

# Webster®

## Fuel Pumps & Valves

**BULLETIN**  
SUBSPM  
NOV 2015

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### ***SUBMITTAL DATA***

TRANSFER / SUPPLY PUMP  
STANDARD - DUPLEX UNITS

SPM-15

SPM-30

SPM-65

SPM-135

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PROJECT

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DATE

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ARCHITECT

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ENGINEER

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CONTRACTOR

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WEBSTER  
REPRESENTATIVE

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EQUIPMENT

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CONTENTS

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**TRANSFER / SUPPLY PUMP / DUPLEX UNITS SUBMITTAL DATA****DATA**

JOB NAME		MODEL #
LOCATION		
CITY		DUPLEX MANUAL
STATE	ZIP	DUPLEX AUTO.

**PUMP**

TOTAL FIRING RATE GPH	MAXIMUM HEAD _____ FEET
SUCTION: LIFT IN FEET	FLOW GPH
VALVE ADJUST: PRESSURE RANGE MINIMUM _____ PSI MAXIMUM _____ PSI	

**MOTOR**

HORSE POWER	RPM		
VOLTS	PHASE	HZ	ENCLOSURE

**ACCESSORIES**

CHECK VALVE	VACUUM BREAKER
COMPOUND GAUGE	OIL SAFETY VALVE
ELECTRIC ALTERNATOR	MECHANICAL ALTERNATOR
COMMON DISCHARGE MANIFOLD	SENSORS
RELIEF VALVE	REGULATING VALVE
CONTAINMENT BASIN WITH LEAK SENSOR	BACK PRESSURE VALVE
STRAINERS	BALL VALVES
OTHER:	

The SPM DUPLEX models consist of two pump/motor assemblies with a pre-piped, common discharge manifold. One pump/motor unit operates continuously, with the second providing backup service if the main pump fails. Either automatic (SPM-DA models) or manual (SPM-DM models) controls are available.

The duplex automatic series are designed specifically for buildings where a constant supply of oil must be assured: hospitals, apartment buildings, schools and other commercial/industrial buildings. The SPM-DA models consist of two identical supply pump and motor sets mounted on a rigid channel iron base. Central to the base is a pedestal which supports the control panel. On the front of the control panel is a selector switch that identifies either Pump #1 or Pump #2 to serve as the lead pump set. The other pump set then automatically becomes the lag pump set. Should the lead pump lose pressure, for any reason, it will automatically be turned off and the lag pump turned on. Simultaneously, an audible alarm will be activated to notify a service person that a pressure failure has occurred and attention must be given to the SPM-DA unit. The control panel is equipped with a lead-lag switch to permit manual alternation of the pumps to provide even wear on each pump.

The duplex manual series is designed for commercial and industrial structures where an oil supply is required only during occupancy, and a qualified person is always present to perform the manual switching. It is not recommended for structures with water sprinkler systems that are unoccupied for long periods of time. The SPM-DM consists of two identical supply pump and motor sets mounted on a rigid channel iron base. Central to the base is a pedestal upon which is mounted a selector switch only. If the active pump set fails, it must manually be turned off and the inactive unit turned on.

Motors on standard pump sets are 1725 RPM, single phase 60 hertz units and must be specified for operation at 115 or 230 AC volts. Single phase 50 hertz motors are available on special request. Special pump sets are also available with 1725 RPM, three phase 50 or 60 hertz motors. Contact the factory for information. Both frequency of operation and AC voltage must be specified (230 or 460 AC volts).

Many other features are available such as oil spill pans under pump sets, pressure regulating valves, etc. Contact the factory at (502) 695-4400 for information on these features and others that may not be listed.

### ***DUPLEX AUTOMATIC OPERATION***

The basic premise for the control of an automatic duplex system is that a faulty supply pump will not develop adequate pressure to supply fuel oil. By continuously monitoring pressure and issuing an indication when a decrease in pressure occurs, it is able to switch from the lead pump, which has developed a fault, to the lag pump.

Pressure monitoring is accomplished by using a Honeywell® Pressuretrol model L404F having a variable pressure range (10-150 psi) and a variable differential range (10-22 psi).

