ICC-PLASTIC-PED



Hunter® ICC-PED

EASY PROGRAMMING INSTRUCTIONS

Setting the Date and Time

1. Turn dial to the SET CURRENT DATE / TIME position.
2. YEAR: The year will be flashing in the display: Press + and − to change the year. After setting the correct year press → to advance to MONTH.
3. MONTH: The month will be flashing. Press + and − to change the month. Press → to advance to DAY.
4. DAY: The date will be flashing: Press + and − to change the date. (The day of the week [e.g. Monday, Wednesday, etc.] is automatically indicated by the arrow in the display.) Press → to advance to TIME.
5. TIME: The time will be displayed: Press + and − to select AM, PM or 24 hr. Press → to select hours. The hour will be flashing. Press + and − to change the hour shown on the display. Press → to select minutes. Minutes will be flashing. Press + and − to change the minutes shown in the display. The date, day and time have now been set.

Setting Watering Start Times

NOTE: A single watering start time will start the program (A, B, C, D) and all stations assigned to the program will run sequentially. Multiple start times can be used to activate multiple daily waterings.

1. Turn dial to the SET WATERING START TIMES position.
2. Select program A, B, C or D by pressing the PRG button.
3. Press + and − to change the start time.
4. Press → to select the next start time, or PRG for the next program.
5. To eliminate a Programmed Start Time: Press + and − to set the start time to OFF (which is between 11:45 p.m. and midnight).

Setting Station Run Times

1. Turn the dial to the SET STATION RUN TIMES position.
2. Select program A, B, C or D by pressing the PRG button.
3. The display will show the station number and the program letter selected (A, B, C or D). The run time will be flashing.
4. Press + and − to change the run time.
5. Press → to advance to the next station.
6. Repeat steps 4 and 5 for each station. NOTE: If a station is assigned a run time on program A, B, or C, then that station cannot be assigned to Program D. If this is attempted, the word USED will appear in the display.

Setting Days to Water

1. Turn dial to SET DAYS TO WATER.
2. Select program A, B, C or D by pressing the PRG.
3. The controller displays currently programmed day information. This dial position provides four different day options: specific days of the week, Odd Days, Even Days, or Intervals between waterings.

Selecting Specific Days of the Week for Watering

1. With the cursor on a specific day, press + to activate on a particular day of the week to water. Press − to cancel watering for that day. (After pressing a button, the cursor automatically advances to the next day.)
2. Repeat step 1 until all desired days have been selected.

Selecting Odd or Even Days for Watering

1. Press → until the arrow cursor is over either even or odd on the display.
2. Press + to select or − to cancel either Odd Days or Even Days. NOTE: The 31st of any month and February 29 are always "Off" days if Odd watering is selected.

Selecting an Interval Between Waterings

1. Press → and move the flashing arrow cursor over the interval designator.
2. Press +. The display will now show two numbers, the Interval and the days remaining in the interval.
3. The number of days between waterings, or the Interval will be flashing. Press + and − to select the number of days desired between waterings.

4. Press → the days remaining in the Interval are now flashing. Press + and − to select the number of days until the next desired watering. One day remaining means it will water the next day.

Automatic Operation

After programming, set dial to RUN to enable automatic operation of all scheduled waterings.

Rain Sensor Bypass Switch

If a sensor is preventing system operation (or no sensor is installed and the switch is in the ON position), SEN OFF will be displayed. Move the switch to OFF and the rain sensor will be bypassed.

Seasonal Adjust

Press ▲ and ▼ to change the seasonal adjust from 10% to 150% in 10% increments. The station run times displayed will automatically be recalculated.

System Off

Turn dial to the SYSTEM OFF position. Shuts down all programmed waterings indefinitely until the dial is returned to the RUN position. Can be used to cancel waterings in progress.

Programmable Rain Off

This feature permits the user to stop all programmed waterings for a designated period from 1-7 days. At the end of the rain delay, the controller will resume normal automatic operation.

1. Move the rotary switch to the OFF position.
2. Press the + button and a 1 will be displayed and the DAYS icon will illuminate.
3. Press + as many times as needed to set the desired number of days off, up to 7 days.
4. Turn the dial back to the RUN position. NOTE: The days off remaining will decrease at midnight of each day. When days off gets to zero, the display will show the normal time of day and normal irrigation will resume at the next scheduled start time.

