APPENDIX 6.2-G- SPECIFICATIONS FOR FIREPUMP ENGINE
Industrial Construction Company  
10060 Brecksville Road  
Brecksville, OH 44141  

Attention: Hans Kern  

Reference: Orange Grove Peaker Plant, Pala, California  
ITT-AC Fire Pump Skid Package  

With reference to the above, we are pleased to offer the following:  

**Engine Driven Fire Pump - 3000 GPM @ 125 PSI:**  
One (1) Allis Chalmers model 12 x 10 x 18F, Series 8100, horizontal, centrifugal Fire Pump, UL listed and FM approved, rated 3000 GPM at 125 PSI. The Fire Pump is driven at 1770 RPM by a Cummins Model CFP11E-F10 diesel engine. The pump and engine will be mounted on a fabricated steel base plate, complete with flexible coupling and coupling guard.  

Also included are the following:  
(2) sets lead-acid batteries with battery racks and cables  
(1) residential muffler (shipped loose for field installation)  
(1) 500 gallon double wall fuel tank  
(1) fuel tank, fuel spill alarm switch  
(1) 10” outside test header with twelve (12), 2-1/2” brass angle hose valves with caps & chains. NST threads.  
(1) ½” ball drip valve  
(1) 8” pilot operated relief valve  
(1) 8” x 12” enclosed cone  
(1) ½” automatic air release valve  
(1) 3-1/2” suction and discharge gauges  
(1) ITT-AC Model 2SV-9 stage jockey pump rated 25 GPM @ 125 PSI. 3 HP, 3500 RPM, 480 volt, 3 phase, 60 cycle, TEFC motor.  
(1) Cutler Hammer Jockey Pump Controller  
Cutler Hammer Diesel Engine Fire Pump Controller with:  
- All features required by NFPA #20  
- Low fuel level alarm & switch  
- Fuel spill at storage tank  
- Three sets of alarm contacts for: engine running, switch off and common trouble.  

**Electric Fire Pump 3000 GPM:**  
We offer one (1) Allis Chalmers model 12x10x18F, Series 8100, horizontal split case, centrifugal Fire Pump, UL listed and FM approved, rated 3000 GPM at 125 PSI. 300 HP, 1785 rpm, 480 volt, 3 phase, 60 cycle, ODP motor.
Also included are the following:

1. Cutler Hammer Model FD-30, Across-The-Line Type, Fire Pump Controller with 100,000 AIC, built in pressure recorder
2. ¾” casing relief valve
3. ½” automatic air release valve
4. 3-1/2 suction and discharge gauges

**Fire Pump Skid Package**

1. ITT-AC Skid Package consisting of the equipment listed above mounted, piped and wired including:

   Condition Point:  **3000GPM @ 125 PSI**

   1. Jockey pump piping: (2) gate valves and (1) check valve
   2. Fuel tank piping with cross bracing.
   2. 12” UL/FM OS&Y Flanged suction gate valve with tamper switch
   2. 12” UL/FM wafer style discharge check valve
   2. 12” UL/FM Model discharge wafer style butterfly isolation valve with tamper switch
   2. Concentric discharge increaser 125#
   1. Hose valve header connection 10” with: tee, elbow, manual drain valve, (1) UL/FM wafer style butterfly isolation valve (hose valve header, hose valve, caps & chains – **shipped loose for installation at the job site.**)
   1. steel perimeter skid base with all necessary hard copper sensing lines, pipe supports, and wiring for complete package.
   1. Common suction and discharge headers
   1. Piping for main relief valve and waste cone
   1. Single point power connection with all wiring complete at the factory
   1. All drains to common point

Unit to be factory primed and painted

All welding to be done by ASME Section 9 certified welders

State PE stamp and seismic calculations for zone 4

Estimated skid size is 38” long x 13” wide. Approximate weight 36,000 lbs.