A three position "SELECTOR" switch mounted on the front of the control panel is used to select "PUMP 1" or "PUMP 2" as the lead pump. Center position on the selector switch turns the control unit "OFF". Next to the selector is a "TEST" push button. While the automatic duplex system is operating, pushing the test button will turn off the lead pump and turn on the lag pump. At the same time an audible alarm signal is sounded. Switching the selector switch to the "OFF" position and then back to the original setting will restore the control back to its original operating condition.

## INITIAL SETUP

Before connecting the unit to main power, make sure the "SELECTOR" switch is in the "OFF" position. Set the Pressuretrol "MAIN" scale (scale on the right hand side) to slightly less (about 5%) than expected designed pressure of the system, and the differential setting marked "DIFF" (scale on the left hand side) to the pressure difference you would like the system to switch from lead pump to lag pump. An example: the system has been designed to operate at 85 psi, set the main pressure at 80 psi. If the pressure should drop to 70 psi you wish the lead pump to switch in the lag pump. Thus the differential pressure should be set at 10 psi (80 psi - 70 psi) = 10 psi.

Briefly turn on the system to check pump rotation (clockwise looking into the shaft), and set pump pressures at system designed levels.

Once the system has been set up, power connected and pump rotating verified, the system can be checked as follows:

1. Turn on the system and allow the lead pump to run for several minutes. If in about 20 or 30 seconds after turning the system on, the lead pump drops out, check pump pressure settings and Pressuretrol "MAIN" pressure setting. The Pressuretrol setting must be about 5% less than pump set pressure. If all pressures check, and the lead pump still drops out, lower the Pressuretrol setting another 5% and try again. If condition still continues, contact the factory at (502) 695-4400.
2. After the system lead pump has run for several minutes push the "TEST" button. The lead pump should drop out, lag pump turn on, and the audible alarm sound.
3. Reset the system by turning the selector switch to "OFF" and back to its previous setting. The same lead pump should be engaged. Allow to run for several minutes. Re-adjust pump pressure setting to 20% below designed pressure. The lead pump should drop out, lag pump turn on and the audio alarm sound.
4. Turn off the system, set the proper pressures and turn the system back on. Your system should be properly set.

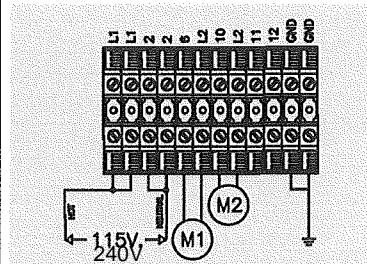
## ELECTRICAL POWER CONNECTIONS

Abide by all local electrical wiring codes in wiring the duplex systems.