Advanced Features

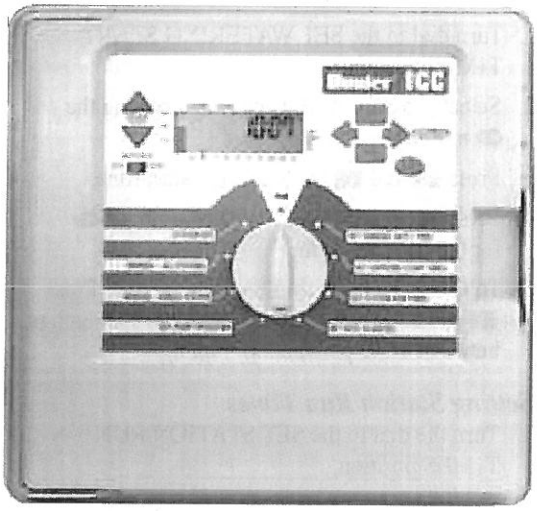
This controller is capable of Cycle and Soak watering, Master Valve / Pump programming and also features a programmable delay between stations. Please refer to your owner's manual for programming instructions regarding these advanced features.

Manually Operating a Single Station

1. Turn dial to the MANUAL-SINGLE STATION position.
2. Station run time will flash in the display. Press → to move to the desired station. Press + and − to change the amount of time for valve to water.
3. Turn the dial to the RUN position to run the station. (Station designated will water, then controller will return to automatic mode.)

Manually Operating All Stations

1. Turn dial to the MANUAL-ALL STATIONS position.
2. Select program A, B, C or D, by pressing PRG.
3. To start on a station other than #1, press → until desired starting station is displayed.
4. Return dial to RUN (stations in designated program will water, then controller will return to automatic mode).



A complete copy of the ICC Programming Instructions is in the ICC Owner's Manual, Hunter literature number: LIT-237

Hunter Quick Check™

To initiate the Hunter Quick Check™ test procedure, press the +, −, →, PRO buttons at the same time. In the standby mode, the LCD will display all segments (helpful when troubleshooting display problems). Press the + button to begin the Quick Check test procedure.
If a field wiring "short" is detected, an "ERR" symbol preceded by the station number will momentarily flash on the LCD display.

One-Touch Manual Start and Rapid Advance

1. Hold down the → button for 2 seconds.
2. This feature automatically defaults to Program A. You can select Program B, C or D by pressing the PRO button.
3. The station number will be flashing. Press the ← or → button to scroll through the stations and use the + or − buttons to adjust the start run times. (If no buttons are pressed during step 2 or 3, the controller will automatically begin Program A.)
4. Press the → button to scroll to the station you wish to begin with. After a 2-second pause, the program will begin.

Test Program

To initiate the test program:

1. Press and hold the PRO button. The station number will be flashing.
2. Press the ← or → button to scroll to the station you would like the test program to start with. Use the + or − button to set the run time up to 15 minutes. The run time needs to be entered only once.
3. After a 2-second pause, the test program will begin.

The ICC is popular for commercial and public area applications.

PRODUCT OVERVIEW

For shopping centers, industrial complexes, college campuses, condominium clusters, large residential and other expansive sites, if a remote control is going to work, it needs power to cover these long-range distances. The new Hunter Institutional Commercial Remote (ICR) has what it takes. You want power? Sites obstructed by buildings, walls and trees are no problem for the ICR. With a ½-mile range on these difficult sites, the ICR can communicate with controllers where other remotes fail. When there is nothing in its path, the ICR can function up to two miles from the controller. But this handy accessory is more than big and strong. The ICR is the true contractor's tool–a single unit that can be carried from job to job and used to access dozens of different irrigation systems. A single ICR can interface with any Hunter controller that operates with a SmartPort® system. That means you can eliminate going back and forth to a controller to start and stop a cycle during maintenance or installation, and you can make that task of wintering a system a one-person job instead of two...not just on one site, but every site you handle. But what truly sets the ICR apart is its price–no other long-range remote is more affordable.

PRODUCT FEATURES AND BENEFITS

One Transmitter, One Receiver Does the Job

Portable and reusable at every location

With the ICR, a contractor can visit one site, attach the receiver to the SmartPort® wiring harness at the controller, complete the irrigation operations, remove the receiver and travel on to the next job. Or the receiver can be left permanently mounted, if desired, to permit operation by the homeowner or building manager.

Large LCD Display and Five-Button Operation

Easy to view and a snap to operate

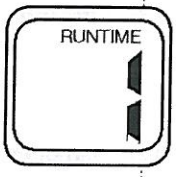
Simply press the ▲ and ▼ buttons to display the station or program that is desired, then press the "ON" or "OFF" buttons. The mode button provides easy navigation among ICR functions.

