SPP-E-4-027

ENGINEERING FORM

Pre-startup Checklist – Horizontal split case / End Suction electric motor driven fire pumps/packages

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PRE-STARTUP CHECKLIST

Horizontal Split Case / End Suction
Electric Motor Driven Fire Pumps / Packages

This pre start-up checklist shows items that must be completed prior to a scheduled start-up. If the answer to any questions is "No"(when it should be "Yes"), is left blank or contradicts the requirements of NFPA 20, the installation is not ready for start-up. Indicate "N/A" for not applicable wherever appropriate. These questions should be answered in conjunction with the fire pump (mechanical) contractor and electrical contractor. Check list must be returned signed and dated below.

Fire pump Instructions, Operation & Maintenance manuals are available on SPP Inc extranet or contact us at https://www.spppumps.com/contact-us/.

The sole purpose of this pre start-up checklist is to serve as guidelines only. SPP Pumps does not assume any liability or responsibility for the accuracy of this list or any items omitted. This list does not absolve the installing contractors of their responsibilities for proper installation in accordance with the local and national codes and standards.

Project Name: _____
Site Address: _____, City: _____, State: _____
Insurance Provider: _____
Flow Test to be performed by: Company Name: _____
Contact email: _____ Tel: _____ Fax: _____
Pre-Start-Up Check Date: _____
Pre-Start-Up Checklist completed by: a).Company Name: _____
b). Contact Name: _____
c). Telephone: _____

FIRE PUMP / PACKAGE NAMEPLATE INFROMATION

Fire pump		**Electric Motor**					
Pump model		Make / Model					
Serial Number		Voltage		Frequency		Phase	
Rated Flow (GPM)		HP		Speed		Starting	
Rated Pressure (PSI)		Serial Number					
Rated speed (RPM)							
Main fire pump controller							
Controller Manufacturer							
Controller Model							
Voltage / Freq / Starting method							
Serial Number							
Jockey Pump + Motor		**Jockey Pump Controller**					
Make / Model		Make / Model					
Serial Number		Serial Number					
Voltage		Speed		Freq^{n}		Volts/Freq^{n}		HP rating	
** Please put NA for not applicable wherever appropriate.*							

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A] GENERAL INSTALLATION CHECKS:

Sr	Check points	Yes	NO	N/A
1	No visible sign of cracks, damage, rusting or watermarks.			
2	All mechanical installation in accordance with NFPA 20 Standards.			
3	All electrical installation in accordance with NFPA 70 Standards.			
4	All electrical supplies correspond to motor and controller nameplates.			
5	Pumpset is mounted properly and securely anchored with foundation bolts of suitable size embedded in the concrete floor.			
6	Foundation underneath the baseplate extends out of baseplate min 6” all around.			
7	Entire pump assembly base is level and aligned with all connecting piping / fixtures			
8	Fire Pump System manual, certified performance curve and wiring diagrams available for start-up.			
9	Water source is adequate to provide 150% flow out of pump.			

B] HSC / ES FIRE PUMP CHECKS:

Sr	Check points	Yes	NO	N/A
1	Suction piping is flushed per NFPA 20 2019 14.1.1.			
2	Pump direction of rotation is as indicated on pump submittal GA drawing.			
3	Suction and discharge piping is hydrostatically tested prior to pump installation.			
4	Suction piping has minimum possible transitions with minimum 4 to 6 pipe diameters long straight pipe at pump suction.			
5	Discharge piping is supported properly, and pump is free of external piping loads.			
6	Pump suction pressure is not below atmospheric pressure and does not exceed max allowable suction pressure as per pump nameplate.			
7	Pump stuffing box is piped back to waste.			
8	Pump to motor coupling is realigned after pumpset is grouted in.			
9	Suction pipeline is free of any entrapped air, air leaks.			
10	Max net discharge pressure from pump, suction pressure plus (city mains / tank) max pump pressure per nameplate does not exceed 175 psi at FDC or any other areas of system that may get over pressurized.			
11	If pump net discharge pressure exceeds 175 psi, contractor has ensured that appropriate PRVs are installed at FDC and other areas of system that may get overpressurerized.			
12	Gland plate is not fully tightened and drippage from packing is evident.			
13	Eccentric reducers on suction and concentric increasers on discharge are installed where needed.			
14	Listed OS&Y valves are installed on suction and discharge side of pump pipping.			