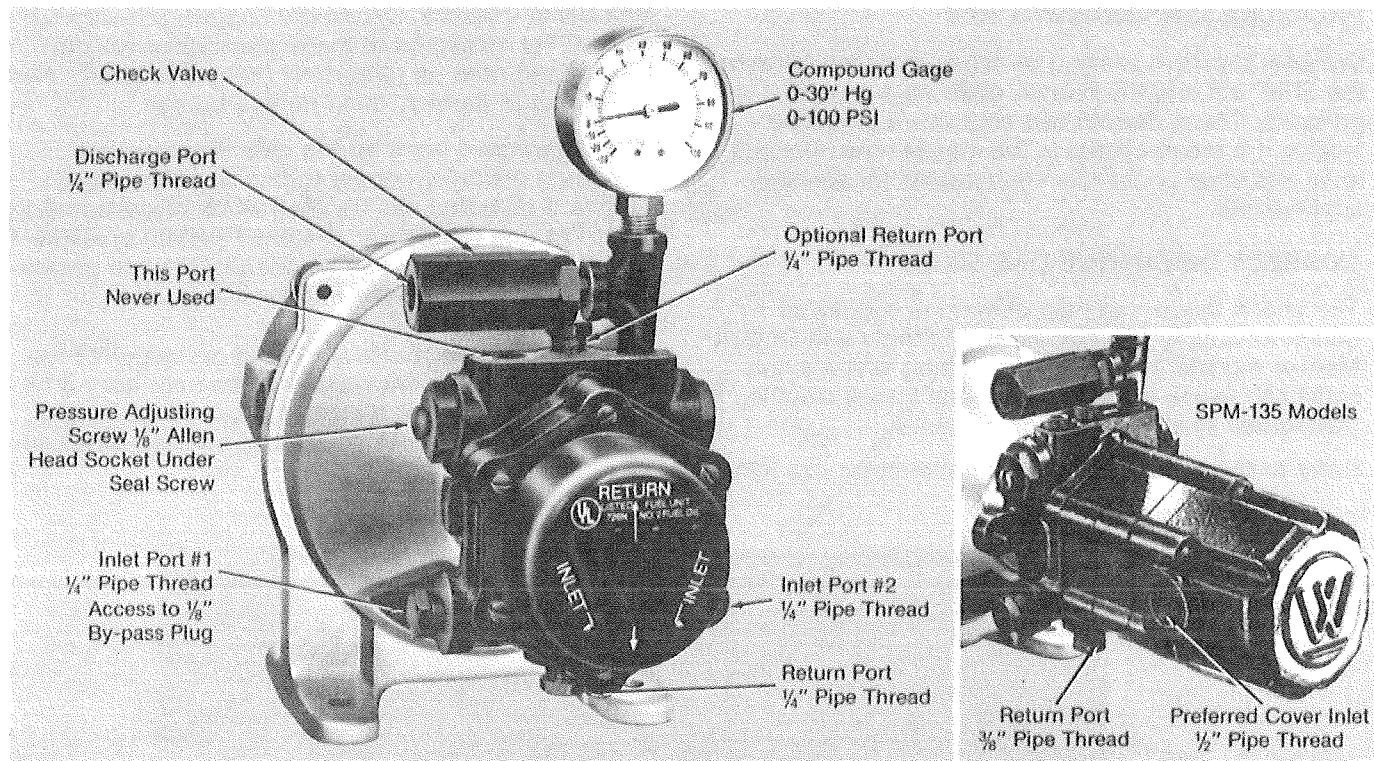
The electrical connections between the pump/motor assemblies and control panel are made at the factory. Connect electric service to the terminal strip in the control panel using conduit and wire sizes as required by local codes.

Control circuits operate on 115 volts. Always connect white neutral wire to Terminal 2. Never connect 230 volts between Terminal L1 and Terminal 2. Green ground wire from power source should be connected to one of the panel mounting screws.

**Important:** SPM-135-DA motors are dual voltage and are prewired for 230 volts at factory. To operate on 115 volts, consult motor manufacturer's instructions accompanying unit for proper wiring.



# SPM Single Supply Units

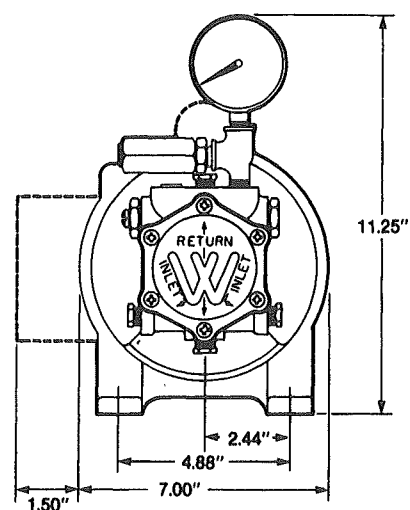
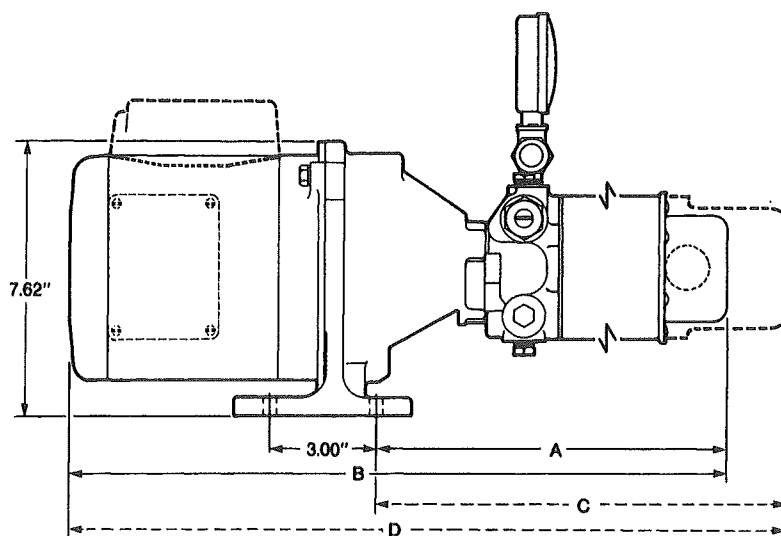