If you have any questions, please do not hesitate to contact our office.
Sincerely,

Bill Smith
### Basic Engine Model
**Engine Specification Sheet**

**Cummins Fire Power**
DePere, WI 54115
http://www.cumminsfirepower.com

**Curve Number:** FR - 20091
**Revision Date:** August 2006

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#### Equipment

<table>
<thead>
<tr>
<th></th>
<th>Standard</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Cleaner</td>
<td>Direct Mounted, Disposable, Indoor Service</td>
<td>Disposable, Treated for High Humidity, Indoor Service</td>
</tr>
<tr>
<td>Alternator</td>
<td>12V-DC, 100 Amps; With Belt Guard</td>
<td>24V-DC, 70 Amps; With Belt Guard</td>
</tr>
<tr>
<td>Cooling Loop</td>
<td>N/A</td>
<td>Maximum Pressure of 400 PSI</td>
</tr>
<tr>
<td>Exhaust Protection</td>
<td>Metal Guards on Manifolds and Turbo</td>
<td>N/A</td>
</tr>
<tr>
<td>Exhaust Flex Connection</td>
<td>SS Flex, NPT</td>
<td>SS Flex, 150# Flange</td>
</tr>
<tr>
<td>Flywheel Power Take-Off</td>
<td>Flywheel with Mounting for Coupler</td>
<td>Drive Shaft System, Stub Shaft</td>
</tr>
<tr>
<td>Fuel Connections</td>
<td>Fire Resistant Flexible Supply and Return Lines</td>
<td>N/A</td>
</tr>
<tr>
<td>Fuel Injection</td>
<td>Direct Injection</td>
<td>N/A</td>
</tr>
<tr>
<td>Fuel Filter</td>
<td>Primary Filter with Priming Pump</td>
<td>N/A</td>
</tr>
<tr>
<td>Engine Heater</td>
<td>120V-AC, 2250 Watts</td>
<td>240V-AC, 2250 Watts</td>
</tr>
<tr>
<td>Governor, Speed</td>
<td>Constant Speed</td>
<td>N/A</td>
</tr>
<tr>
<td>Heat Exchanger</td>
<td>Tube &amp; Shell Type, 60 PSI with NPTF Connections</td>
<td>N/A</td>
</tr>
<tr>
<td>Instrument Panel</td>
<td>English and Metric, Tachometer, Hourmeter, Water Temperature, Oil Pressure &amp; Two (2) Voltmeters</td>
<td>N/A</td>
</tr>
<tr>
<td>Junction Box</td>
<td>Integral with Instrument Panel; For DC Wiring Interconnection to Engine Controller</td>
<td>N/A</td>
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<tr>
<td>Lube Oil Cooler</td>
<td>Engine Water Cooled, Plate Type</td>
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</tr>
<tr>
<td>Lube Oil Filter</td>
<td>Full Flow with By-Pass Valve</td>
<td>N/A</td>
</tr>
<tr>
<td>Lube Oil Pump</td>
<td>Gear Driven</td>
<td>N/A</td>
</tr>
<tr>
<td>Manual Start</td>
<td>On Instrument Panel</td>
<td>N/A</td>
</tr>
<tr>
<td>Overspeed Controls</td>
<td>Electronic with Reset &amp; Test on Instrument Panel</td>
<td>N/A</td>
</tr>
<tr>
<td>Raw Water Solenoid Operation</td>
<td>Automatic from Engine Controller &amp; from Emergency Local Control</td>
<td>N/A</td>
</tr>
<tr>
<td>Run-Stop Control</td>
<td>On Instrument Panel with Control Position Warning Light</td>
<td>N/A</td>
</tr>
<tr>
<td>Run Solenoid</td>
<td>12V-DC</td>
<td>24V-DC</td>
</tr>
<tr>
<td>Starters</td>
<td>12V-DC</td>
<td>24V-DC</td>
</tr>
<tr>
<td>Throttle Control</td>
<td>Adjustable Speed Control</td>
<td>N/A</td>
</tr>
<tr>
<td>Water Pump</td>
<td>Poly-Vee Belt Drive with Guard</td>
<td>N/A</td>
</tr>
</tbody>
</table>

#### Operating Speed (RPM)

<table>
<thead>
<tr>
<th>Model</th>
<th>1470</th>
<th>1760</th>
<th>2100</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFP11E-F20</td>
<td>364</td>
<td>424</td>
<td>360</td>
</tr>
<tr>
<td>CFP11E-F10</td>
<td>320</td>
<td>373</td>
<td>331</td>
</tr>
</tbody>
</table>

Ratings are: HP (kW)

#### Specifications

- **Aspiration:** Turbocharged and Charge Air Cooled
- **Rotation:** Clockwise
- **Weight - lb (kg):** 2795 (1258)
- **Displacement - in³ (litre):** 660 (10.8)
- **Engine Type:** 4 Cycle; In-Line, 6 Cylinder
- **Engine Series:** Cummins QSM11 Series
- **Exhaust Emissions:** EPA/CARB Tier 2

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UL

FM

Spec Sheet for CFP11E-F20, F10
Drawing No. 11128, Rev. B
Page 1 of 2
Engine Ratings Baselines

- Engines are rated at standard SAE conditions of 29.61 in. (7521 mm) Hg barometer and 77 °F (25°C) inlet air temperature (approximates 300 ft. (91.4 m) above sea level) by the testing laboratory (see SAE Standard J1349).

