

Camp Agape - Cabin .

Lines flagged at site on 5-ft centers.

Initial/Repair	Line #	Color	Drainline Length(ft)	Measured Field Line Length (ft)	Relative Elevation (ft)
Repair	1	W	Partial Repair Area		
Repair	2	B			
Repair	3	R			
Repair	4	Y			
Repair	5	W			
Repair	6	B			
	7	R		128	151.08
Initial	8	Y	140	145	150.09
	9	W		125	148.94
Initial	10	B	190	193	148.06
	11	R		210	146.58
Initial	12	Y	190	207	145.74
	13	W		210	144.42
Initial	14	B	190	212	143.21
	15	R		200	141.95
Initial	16	Y	190	206	139.75
Pump Tank:					EPT = 100
		Total:	900	1836	

Camp Agape-Cabin 1

Pressure Manifold Design Criteria

Applicant: Randy Youngquist (Camp Agape) Phone #: (919) 552-9421
 Mailing Address: Camp Agape Kure Beach Ministries, 1369 Tyler Dewar Lane, Fuquay-Varina NC 27526

Tracking Number: _____ Project: Cabin 1 Lot#: N/A
 Site Address: same as above

Beds: 18 Daily Flow: 1080 gallons
 Septic Tank: 4000 gallons Pump Tank: 5000 gallons
 LTAR: 0.3 gpd/sqft w/ innov: 0.4 gpd/sqft
 Amt. of Drainline: 2700 sqft or 900 linear ft

TRENCHES Length (ft): see tap chart Depth (in): 18 Stone Depth (in): na
 SUPPLY LINE Length (ft): 450 Diameter: 3" sch 40 pvc
 MANIFOLD Length (ft): 4 Diameter: 3" sch 80 pvc Elevation: 151.09
 # Taps 5 Tap Configuration: 6in. spacing, 1 side of manifold

Tap Chart

LTAR + 5% = 0.42

Line	Color	Elevation	Length(ft)	Schedule	per tap	gpd	Area	gpd/sqft
8	Y	150.09	140	1/2"sch 40	7.11	172.48	420	0.411
10	B	148.06	160	1/2"sch 40	7.11	172.48	480	0.359
12	Y	145.74	200	3/4"sch 80	10.10	245.01	600	0.408
14	B	143.21	200	3/4"sch 80	10.10	245.01	600	0.408
16	Y	139.75	200	3/4"sch 80	10.10	245.01	600	0.408
Total Drainline:			900	Total Flow:		44.52	Sq. Foot: 2700.00	

Calculations:

Dose Volume: 440.78 gallons, with Pipe Volume at % 75
 Dose Pump Run Time (min): 9.90 Daily Pump Run Time (min): 24.26
 Drawdown: 441 gallons divided by 62.34 gal/ inch = 7.07 inches