## DIMENSIONS SPM Single Units

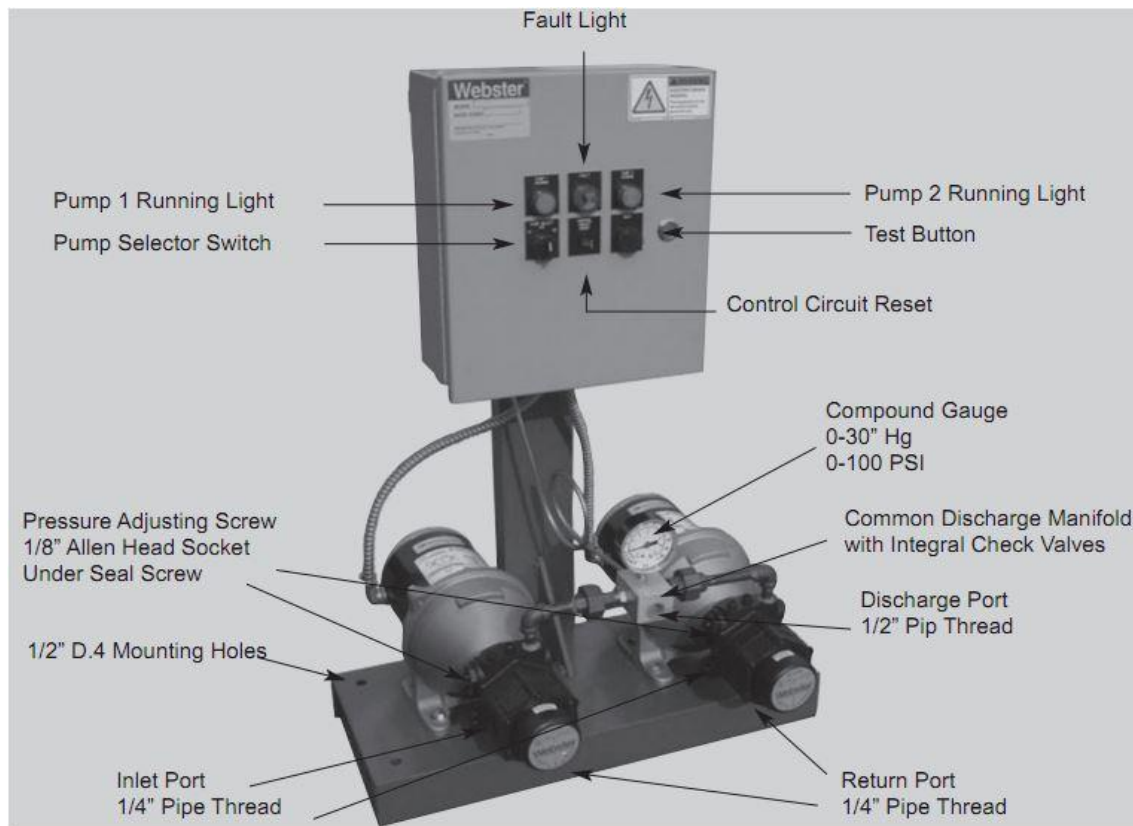
Models	A	B	C	D
SPM-15	6.88	16.36		
SPM-30	7.44	17.42		
SPM-65	8.96	18.94		
SPM-135			10.94	21.51

The basic dimensions indicated apply to all size SPM units. Refer to the table for variable dimensions "A" through "D."

Model SPM-135 (with 1/2 HP motor) includes external motor starter capacitor and junction box illustrated by dotted lines. Larger cover with preferred inlet on Model SPM-135 also illustrated by dotted lines.



## SPM Duplex Automatic Models



### SPECIFICATIONS

SPM Duplex Automatic units consist of two SPM Series Pump/Motor assemblies and an electrical control panel. They are designed for use in maintained pressure supply systems *only*. If system pressure falls below a preset level, the control automatically switches from the primary pump/motor unit to the secondary unit. If the backup pump/motor unit also fails to reach or maintain preset system pressure, the control also shuts off the backup unit.