Activate sprinklers from up to 2 miles from the controller

Sturdy ABS Construction
Tough and rugged for any user

The ICR transmitter and receiver are made of heavy-duty ABS plastic that will withstand the toughest conditions and repeat uses. The transmitter and receiver are designed to be water resistant.

8 Different Remote-Activated Run Time Settings
Quick or lengthy, for total versatility



The ICR can be programmed for 8 different run time remote-activated settings (1, 2, 5, 10, 15, 20, 25 and 30 minute increments are available) for the many irrigation functions that may be required. The default setting is 10 minutes.

Operates on Four AA Batteries For Up to a Year
Automatic shutoff extends battery life when not in use

Any convenience, hardware or building supply store carries standard AA alkaline batteries.

User Programmable Address
Added user security

Both the ICR transmitter and receiver have an "address" that they use when communicating with each other. If the addresses do not match, the receiver will ignore the transmission. The ICR comes from the factory with both addresses set at 0. The transmitter address may be changed to any setting from 0-127 for added security. The receiver will then "learn the address." The programmable address is useful for areas where multiple homes or buildings are utilizing ICR remotes.

Programmable Number of Stations Controlled
Customize the remote to the number of stations on the controller

The ICR is fully reprogrammable and can access up to 48 stations, allowing for increased flexibility as well as use with future controller products.

Receiver Transmitter

PRODUCT OVERVIEW

The Hunter Irrigation Management and Monitoring System™ Saves Time

Managing a network of irrigation controllers–on a single site or multiple sites–requires time-consuming work. Setting up and synchronizing controller operations can take hours of time. Plus, every time a program change needs to be made, or a system needs to be shut down for a special event, you have to physically travel to the controller.

With the Irrigation Management and Monitoring System (IMMS™), these hassles are removed, since the entire system can be monitored and controlled from the comfort of your office. Additionally, by reacting to localized sensors, the system can alert you to potential service problems such as a ruptured pipe or sprinklers that have been broken by vandals.

The Hunter Irrigation Management and Monitoring System Saves Water

The centralized control of your irrigation controller network allows you to take advantage of the latest water saving benefits. Modify controller schedules, taking into account daily and seasonal weather conditions and weather forecasts...shut down all systems during rain with just a few keystrokes...increase watering for thirsty annuals during hot days. Any and all changes can be made to each controller's program in a matter of seconds.

In addition, the program's reporting module allows you to estimate your water usage over time, both in total gallons used and estimated water costs. This will allow you to plan ahead for future needs and identify areas for improvement.

The Hunter Irrigation Management and Monitoring System Saves Money

Saving time and saving water ultimately adds up to an even greater savings: that of your irrigation budget. IMMS reduces your labor expenses, including the time it takes to travel from site to site and the time it takes to program and update controllers and verify system operations. Not to mention the fact that the IMMS is priced at a level that makes it affordable and not a luxury item. With the IMMS, you possess a powerful tool designed to manage and monitor your irrigation needs.

Typical Applications

- School and Industrial Campuses
- Parks
- Town Centers and Urban Plazas
- Businesses with Branch Locations
- Shopping Malls
- Apartment Buildings
- Condominiums
- Homeowner Associations
- Large Residential Estates
- Sports Field Complexes
- Cemeteries

System Overview

With the Irrigation Management and Monitoring System, automatic irrigation systems at multiple sites can be programmed for functions that would typically be handled directly at each site's controller. Scheduling of days to water, run times, start times, cycle and soak operations and more can now be done from a single computer at a desk, miles away from the actual installation. In addition, scheduled operation of non-irrigation

components also in use at these sites–for example, lighting systems at athletic fields or fountains at shopping centers–as well as pumps and sensors can also be programmed and monitored from a single central location.

A key function of the Irrigation Management and Monitoring System™ is its ability to monitor changing conditions. With the aid of Hunter's Clik family of sensors, the Irrigation Management and Monitoring System can report the status of each sensor at every site it is linked with. Should any conditions go beyond the limits that have been defined, the IMMS™ system may then respond with a protective controller shutdown.

No central irrigation control system available today is more cost-effective than the Hunter Irrigation Management and Monitoring System. Plus, it upgrades easily to accommodate an expanding network of Hunter controllers, providing the most essential features needed for water management.