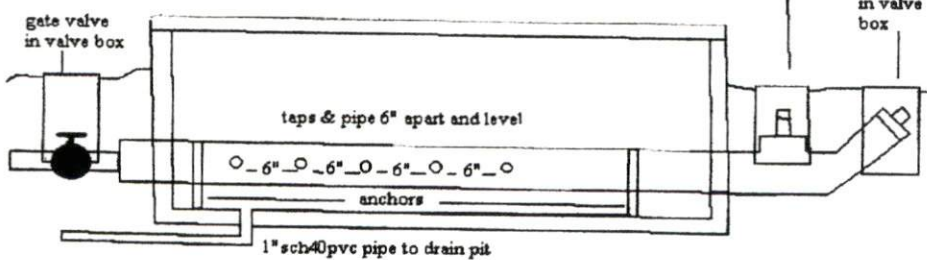
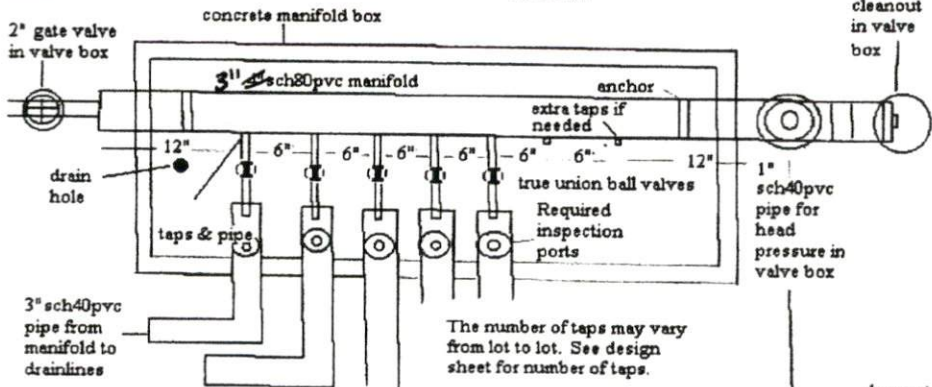
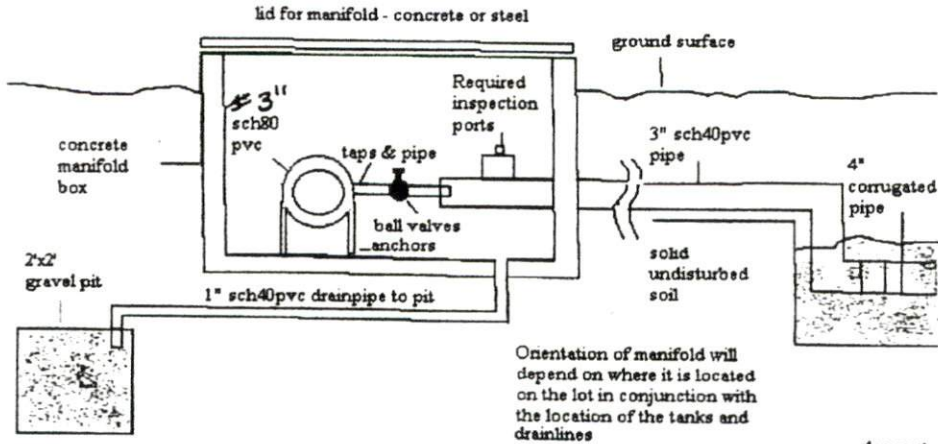
Pump Tank Elevation (ft): 100 Pump Elevation (ft): 93.5
 Friction Head: 2.80 (supply line length + 70' for fittings in pump tank)
 Elevation Head: 57.59 Design Head: 2 Total Head: 62.39 feet

Pump to Deliver: 44.52 gpm @ 62.39 ft head

Simplex Control Panel (SJE Rhombus 112 or equal) with elapsed time meter, cycle counter, alarm, and pump on separate circuits is required. Floats to be determined by type of pump tank used. A septic filter (Polylok PL-122 or equal) is required.

Possible Pumps Include: Zoeller: High Head Flow-Mate 188 Model (1 & 1/2 HP)