A pump selector switch allows the two pump/motor units to be manually alternated for even wear on each pump. Pump pressures can be set at a range from 20 PSI to 85 PSI. See Correct Supply Line Size charts for maximum discharge head.

### TANK TO PUMP CONNECTIONS

Units should be set for two pipe operation. Preferred installation calls for a separate suction line from tank to pump for each pump/motor unit. If system failure

occurs because of a gross leak in the suction line of the primary unit, the second unit can still provide backup service.

The correct suction line size can be determined by referring to the line sizing charts. Generally, the return line should be sized the same as the suction line. Low pressure drop, swing type check valves can be installed in the suction lines, assuring that pumps are full of oil, ready for service. Check valves in return lines allow removal of inactive pump for servicing. Use of shutoff valves in return lines is not recommended. **Be certain all plugs and connections are secure and leak-tight.**

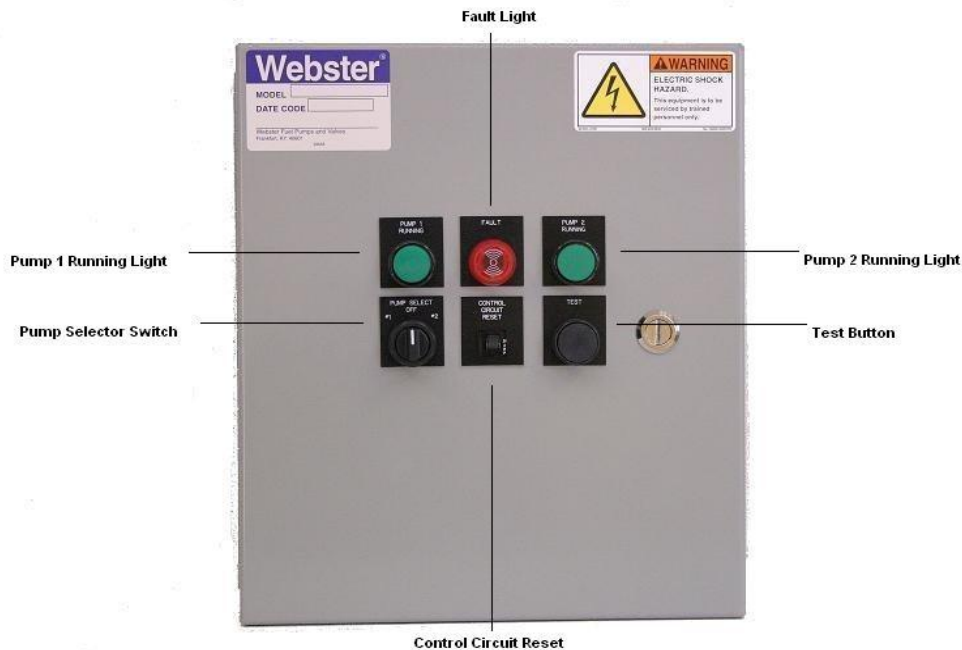
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## ***SPECIFICATIONS SPM-15 / SPM-30 / SPM-65 / SPM-135***

CAPACITIES:	15, 30, 65, and 135 GPH.
PRESSURE:	Maximum operating pressure to 80 PSI or 200' of head.
MOTORS:	All motors are 60 HERTZ, 1725 RPM, continuous duty. 1/6, 1/4, 1/3 HP: SPLIT PHASE, 115 OR 230 VOLT operation 1/2 HP: Capacitor start / induction run, TEFC, DUAL 115/230 VOLT Motors are clockwise as viewed from motor shaft end. 50 HERTZ and/or 3 PHASE motors are available upon request.
PUMPS:	SPM 15, 35, AND 65 USES WEBSTER "2R" SERIES PUMP UNITS SPM 135 USES WEBSTER "2V" SERIES PUMP UNITS WEBSTER 2R AND 2V ARE UL LISTED
PORTING:	SPM 15, 30, 65: 1/4" NPTF - 2 INLETS, OUTLET PORT AND TOP AND BOTTOM RETURNS SPM 135: 1/4" NPTF - OUTLET PORT 3/8" NPTF - RETURN PORT, 2 OPTIONAL INLETS 1/2" NPTF - INLET, COVER INLET
SEAL:	All models - Double lip type. BUNA N. VITON available upon request.
MOUNTING:	All models - Four bolt foot mount.
FILTER:	Rotary self cleaning type, except in SPM 135. Use of external line filter recommended. For additional filter requirements, contact the factory.
VALVES:	Pressure regulating assembly in pump maintains set pressure. Check valve maintains oil in feeder lines for instant starts. External regulators are required for flow rates higher than 135 GPH. Contact the factory for information.
GAUGE:	2 1/2" DIA., Calibrated from 30" of HG vacuum to 100 PSI. For other requirements, contact the factory.
INLET VACUUM:	All units - 15" HG <u>maximum</u> .
NATIONAL FIRE PROTECTION ASSOCIATION COMPLIANCE REQUIRES FUEL INLET PRESSURE NOT TO EXCEED 3 PSIG.	
CONTROLS:	Duplex automatic with lead-lag switch, alarm, and push button test switch. Duplex manual with selector switch only. Additional controls are available. Contact the factory.