System Capabilities

- Manage irrigation systems at up to 100 different sites from a single centralized computer.
- Each site managed can have up to 100 controllers networked into the site interface. The IMMS system can network with Hunter ICC, Pro-C, and SRC controllers.
- Manage all controller programming data from the central computer.
- Manual functions: activate, deactivate manual or automatic waterings from the central computer.
- Initiate rain-off or rain-delay features by controller or globally.
- Manage "no water days" up to 365 days in advance globally, by site, or by controller. This allows an irrigation manager to set specific days for maintenance, events, etc.
- Easily program cycle and soak waterings for maximum water efficiency (ICC only).
- Manage watering windows.

Monitoring Capabilities

Monitor weather sensors including rain, wind and freeze sensors for real-time responses to weather conditions. Sensor data can be implemented locally with individual controllers or shared globally across the entire site.

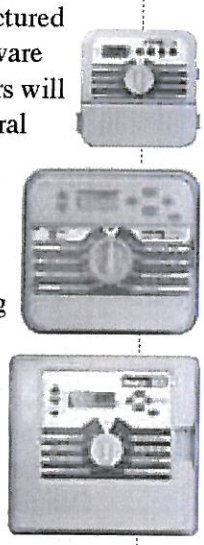
Flow-Clik IMMS can react automatically to high system flow conditions, even offline from the central computer. This high-tech "Clik" family member learns the flow of your largest zone, then shuts down the controller and master valve to prevent flooding and landscape damage.

PRODUCT FEATURES AND BENEFITS

Operates With Standard Hunter Industries Irrigation Controllers

Retrofit all past and present Hunter controllers

Hunter controllers including the ICC, Pro-C and SRC which were manufactured after February 1997 are IMMS software compatible. This means that installers will NOT have to purchase special "Central Control" models of irrigation controllers which significantly reduces the cost of a Hunter IMMS central control system. Also, the retrofit capability supports sites with existing Hunter controllers, allowing those sites to become more easily managed from a central location. This is just one reason of many how the Hunter IMMS system saves time, labor and money.



Hunter Field Controllers Provide the System Programming Features

Simple and reliable irrigation management

A simple approach to retaining program information is to let each individual controller retain its own information. Each model of Hunter controller including the ICC, the Pro-C and SRC has a programming feature set unique to it. Features such as 4 programs in the ICC, 6-hour run times in the Pro-C or 9 zones in the SRC are utilized by the IMMS™ software when setting scheduling parameters for the irrigation manager. This speeds up the learning curve for the successful operation of the IMMS system.

Program Memory Resides in the Controller

Computer power outages do not affect operation

Any program downloaded from the IMMS central into a controller is kept within that controller's memory. This feature eliminates the possibility of losing a program due to power outages or downtime at the main central computer. Also, with the ICC and Pro-C's non-volatile memory, the program in the controller is not lost or altered due to any power outages at the controller.

Sensor Input for Maximum Landscape Protection

Up-to-date information will save water

Sensor monitoring enhances the ability of the system manager to become a better manager of water resources. Any Hunter Industries Rain-Clik™, Mini-Clik®, Flow-Clik™, IMMS™, Wind-Clik®, Freeze-Clik® and the Mini-Weather Station will operate within the IMMS system. These sensors interface with either the Site Interface or the Controller Interface to provide maximum irrigation control.

IMMS manages sensors in one of three ways:

1. A report is generated informing the irrigation manager of what happened but no action is taken.
2. The sensor installed on a Controller Interface will provide localized shutdown.
3. The sensor installed on a Site Interface can provide global shutdown for the entire site.

Maximum Control with Minimal Startup Time or Costs

As easy as plug 'n play

Using a regular computer and a Central Control Communications Unit plus a simple cable (GCBL), or phone line or cellular link to the Site Interface will get you up and running with communication between the two. Just turn the computer on, install the IMMS software and begin programming as if you were standing in front of a Hunter ICC or Pro-C controller. It's as easy as plug 'n play.

Control Irrigation Systems at Multiple Sites

Reduces travel time and labor costs

Increase controller run times, delete start times, shut down zones with broken sprinklers, program event days, reprogram the day schedule at any site. These are just a few of the features which can be quickly implemented from your desk with just a few keystrokes at the computer. Travel time between sites for programming issues is virtually eliminated from the work schedule. With the cost of labor increasing every year, the potential for savings in a single season will offer a fast payback.

Manual Operation of Systems from Central Computer

A few keystrokes to apply additional water

Adding additional waterings is a simple procedure: with a few keystrokes it's done. This convenience is a must-have for extra waterings when fertilization is done or during over-seeding of warm season turf. Being able to make adjustments at a central location means local crews do not have to change irrigation programs for a special maintenance event.