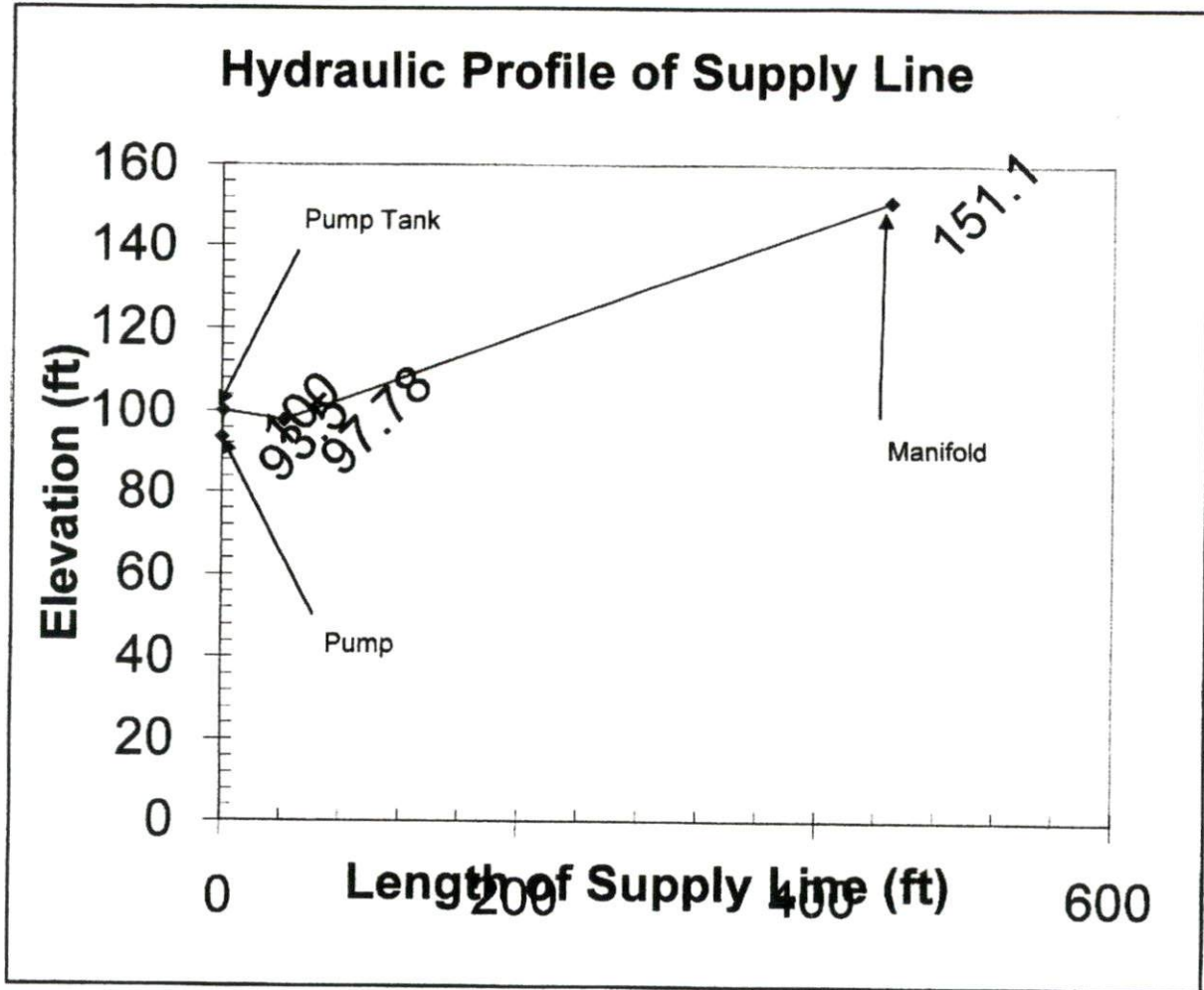
Pressure Manifold Requirements



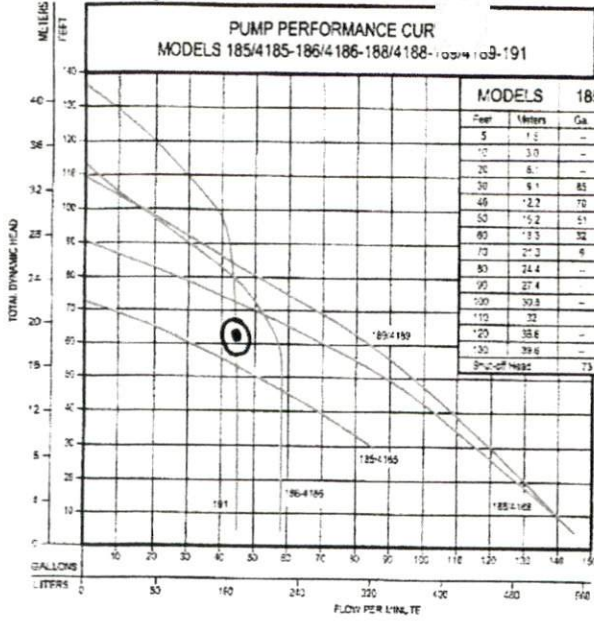
MANIFOLD DIAGRAM (Initial System): 3" sch 80 manifold