# Standard Front Panel



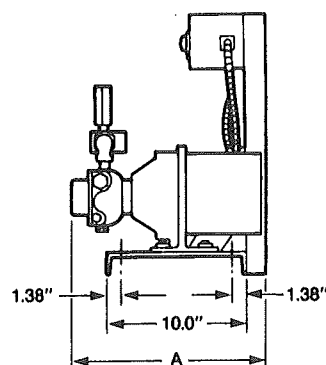
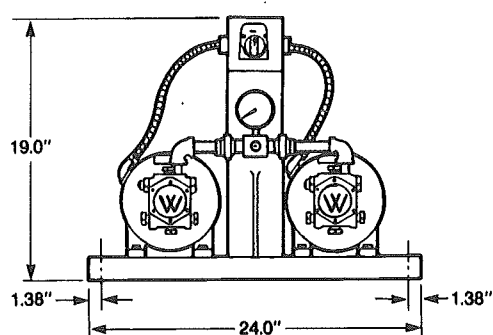
**Our Standard Duplex Automatic Fuel Oil Transfer Pumps are available with the following.**

- Discharge pressures from 10-100 psig
- 1725 rpm Direct Drive Motors
- Two Pump and Motor assemblies
- Duplex Automatic Panel with Automatic Switch Over
- One Hand-Off-Auto switch
- One Lead Lag Pump Switch
- Two "Pump On" indicator lights
- Duplex panel Test Button
- Alarm with Indicator Light
- One Reset Circuit Breaker
- Two Magnetic Motor Starters with Overload Protection
- One Compound Gauge on discharge block
- One Discharge connection
- 1725 rpm Direct Drive Motors



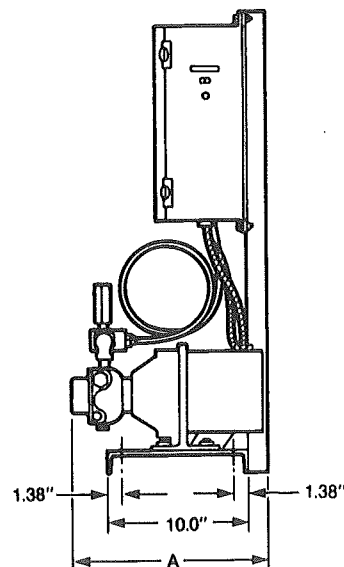
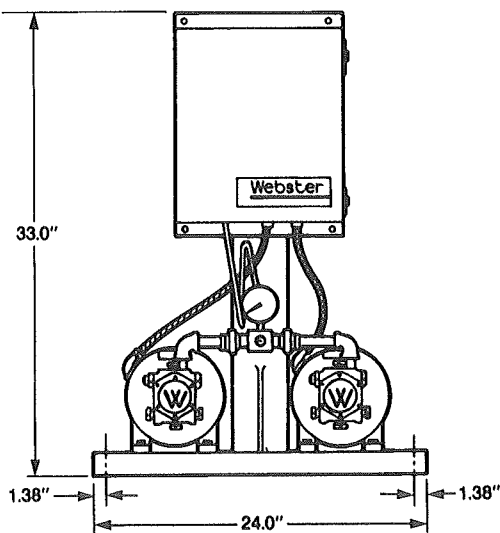
**SPM DUPLEX MANUAL SUPPLY UNIT**