Reduce Water Costs

Increased monitoring equals reduced watering

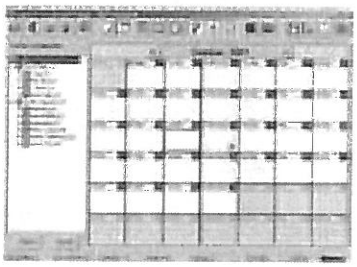
It's a proven fact that when irrigation systems are consistently adjusted there will be a substantial reduction in the amount of water used. Typically a reduction is possible when a system can not be monitored constantly – for example, irrigation and landscape maintenance personnel would rather err on the side of over-irrigating (longer run times) than to return to a job site with large patches of brown turf.

With the Hunter IMMS™ monitoring a system, it becomes as easy as powering up the computer and making a few keystrokes to adjust the run times according to the local weather conditions, thus reducing water costs.

Forecast Water Use by the Day, Week, Month or Year

Calculate future water costs for budgeting purposes

Irrigation water costs are becoming a significant factor in city budgets. Managers need to know what the costs will be before they occur. With the Hunter IMMS, managers are able to make accurate and informed decisions with the IMMS' forecasting capabilities.



Reduce System Monitoring Efforts

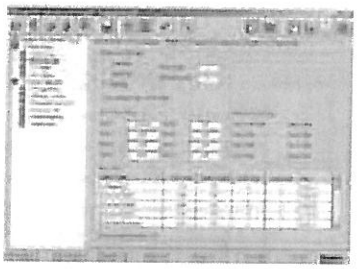
Control all irrigation functions from a central point

An irrigation manager is able to control each controller without the need to travel to each site. Usually, maintaining controller programming is only one of the many tasks for which this individual is responsible. Driving around in a truck to different sites requires effort that could be put to better use in other aspects of the business.

Alarms Warn When Site Visits May be Necessary

Accurate remote monitoring

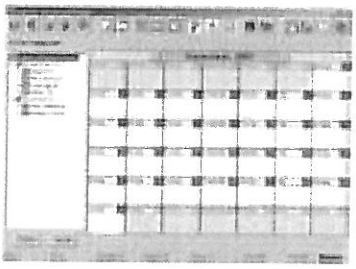
When sensors are installed on site. IMMS will react immediately with pre-programmed responses to alarms. The IMMS software will then display an alarm if (for example) excess flows occur in the normal watering pattern through sensor feedback. The alarm icon informs the irrigation manager of a potential problem at the site.



Cycle and Soak Optimizes Watering Run Times

Keep runoff to a minimum when using a Hunter ICC irrigation controller

In addition to other programming features, IMMS™ simplifies use of the Cycle and Soak feature in all ICCs. Cycle and Soak programming is the preferred way to water slopes, heavy soils or any area that cannot allow a runoff situation. The Cycle and Soak feature works by programming the total amount of run time needed for the zone, then selecting a maximum cycle time and a minimum soak time. The ICC Controller does the rest, breaking up the total run time into a number of cycle times with a soak time countdown between each cycle time. With IMMS, each station is easily set to its own optimum Cycle and Soak settings...and the effects of each change are immediately calculated and displayed.



Operates in Windows® 2000 or XP

Takes advantage of latest computer technology

Using the newest popular computer technology makes sense when coupled with a sophisticated irrigation management tool. With all of the features available in the IMMS package, Windows 2000 or XP provides the best choice to ensure its "behind the scenes" technology will run without hindrance.

Historical Logs Keep System Operating Data for Later Use

Stores important information to solve issues

The IMMS control system will store schedule and alarm histories for later analysis. This includes information associated with station start and stop times, sensor and alarm data, etc.

See effects of irrigation scheduling before they take place

In many cities and towns, the irrigation of parks and streetscapes must be completed within a certain period of time–this is called a "watering window." This is important because it decreases the likelihood of liability issues or calls to City Hall about cars and people getting wet. With the IMMS™, simulations of different irrigation schedules can be run to make sure all irrigation is complete within a certain "watering window." This feature is a convenient tool to help the irrigation manager with irrigation scheduling.

Efficient Irrigation Within Prescribed Watering Windows

Keeps track of cumulative run time to control operating time

The IMMS software keeps track of the accumulated run times of all stations as they are programmed into a controller to control irrigation scheduling and provide "what-if" scenarios.