Tap#	1	2	3	4	5
Tap size	1/2"sch 40	1/2"sch 40	3/4"sch 80	3/4"sch 80	3/4"sch 80
flow per tap	7.11	7.11	10.10	10.10	10.10
line(length)	L8 (140ft)	L10 (160ft)	L12 (200ft)	L14 (200ft)	L16 (200ft)

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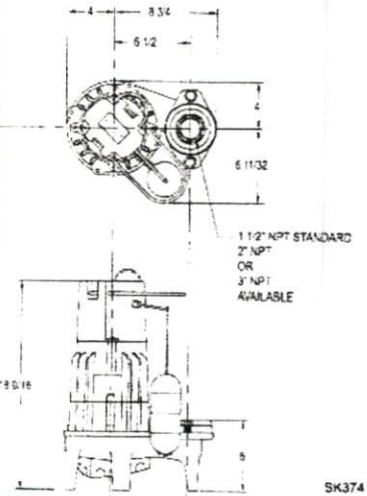
PUMP PERFORMANCE CUR
MODELS 185/4185-186/4186-188/4188-189/4189-191

Feet	Meters	185/4185		186/4186		188/4188		189/4189		191	
		Gal	Liters	Gal	Liters	Gal	Liters	Gal	Liters	Gal	Liters
5	1.5	—	—	58	220	145	549	165	619	45	170
10	3.0	—	—	58	220	140	530	160	600	45	170
20	6.1	—	—	58	220	128	484	150.8	564	45	170
30	9.1	85	322	58	220	118	439	140	514	45	170
40	12.2	70	268	58	220	108.5	392	130.9	471	45	170
50	15.2	51	193	58	220	97	347	120	434	45	170
60	18.3	32	121	58	220	85	301	110.8	392	45	170
70	21.3	9	34	52	197	71	259	95	322	45	170
80	24.4	—	—	45	170	59	216	81	281	45	170
90	27.4	—	—	30.5	113	47	172	66	237	45	170
100	30.5	—	—	16	61	34	129	48	170	—	—
110	32	—	—	4	15	—	—	—	—	30	114
120	35.8	—	—	—	—	—	—	—	—	20	75
130	39.6	—	—	—	—	—	—	—	—	10	38
Shut-off head		73.4	227	114.8	339	97.5	228	122.8	348	17.5	42

OC9903

WARNING: Model 185 should not be subjected to heads less than 30 feet TDH.

Single Seal-180 Series Automatic Design Weight 82-89 lbs.



SK374

185 MODELS		4185 MODELS		Standard all models - 20 ft. cord - 1 H.P.				Control Selection		Listings	
Single Seal	Double Seal	Volts	Ph	Mode	Amps	Simplex	Duplex	CSA	UL		
D185	---	230	1	Auto	9.8	1	---	Y	Y		
E185	E4185	230	1	Non	9.8	2 or 3	4	Y ⁽¹⁾	Y		
* H185	---	200-208	1	Auto	11.5	1	---	N	N		
* I185	* I4185	200-208	1	Non	11.5	2 or 3	4	N	N		
* F185	* F4185	230	3	Non	7.4	3 & 5	4 & 5	Y	Y		
* J185	* J4185	200-208	3	Non	7.5	3 & 5	4 & 5	Y	Y		
* G185	* G4185	460	3	Non	3.7	3 & 5	4 & 5	Y	Y		
* BA185	---	575	3	Non	3.3	3 & 5	4 & 5	Y	N		