MODELS	"A"	PIPE THD SIZE
SPM-15-( )-DM	14.94	1/4
SPM-30-( )-DM	16.53	1/4
SPM-65-( )-DM	16.90	1/4
SPM-135-DM	21.37	3/8



**SPM DUPLEX AUTOMATIC UNIT**

MODELS	"A"	PIPE THD SIZE
SPM-15-( )-DA	14.94	1/4
SPM-30-( )-DA	16.53	1/4
SPM-65-( )-DA	16.90	1/4
SPM-135-DA	21.37	3/8



## Webster Duplex Fuel Oil Pump Sets

Webster has the ability to offer pump sets in a variety of combinations. Webster will mount any of our low speed pump heads to any AC motor and panel type. Duplex Automatic and Duplex Manual configurations.

### Standard Duplex Operation and Features.

The SPM duplex models consist of two pump/motor assemblies with a pre-piped, common discharge manifold. One pump/motor unit operates continuously, with the second providing backup service if the main pump fails. Either automatic (SPM-DA models) or manual (SPM-DM models) controls are available.

The duplex automatic series are designed specifically for buildings where a constant supply of oil must be assured... hospitals, apartment buildings, schools and other commercial/ Industrial buildings.

The DA Series is equipped with a pressure sensing device which detects a loss in pressure of the primary pump. If the standby pump is brought into service, an alarm sounds which indicates a malfunction in the primary pump.

The electric control circuit on the duplex automatic pump set is equipped with a lead-lag to permit alternation of pump to provide even wear on each pump.

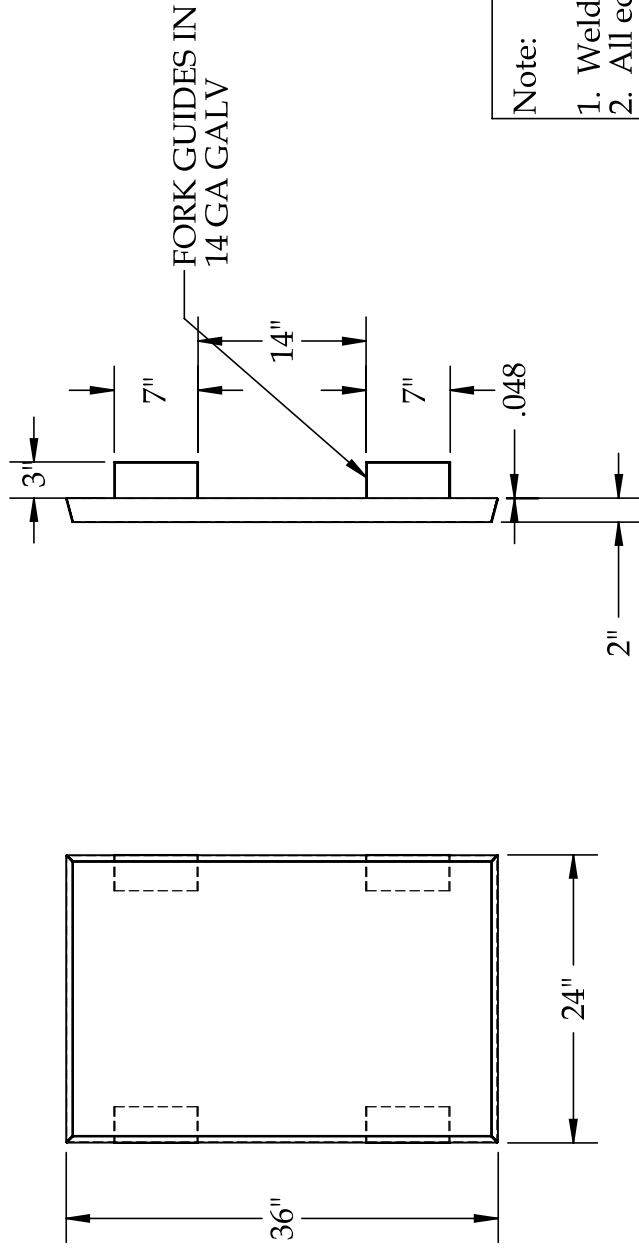
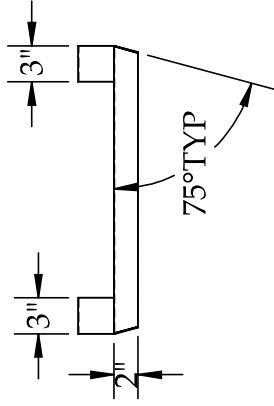
The manually operated duplex pump sets offer the same protection as an automatic except the standby pump must be turned on manually which requires that maintenance personnel always be available.

