Centrifugal Fire Pump Acceptance Test Form

Information on this form covers the minimum requirements of NFPA 20-2013 for performing acceptance tests on pumps with electric motors or diesel engine drivers. Other forms are available for periodic inspection, testing, and maintenance.

Owner: ____________________________
Owner’s Address: ____________________________

Property on which pump is installed: ____________________________
Property Address: ____________________________

Date of Test: ____________________________
Demand(s) of Fire Protection Systems Supplied by Pump: ____________________________

Pump: □ Horizontal □ Vertical
Manufacturer: ____________________________ Shop/Serial #: ____________________________
Model or Type: ____________________________
Rated GPM _______ Rated Pressure _______ Rated RPM _______
Suction From _______ If Tank, Size and Height _______
Driver: □ Electric Motor □ Diesel Engine □ Steam Turbine
Manufacturer: ____________________________ Shop/Serial #: ____________________________
Model or Type: ____________________________
Rated Horsepower: _______ Rated Speed: _______
If Electric Motor, Rated Voltage ______ Operating Voltage _______
Rated Amps ______ Phase Cycles ______ Service Factor _______
Controller Manufacturer: ____________________________
Shop/Serial #: ____________________________
Model or Type: ____________________________

Jockey Pump on System? □Yes □No Settings: On ______ Off ______

Note: All questions are to be answered Yes, No, or Not Applicable. All “No” answers are to be explained in the comments portion of this form.

I. Flush Test (Conduct before Hydrostatic Test)
Suction piping was flushed at ______ gpm? □Yes □No □N/A
(See Table 14.1.1.1 of NFPA 20.)
Certificate presented showing flush test? □Yes □No □N/A

II. Hydrostatic Test
Piping tested at ______ psi for 2 hours? □Yes □No □N/A
(Note: NFPA 20 requires 200 psi or 50 psi above maximum system pressure whichever is greater.)

Piping passed test? □Yes □No □N/A
Certificate presented showing test? □Yes □No □N/A

III. People Present
Were the following present to witness the test:
A. Pump manufacturer/representative □Yes □No □N/A
B. Engine manufacturer/representative □Yes □No □N/A
C. Controller manufacturer/representative □Yes □No □N/A
D. Transfer switch manufacturer/rep. □Yes □No □N/A
E. Authority having jurisdiction/rep. □Yes □No □N/A

IV. Electric Wiring for
Was all electric wiring including control interwiring
For multiple pumps, emergency power supply, and the jockey
Pump completed and checked by the electrical contractor
Prior to the initial start-up and acceptance test? □Yes □No □N/A

V. Electric Wiring for
Run the pump at no-load, rated load and peak load (usually 150% of Rated load) conditions. For variable speed drivers, run the test with the Pressure limiting control “on” and then again at rated speed with the pump isolated from the fire protection system and the relieve valve closed.
A. Was a copy of the manufacturers’ certified pump test characteristic curve available for comparison to the results of the acceptance test? □Yes □No □N/A
B. Equipment and gages calibrated? □Yes □No □N/A
C. No vibrations that could potentially damage any fire pump component? □Yes □No □N/A
D. The fire pump performed at all conditions without objectionable overheating of any component? □Yes □No □N/A

E. For each test, record the following for each load condition:

<table>
<thead>
<tr>
<th>Test</th>
<th>Driver Speed</th>
<th>Suction Pressure</th>
<th>Discharge Pressure</th>
<th>Nozzle Size</th>
<th>Pitot Readings or Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>rpm</td>
<td>psi</td>
<td>psi</td>
<td>inch</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>150%</td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

F. For electric motor driven pumps also record:

<table>
<thead>
<tr>
<th>Test</th>
<th>Voltage</th>
<th>Amperes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>150%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

G. Calculate Net Pressures and Total Flow

\[ P_{Net} = P_{Discharge} - P_{Suction} \]

\[ Q = \frac{29.83 \text{ cfd}^2}{\sqrt{P}} \]