186 MODELS		4186 MODELS		Standard all models - 20 ft. cord - 1 H.P.				Control Selection		Listings	
Single Seal	Double Seal	Volts	Ph	Mode	Amps	Simplex	Duplex	CSA	UL		
D186	---	230	1	Auto	13.7	1	---	N	N		
E186	E4186	230	1	Non	13.7	2 or 3	4	N	N		
* F186	* F4186	230	3	Non	9.2	3 & 5	4 & 5	N	N		
* G186	* G4186	460	3	Non	4.6	3 & 5	4 & 5	N	N		

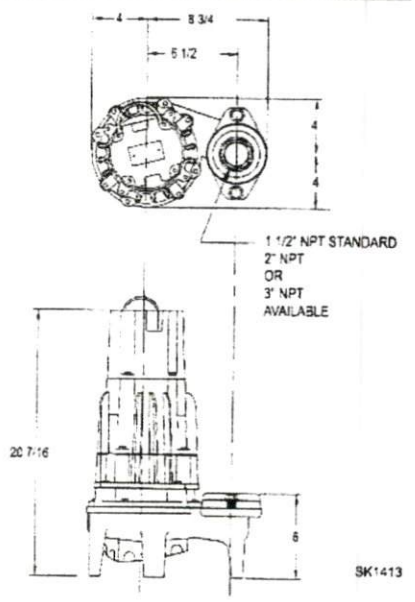
188 MODELS		4188 MODELS		Standard all models - 20 ft. cord - 1 H.P.				Control Selection		Listings	
Single Seal	Double Seal	Volts	Ph	Mode	Amps	Simplex	Duplex	CSA	UL		
D188	---	230	1	Auto	14.0	1	---	N	Y ⁽¹⁾		
E188	E4188	230	1	Non	14.0	2 or 3	4	Y ⁽²⁾	Y ⁽¹⁾		
* H188	---	200-208	1	Auto	16.8	1	---	N	N		
* I188	* I4188	200-208	1	Non	16.8	2 or 3	4	N	N		
* F188	* F4188	230	3	Non	8.9	3 & 5	4 & 5	Y	Y		
* J188	* J4188	200-208	3	Non	10.3	3 & 5	4 & 5	Y	Y		
* G188	* G4188	460	3	Non	4.6	3 & 5	4 & 5	Y	Y		
* BA188	---	575	3	Non	3.5	3 & 5	4 & 5	Y	N		

189 MODELS		4189 MODELS		Standard all models - 20 ft. cord - 2 H.P.				Control Selection		Listings	
Single Seal	Double Seal	Volts	Ph	Mode	Amps	Simplex	Duplex	CSA	UL		
D189	---	230	1	Auto	17.1	1	---	N	Y ⁽¹⁾		
E189	E4189	230	1	Non	17.1	2 or 3	4	Y ⁽²⁾	Y ⁽¹⁾		
* H189	---	200-208	1	Auto	20.5	1	---	N	N		
* I189	* I4189	200-208	1	Non	20.5	2 or 3	4	N	N		
* F189	* F4189	230	3	Non	11.2	3 & 5	4 & 5	Y	Y		
* J189	* J4189	200-208	3	Non	13.2	3 & 5	4 & 5	Y	Y		
* G189	* G4189	460	3	Non	6.0	3 & 5	4 & 5	Y	Y		
* BA189	---	575	3	Non	5.8	3 & 5	4 & 5	Y	N		
* WD189	* WD4189	230	1	Auto	17.1	1	4	N	N		

191 MODEL		Standard all models - 20 ft. cord - 2 H.P.				Control Selection		Listings	
Single Seal	Double Seal	Volts	Ph	Mode	Amps	Simplex	Duplex	CSA	UL
E191	---	230	1	Non	14.5	2 or 3	4	N	N

* No Molex Plug
(1) UL Listed unit available with 20 Amp Plug.
(2) CSA Approval without plug cap.
(3) 20 Amp Outlet, PIN 10-0060 must be used.

Double Seal-4180 Series / Weight 89-94 lbs.