## Standard SPM Duplex Pump Sets

(Models SPM-15, SPM-30, SPM-65 and SPM-135)

Selection Table		Standard SPM Series Duplex Automatic Supply Pumps						
Models and Design Data Table								
Model	Type	Motor	Phase	Motor	Max	Valve Adjustment	Max Flow	Max Flow
		Voltage		HP	Head	Range	@ 10 psi	@ 100 psi
SPM-15-1-DA	Duplex Auto	115	Single	1/6	200'	10 to 100 psi	22	15
SPM-15-2-DA	Duplex Auto	230	Single	1/3	200'	10 to 100 psi	22	15
SPM-33BT2R181-DA	Duplex Auto	230/460	Three	1/3	200'	10 to 100 psi	22	15
SPM-30-1-DA	Duplex Auto	115	Single	1/4	200'	10 to 100 psi	45	30
SPM-30-2-DA	Duplex Auto	230	Single	1/3	200'	10 to 100 psi	45	30
SPM-33BT2R283-DA	Duplex Auto	230/460	Three	1/3	200'	10 to 100 psi	45	30
SPM-65-1-DA	Duplex Auto	115	Single	1/3	200'	10 to 100 psi	90	65
SPM-65-2-DA	Duplex Auto	230	Single	1/3	200'	10 to 100 psi	90	65
SPM-33BT2R686-DA	Duplex Auto	230/460	Three	1/3	200'	10 to 100 psi	90	65
SPM-135-DA	Duplex Auto	115/230	Single	1/2	200'	10 to 100 psi	157	135
SPM-50BT2V086-DA	Duplex Auto	230/460	Three	1/2	200'	10 to 100 psi	157	135
The Above pumps are set at 20 psi								

The Standard Duplex Panel is also available for our SPMB and SPMV pump sets.



Note:

1. Weld Corners Water Tight
2. All edges hemmed at .5"
3. No burrs or weld splatter
4. Minimize burn marks

## 36" X 24" Containment Basin

P/N 56444-1

Webster, Inc. warrants that Heating Products shall be free from defects in materials and workmanship for a period of two (2) years from the date of manufacture, or one (1) year from the date of installation, whichever period expires first. Webster will rebuild or replace, at its option, all Heating Products proven to its satisfaction to be defective within such warranty period and returned to the Webster factory, transportation charges prepaid. Webster's sole obligation and buyer's exclusive remedy hereunder is limited to such rebuilding or replacement.

No products may be returned to the Webster factory unless the prior written consent for said return shall have been obtained from the Heating Products Customer Service Department in Frankfort, Kentucky. This Limited Warranty does not cover shipping costs to and from the Webster factory, any costs for labor or otherwise related to product removal or replacement, or any other costs of any nature without prior written consent by Webster.

Parts, products and accessories made by others are warranted only to the extent of the original manufacturer's warranty to Webster.

This warranty shall not apply to acts of God, war or civil insurrection, nor shall it apply to products which, in the sole judgment of Webster, have been subject to negligence, abuse, accident, misapplication, tampering, alteration; nor due to other than normal application, use or service, including but not limited to, operational failures caused by corrosion, rust or other foreign materials in the system, or operation at pressures in excess of recommended maximums.

Purchaser shall be solely responsible for determining suitability for use of Webster Heating Products. Webster shall not in any event whatsoever, have any liability with respect to such determinations.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. WEBSTER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR CONTINGENT DAMAGES WHATSOEVER.

NOTE TO CONSUMERS: THIS LIMITED WARRANTY IS EXTENDED TO THE COMMERCIAL CUSTOMERS, DEALERS AND INSTALLERS OF WEBSTER ONLY. THE SUPPLIER/INSTALLER WILL EXTEND WARRANTY COVERAGE TO YOU WHICH COVERS WEBSTER'S PRODUCTS. WEBSTER'S WARRANTY TO SUCH CUSTOMERS, DEALERS AND INSTALLERS WILL BACK UP THE WARRANTY EXTENDED TO THE CONSUMER.

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