C] ELECTRIC MOTOR CHECKS:

Sr	Check points	Yes	NO	N/A
1	Pump to drive coupling re-aligned after the entire pump assembly base installation completed as per NFPA 20 A-3-5.			
2	Motor is wired correctly per instructions from motor IOM.			
3	Motor is bumped (while coupling is disengaged) to check its direction of rotation with respect to the pump direction of rotation.			
4	Starting method for controller and motor is same.			
5	Individual leads are connected properly and are well insulated.			
6	Motor is properly grounded.			

D] JOCKEY PUMP (SURFACE):

Sr	Check points	Yes	NO	N/A
1	Pump is properly installed on a plinth and secured down with foundation bolts.			
2	Jockey pump inlet and outlet are in correct orientation.			
3	Jockey pump suction line is piped ahead of main fire pump suction OS&Y valve.			
4	Jockey pump discharge line is piped after the main fire pump discharge valve (OS&Y or Butterfly)			
5	Jockey pump motor is wired correctly, and direction of rotation is as needed for the jockey pump.			

E] ELECTRIC FIRE PUMP AND JOCKEY PUMP CONTROLLERS:

Sr	Check points	Yes	NO	N/A
1	Nameplate voltages of the Fire Pump Controller corresponds with the AC voltage available and			
2	Enclosure, alarm bell, selector switch, membrane and display are not damaged.			
3	Fire Pump Controller has been installed within sight of the pump and engine.			
4	Fire Pump Controller has been installed not less than 12 inches from the floor of the mechanical room.			
5	All electrical connections to the Fire Pump Controller are done using liquid tight conduit and connectors.			
6	Fire Pump Controller inside is free from any drill chips, dirt or foreign objects in the bottom of the enclosure, loose wires, broken components and general proper electrician workmanship.			
7	Verify that the correct Normal Power AC voltage is supplied to the controller by taking a voltage reading at the incoming terminals of the isolating switch (IS).			
8	Fire Pump Controller is properly grounded.			
9	Verify that the motor leads are connected for the corresponding starting method.			

F] AUTOMATIC TRANSFER SWITCH:

Sr	Check points	Yes	NO	N/A
1	Listed Automatic Power Transfer Switch installed as per NFPA 20.			
2	Emergency power generator installed and start-up completed.			
3	Proper size circuit breakers installed.			
4	Emergency power conductors wired and start circuits installed from the generator to the fire pump power transfer switch.			

G] PUMP FITTINGS:

Sr	Check points	Yes	NO	N/A
1	Appropriately sized air release valve is installed on pump as indicated in IOM. (only for HSC pumps not ES pumps)			
2	A pressure gauge with minimum 3 ½" dial with pressure range twice the rated pump pressure is installed with a ¼" ball/gauge valve.			
3	A compound pressure gauge with minimum 3 ½" dial with pressure range twice the max suction pressure and upto -30 psi pressure is installed with a ¼" ball/gauge valve.			
4	A casing relief valve minimum ¾" is installed on discharge side of fire pump.			
5	Casing relieve valve pressure setting is appropriate for the fire pump discharge pressure.			
6	CRV and Pump stuffing box piped to drain.			
7	Jockey Line contains 2 isolation gate valves and a check valve.			
8	Listed OS&Y Gate Valve installed close to pump on the suction sided of the pump			
9	Listed OS&Y Gate Valve or Butterfly Valve on pump discharge line.			
10	A Listed Check Valve is installed on discharge side and is in the proper direction.			
11	Suction line has been tested to ensure there are not any leaks.			