SK1413

SELECTION GUIDE

1. Integral float operated mechanical switch, no external control required.
2. For automatic use single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
3. See FM1228 for correct model of simplex control panel.
4. See FM0712 for correct model of duplex control panel.
5. Variable level control switch 10-0225 used as a control activator, specify simplex (3) float or duplex (4) float system.

CAUTION

Do not touch or adjust float switch devices and wiring until you have been qualified by a qualified electrician. A qualified electrician should be consulted for correct installation. See the Occupational Safety and Health (OSHA) regulations.

For information on additional Zoeller products refer to catalog on Piggyback Variable Level Float Switches, FM0477; Electrical Alternator, FM0486; Mechanical Alternator, FM0495; Sump/Sewage Basins, FM0487; Simplex Pump Control, FM1596; Alarm Systems, FM0732; and Disconnect/Rail Systems, FM0787.

RESERVE POWERED DESIGN

For unusual conditions a reserve safety factor is engineered into the design of every Zoeller pump.

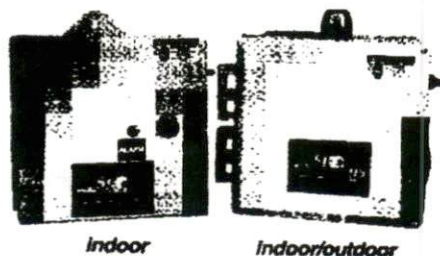
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Control Panel - on-site (should be comparable)

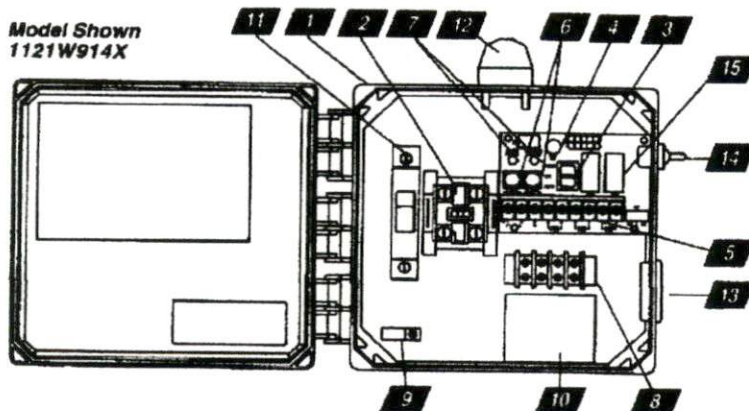
MODEL 112 Control Panel

Single phase, simplex motor contactor control.

The Model 112 control panel provides a reliable means of controlling one 120, 208, or 240 VAC single-phase pump in pump chambers, sump pump basins, irrigation systems and lift stations. Two control switches activate a magnetic motor contactor to turn the pump on and off. If an alarm condition occurs, an additional alarm switch activates the audio/visual alarm system.



Model Shown
1121W914X



1. Enclosure measures 8 x 8 x 4 inches (20.32 X 20.32 X 10.16 cm). Choice of NEMA 1 (steel for indoor use), or NEMA 4X (ultraviolet stabilized thermoplastic with removable flanges for outdoor or indoor use).
* Options selected may increase enclosure size and change component layout.
 2. Magnetic Motor Contactor controls pump by switching hot electrical lines.
 3. HOA Switch for manual pump control (mounted on circuit board).
 4. Green Pump Run Indicator Light (mounted on circuit board).
 5. Float Switch Terminal Block (mounted on circuit board).
 6. Alarm and Control Fuses (mounted on circuit board).
 7. Alarm and Control Power Indicators (mounted on circuit board).
 8. Pump Input Power and Pump Connection Terminal Block
 9. Ground Lug
 10. Terminal Block Installation Label
 - ★ 11. Circuit Breaker (optional) provides pump disconnect and branch circuit protection. ~~optional~~ required (2X)
- STANDARD ALARM PACKAGE** (other options available)
12. Red Alarm Beacon provides 360° visual check of alarm condition.
Note: NEMA 1 style utilizes a door mounted indicator in lieu of a beacon.
 13. Alarm Horn provides audio warning of alarm condition (83 to 85 decibel rating).
Note: NEMA 1 style utilizes an internally mounted buzzer (83 to 85 decibel) in lieu of horn.
 14. Exterior Horn Test/Normal/Silence Switch allows alarm horn to be silenced and testing of horn and light to ensure proper operation of alarm system.
 15. Horn Silence Relay automatically resets alarm after alarm condition has been resolved (mounted on circuit board).