<table>
<thead>
<tr>
<th>Test</th>
<th>Net Pressure</th>
<th>Flow</th>
<th>Total Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>100%</td>
<td></td>
<td></td>
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<td>150%</td>
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</tbody>
</table>

H. For electric motors operating at rated voltage and frequency, is the amperere demand less than or equal to the product of the full load amperere rating times the allowable service factor as stamped on the motor nameplate? □Yes □No □N/A

I. For electric motors operating under varying voltage:
1. Was the product of the actual voltage and current demand less than or equal to the product of the rated full load current times the rated voltage times the allowable service factor? □Yes □No □N/A
2. Was the voltage always less than 5% below the rated voltage during the test? □Yes □No □N/A
3. Was the voltage always less than 10% above the rated voltage during the test? □Yes □No □N/A

J. Did engine-driven units show no signs of overload or stress? □Yes □No □N/A

K. Was the governor set to properly regulate the engine speed at rated pump speed? □Yes □No □N/A

L. Did the gear drive assembly operate without excessive objectionable noise, vibration, or heating? □Yes □No □N/A

M. Was the fire pump unit start and brought up to rated speed without interruption under the conditions of a discharge equal to peak load? □Yes □No □N/A

N. Did the fire pump perform equal to the manufacturer’s characteristic curve within the accuracy limits of the test equipment? □Yes □No □N/A

O. Electric motor pumps passed phase reversal test on normal and alternate (if provided) power? □Yes □No □N/A

VI. Controller Test
A. Did the pump start at least 6 times from

Continued on reverse side
automatic sources? □Yes □No □N/A
B. Was each automatic starting feature tested at least once? □Yes □No □N/A
C. Did the pump start at least 6 times manually □Yes □No □N/A
D. Was the pump run for at least 5 minutes during each of the operations in Parts A, B, and C above? □Yes □No □N/A
(Note: An engine driver is not required to run for 5 minute at full speed between successive starts until the cumulative cranking time of successive starts reaches 45 seconds.)
E. Were the starting operations divided between both sets of batteries for engine-driven controllers? □Yes □No □N/A
F. Electric Driven Pump Controllers
1. Were all overcurrent protective devices (including the controller circuit-breaker) selected, sized and set in accordance with NFPA 20? □Yes □No □N/A
2. Was the fire pump started at least once from each power Service and run for at least 5 minutes? □Yes □No □N/A
3. Upon simulation of a power failure, while the pump is operating at peak load, did the transfer switch transfer from the normal to the emergency source without opening overcurrent protection devices on either line? □Yes □No □N/A
4. When normal power was restored, did retransfer from emergency to normal power occur without overcurrent protection devices opening on either line? □Yes □No □N/A
5. Were at least half of the automatic and manual starts required by Parts A and C performed with the pump connected to the alternate source? □Yes □No □N/A
G. Were all signal conditions simulated demonstrating satisfactory operation? □Yes □No □N/A
H. Was the pump run for at least 1 hour total during all of the above tests? □Yes □No □N/A
I. For engines with ECM fuel management systems, primary and alternate ECM passed function test? □Yes □No □N/A

VII. Information For Owner
Was the owner given all of the following? □Yes □No □N/A
A. A manual explaining the operation of all components.
B. Instruction for routine maintenance and repairs.
C. Parts list and parts identification
D. Schematic electrical drawings of controller, transfer switch and alarm panels.
E. Manufacturer’s Certified Shop Test curve or Acceptance Test Curve.

VIII. Tester Information
Tester: ____________________________
Company: ____________________________
Company Address: ____________________________
I state that the information on this form is correct at the time and place of my test, and that all equipment tested was left in operational condition upon completion of this test except as noted in the comments section below.
Signature of Tester: ________________ Date: ________________
SVFD Representative: ________________ Date: ________________

IX. Comments (Any “No” answers, test failures, or other problems must be explained here.)
________________________________________________________________________________________________________________________
________________________________________________________________________________________________________________________
________________________________________________________________________________________________________________________
________________________________________________________________________________________________________________________
________________________________________________________________________________________________________________________
________________________________________________________________________________________________________________________