H] SENSING LINES FOR MAIN FIRE PUMP AND JOCKEY PUMP:

Sr	Check points	Yes	NO	N/A
1	Main fire pump and jockey pump sensing lines totally independent of each other and connected to their resp. controllers per NFPA 20 2019 figures A.4.32 (a) & (b).			
2	Each sensing line is ½" made from non-corrosive metallic piping.			
3	Each sensing line is complete with 2 bronze check valves, each with a 3/32" diameter hole drilled in the flapper, oriented to open in the direction of the pump, and spaced 5 feet from each other.			

I] MAIN PRESSURE RELEF VALVE AND WASTE CONE:

Sr	Check points	Yes	NO	N/A
1	Listed main pressure relief valve is installed.			
2	Main pressure relief valve is located between the pump discharge and check valve.			
3	Main pressure relief valve spring range exceeds max pump discharge pressure.			
4	Waste cone is installed on the outlet line of the main pressure relief valve.			
5	Waste cone provides visual indication of water movement (has a sight glass)			
6	Waste cone is piped to waste / drain.			

J] FLOWMETER / TEST HEADER:

Sr	Check points	Yes	NO	N/A
1	Flowmeter is listed for fire pump service and installed in proper direction of flow.			
2	Flowmeter gauge display has a range of at least 1.75 times the rated flow of main fire pump.			
3	Straight pipe length before and after flowmeter in accordance with flowmeter manufacturers specification.			
4	Test header is sized appropriately per NFPA 20 2019 table 4.28 (a) / (b)			
5	Means of isolation provided for test header and flowmeter.			

K] ADDITIONAL COMMENTS:

_____

_____

_____

_____

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_____

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_____

Signed: _____Date: _____

I certify the above items are completed and were checked at the job site and the pump equipment is ready for a start-up and performance test.

Once fully completed, please return the above Pre Start-Up Checklist to _____
(local SPP Pumps Service Dealer/Agent) to the attention of _____ .

Please note, in general fire pump start-up requests may require a minimum of 2-3 weeks advanced notice in order to schedule a date with the appropriate parties (equipment representatives & their technicians). The actual scheduled start-up date(s) will be determined based on the availability of these parties.
It is the responsibility of the installing contractor to arrange for the other required parties to be present and have the installation ready on the scheduled date of the start-up. Scheduling of fire pump start-up will commence only once the installation is deemed ready for start-up as derived from the answers provided on this form.

Important: A standard start-up is based on a maximum 3 hours at the job site. Should the time required to complete the start-up exceed this standard duration or should the start-up service need to be repeated due to circumstances caused by other parties, and or situations out of our control, any additional service or incurred costs are the sole responsibility of the installing contractor.

Before performing any tests, to avoid false alarms where a supervisory service is provided, the alarm receiving facilities must always be notified by the building owner or designated representative.

Prior to the Start-Up, the Installing Contractor must ensure that the Pre-Start-Up Verification has been performed and provide confirmation to the local SPP Pumps Service Dealer/Agent ensuring:

1. Pump Alignment.
2. Pump Packing Gland Adjusted.
3. System Integrity.
4. Electrical Integrity.
5. All applicable items on the Pre Start-Up Checklist have been verified and answered accordingly.
6. The installation is ready for start-up (including all air bled from the system and ready to flow water) and is in accordance with all applicable national and local codes and standards.
7. All applicable documentation is on-hand at start-up (including pump certified performance curve(s), equipment manuals & wiring diagrams)
8. All the appropriate parties (e.g. AHJ-Fire Marshall, Electrician, Pipe Fitter, Building Owner / Representative, etc.) will be present throughout the entire start-up.

Revision history

Description	Revision	Revised By	Date
First issue	1	K.Khanzode	7/14/2020

Reviewed By: Date:	Kedar Khanzode 07/14/2020	Approved By: Date:	Sunil Deshpande 07/14/2020