FEATURES

- Entire control system (panel and switches) is UL Listed to meet and/or exceed industry safety standards
- Dual safety certification for the United States and Canada
- Standard package includes three 20' Sensor Float® control switches
- Complete with step-by-step installation instructions
- Three-year limited warranty



SJE Rhombus
SJ ELECTRO SYSTEMS, INC.

PO Box 1708, Detroit Lakes, MN 56502

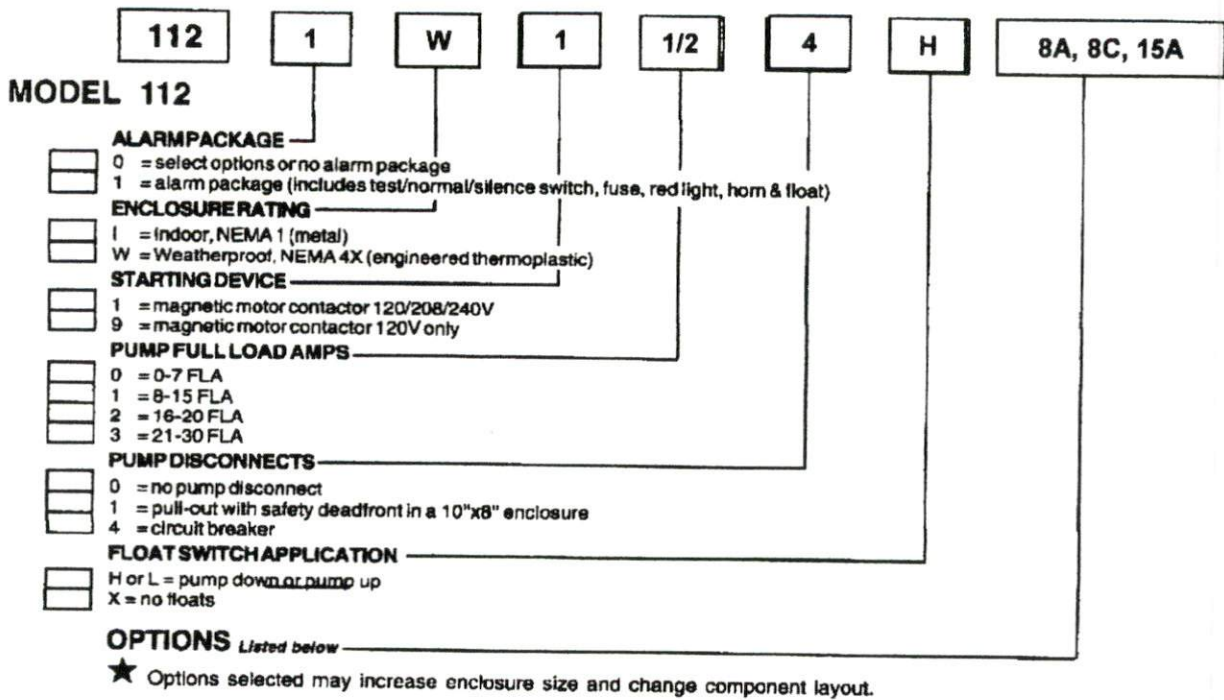
1 888-DIAL-SJE • 1-218-847-1317

1-218-847-4617 Fax

email: sje@sjerhombus.com

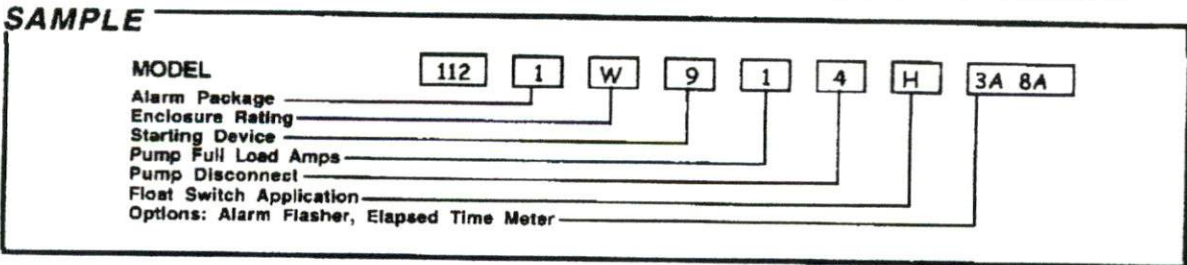
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Camp Agape-Cabin 1



If additional features are required, call the factory for a quote on either a Pro-Line or Engineered Custom control panel system.

- | | |
|--|--|
| <p>CODE DESCRIPTION</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1A Red beacon only / no audio
<i>must select 1E if floats included</i> <input type="checkbox"/> 1C Horn only / no visual
<i>must select 1E if floats included</i> <input type="checkbox"/> 1E Alarm float <input type="checkbox"/> 3A Alarm flasher <input type="checkbox"/> ★ 4A Low level cutout
<i>select option 4D if floats included</i> <input type="checkbox"/> ★ 4B Red low-level indicator & alarm
<i>must select 4A also</i> <input type="checkbox"/> 4D Low-level float <input type="checkbox"/> 6A Auxiliary alarm contact, form C type <input type="checkbox"/> ★ 8A Elapsed time meter <input type="checkbox"/> ★ 8C Event (cycle) counter <input type="checkbox"/> 10E Lockable latch - NEMA 4X <input type="checkbox"/> 10E Lockable latch - NEMA 1 <input