- A deduction of 3 percent from engine horsepower rating at standard SAE conditions shall be made for diesel engines for each 1000 ft. (305 m) altitude above 300 ft. (91.4 m).

- A deduction of 1 percent from engine horsepower rating as corrected to standard SAE conditions shall be made for diesel engines for every 10°F above 77°F (24°C) ambient temperature.

Certified Power

This Cummins Fire Power fire pump driver is built to comply with NFPA-20, and is UL listed and FM approved. Although FM-UL Certified BHP ratings are shown at specific speeds, this Cummins engine can be applied at any intermediate speed. To determine the intermediate certified power, make a linear interpolation from the Cummins FM-UL certified power curve.

Contact Cummins Fire Power or your pump OEM representative to obtain details.

For additional information, click the hyperlinks below.

CFP11E-F10
CFP11E-F20
## California ATCM Tier 2 Emission Data

### EPA Tier 2 Emission Data

**CFP11E-F10 Fire Pump Driver**

**Type:** 4 Cycle; In-Line; 6 Cylinder  
**Aspiration:** Turbocharged, Charge Air Cooled

<table>
<thead>
<tr>
<th>RPM</th>
<th>BHP</th>
<th>Fuel Consumption</th>
<th>D2 Cycle Exhaust Emissions</th>
<th>Exhaust</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Gal/HR L/HR</td>
<td>Grams per BHP - HR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Grams per kW - HR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Temperature</td>
<td>CFM L/sec</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>°F</td>
<td>°C</td>
</tr>
<tr>
<td>1470</td>
<td>320</td>
<td>15.1 57.2</td>
<td>3.841</td>
<td>0.746</td>
</tr>
<tr>
<td>1760</td>
<td>373</td>
<td>17.8 67.4</td>
<td>4.183</td>
<td>0.746</td>
</tr>
<tr>
<td>2100</td>
<td>331</td>
<td>16.0 60.6</td>
<td>3.841</td>
<td>0.746</td>
</tr>
</tbody>
</table>

The emissions values above are based on CARB approved calculations for converting EPA (500 ppm) fuel to CARB (15 ppm) fuel.

## 300-500 PPM Diesel Fuel

<table>
<thead>
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<th>RPM</th>
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<th>D2 Cycle Exhaust Emissions</th>
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## QSM11 Base Model Manufactured by Cummins Inc.

- Using fuel rating 20091 (combination of FR2912 and FR 2940)

Reference EPA Standard Engine Family: 4CEXL0661AAD

No special options needed to meet current regulation emissions for all 50 states

### Test Methods:

EPA/CARB Nonroad emissions recorded per 40CFR89 (ref. ISO8178-1) and weighted at load points prescribed in Subpart E, Appendix A, for Constant Speed Engines (ref. ISO8178-4, D2).

### Diesel Fuel Specifications:

- Cetane Number: 40-48  
- Reference: ASTM D975 No. 2-D

### Reference Conditions:

- Air Inlet Temperature: 25°C (77°F)  
- Fuel Inlet Temperature: 40°C (104°F)  
- Barometric Pressure: 100 kPa (29.53 in Hg)  
- Humidity: 10.7 g/kg (75 grains H2O/lb) of dry air; required for NOx corrector  
- Restrictions: Intake Restriction set to a maximum allowable limit for clean filter; Exhaust Back Pressure set to maximum allowable limit.

Tests conducted using alternate test methods, instrumentation, fuel or reference conditions can yield different results.

The data was obtained by using two fuel ratings 2912 (for the 2100 rating) and 2940 (for the 1470 and 1760 ratings). The highest exhaust emissions for either fuel rating are stated above.
See drawing 11537 for drive-shaft alignment instructions.

NOTES
1. CFP6E, CFP8E, CFP83-F40, CFP11E REQUIRE UPPER CHARGE AIR HEAT EXCHANGER. RAW WATER PIPING TO JACKET WATER HEAT EXCHANGER IS PROVIDED.