Ability to Retain Pertinent Information by Site

When special instructions are in order

The notes text box feature allows instructions and other pertinent information about a certain site to be entered and kept readily available for immediate viewing.

Flow Sensing with the Flow-Clik-IMMS for Liability Reduction

Provide monitoring 24 hours a day, 7 days a week

Today, the reality of lawsuits is a real concern to installers and property owners alike. They cannot ignore any hazardous situation that can be easily prevented, including an event such as an irrigation system that has excess flow due to a ruptured mainline pipe or a damaged sprinkler head. The Flow-Clik-IMMS is a flow sensing device that learns flow in the system piping, always checking for "high-flow" condition such as a pipe rupture or sprinkler break. The IMMS software will automatically identify the over-flow condition and initiate flow shutdown, and send an alarm message to the central computer identifying where and when the problem occurred.

AMERICA WEST LANDSCAPE, INC.
15086 La Palma Dr.
Chino, CA 91710

Guarantee

Section 1.6

JOB NAME: Robert E Ryan Community Park

JOB LOCATION: City of Rancho Palos Verdes

O&M No. : V.01

America West Landscape, Inc., 15086 La Palma Dr. Chino CA, 91710 Ph: (909)393-6300 Fax: (909)393-6863

GUARANTEE FOR ENITRE IRRIGATION SYSTEM

We hereby guarantee that the entire irrigation system we have furnished and installed are free from defects in materials and workmanship, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear, and unusual abuse, or neglect excepted. We agree to repair or replace any defects in material or workmanship, including settling of backfilled areas below grade which may develop during the period of one year from date of acceptance and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the City. We shall make such repairs or replacements within 72 hours after receipt of written notice. In the event of our failure to make such repairs upon written notice from the City, we authorize the City to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

PROJECT: Robert E Ryan Community Park

CONTRACTOR: America West Landscape, Inc

Address: 15086 La Palma Drive

Phone No.: (909) 393-6300

Date Of Acceptance:_____

By:_____

Respectfully Submitted,

Roy Anthony
Vice President
America West Landscape, Inc.

America West Landscape, Inc., 15086 La Palma Dr. Chino CA, 91710 Ph: (909)393-6300 Fax: (909)393-6863

GUARANTEE FOR MAINTENANCE PERIOD

We agree to repair or replace any defects in planting material or planting workmanship, including settling of backfilled areas below grade which may develop during the 90 day maintenance period from date of acceptance and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the City. We shall make such repairs or replacements within 72 hours after receipt of written notice. In the event of our failure to make such repairs upon written notice from the City, we authorize the City to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

PROJECT: Robert E Ryan Community Park

CONTRACTOR: America West Landscape, Inc

Address: 15086 La Palma Drive

Phone No.: (909) 393-6300

Date Of Acceptance:_____

By:_____

Respectfully Submitted,

Roy Anthony
Vice President
America West Landscape, Inc.

Transmittal Letter

August 15, 2011

America West Landscape, Inc
15086 La Palma Dr,
Chino, CA 91710
Phone (909) 393-6300
Fax (909) 393-6863

To:
City of Rancho Palos Verdes
30940 Hawthorne Blvd
Rancho Palos Verdes, CA

Attention: Bindu Vaish

Job Number: 223

We are sending you			
☐ Attached	☑ Please check the following that apply.		
☐ Submittals	☑ Operations & Maintenance Manuals	☑ Turn Over Material	☑ As-Builts
☐ Samples	☐ Certification		☑ Controller Charts

Spec Sec	Approved	Date	Quantity	Description
02810		8/1/2011	4	Rain Bird 44LRC Quick Coupler Key
02810		8/1/2011	2	Hose Swivel for Quick Coupler Valve
02810		8/1/2011	4	30" Valve Key
02810		8/1/2011	2	Channel Lock Wrench
02810		8/1/2011	2	Hunter I-60-ADS
02810		8/1/2011	10	Hunter I-40-SS
02810		8/1/2011	10	Hunter I-20-SS
02810		8/1/2011	4	Operations & Maintence Manuals
02810		8/1/2011	2	As-Builts
02810		8/1/2011	2	Controller Charts

These are transmitted as checked below		
☐ For Approval	☐ Approved as Submitted	☐ Resubmit copies for approval
☐ For Your Use	☐ Approved as Noted	☐ Submit ( ) copies for distribution
☐ As Requested	☐ Returned for Corrections	☐ Return ( ) corrected prints

Comments:

Signature:

City of Rancho Palos Verdes	8/16/2011
Company	Signature