type="checkbox"/> ★ 10F Lightning arrester <input type="checkbox"/> ★ 10K Anti-condensation heater | <p>CODE DESCRIPTION</p> <ul style="list-style-type: none"> <input type="checkbox"/> 11C NEMA 1 alarm panel <i>must select option 8A</i> <input type="checkbox"/> 11D NEMA 4X alarm panel <i>must select option 8A</i> <input type="checkbox"/> 15A Control / alarm circuit breaker
<i>Does not include the circuit board as in standard.</i> <input type="checkbox"/> 16A 10' cord in lieu of 20' <input type="checkbox"/> 16B 15' cord in lieu of 20' <input type="checkbox"/> 16C 30' cord in lieu of 20' <input type="checkbox"/> 16D 40' cord in lieu of 20' <input type="checkbox"/> 17A SJE SignalMaster® / mounting strap ● <input type="checkbox"/> 17B SJE SignalMaster® / externally weighted ● <input type="checkbox"/> 17C Sensor Float® / internally weighted ▲ <input type="checkbox"/> 17D Sensor Float® / externally weighted ▲ <input type="checkbox"/> 17E Sensor Float® Mini / pipe clamp ▲ <input type="checkbox"/> 17F Sensor Float® Mini / externally weighted ▲ <input type="checkbox"/> 19X Door mounted pump run indicator <input type="checkbox"/> 21A Pumpmaster® in lieu of on/off switches ● <input type="checkbox"/> 21B PumpMaster® Plus in lieu of on/off switches ● <input type="checkbox"/> 21C Super Single® in lieu of on/off switches ▲ <input type="checkbox"/> 21D Double Float™ in lieu of on/off switches ▲ <p style="text-align: center;">● Mechanically-activated ▲ Mercury-activated</p> |
|--|--|



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Cat Page PN 1009181B

CAMP AGAPE

HORIZONTAL - NAD 83 (1986)
VERTICAL - NAVD 88

