

# Appendix B: PFCS Test Check List

<b>Program/Project:</b> _____	<b>Plant:</b> <u>Dodge City</u>	<b>Area:</b> _____
<b>System/Device Description:</b> <u>PFCS Qualifier Interface</u>		
<b>OEM:</b> <u>CE Electronics</u> <b>Test Date:</b> <u>10/21/04</u>		

<b>Equipment Description</b>	
<b>Operation Description:</b> Process: <input type="checkbox"/> Torque: <input checked="" type="checkbox"/> Both: <input type="checkbox"/>	
<b>PFD Type:</b> PLC: <input type="checkbox"/> PC: <input type="checkbox"/> Custom Controller: <input checked="" type="checkbox"/> Unix: <input type="checkbox"/> Black Box: <input checked="" type="checkbox"/>	
<b>Operating System:</b> _____	<b>Application Software:</b> _____
<b>Communication:</b> RS232: <input checked="" type="checkbox"/> Ethernet: <input checked="" type="checkbox"/>	<b>Hardware Model Number:</b> <u>Q2/PFD, TUPPFD, UEC45K</u>
	<b>Software Version Number:</b> <u>1.0.4 (CE, Cooper), 1.0.3 (UEC)</u>
Number of Sockets: <u>1</u> Multi-Machine (Y/N): <u>N</u> Number of Machine ID's (Multi-Mach): _____	
<b>Message Types Used:</b> 0001: <input type="checkbox"/> 0002: <input checked="" type="checkbox"/> 0003: <input type="checkbox"/> 0004: <input type="checkbox"/> 0005: <input type="checkbox"/> 0006: <input type="checkbox"/> 9999: <input checked="" type="checkbox"/>	
VIN Numbers sent with result data (Y/N): <u>N</u>	
Store VIN Results during a Loss of Communication (Y/N): <input type="checkbox"/>	
<b>Configuration Procedures:</b> _____ _____ _____	

<b>Data Description</b>
<b>Sample of Result Data from PFD:</b> <u>0001</u> <u>000000000000800102002901PP0101P000.0000.0000.0P0000000000000000</u>
<b>Sample of Data from PFCS (if applicable):</b> _____ _____ _____

## Data Recovery Procedures

**Backup Procedure for Scanner Failure (if applicable):** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Backup Procedures for Storing Vehicle Data during a Communications Failure (if applicable):** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Recovery Procedures Should the Database Become Corrupted (if applicable):** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

## Startup

P F N/A

Verify that the IP Address of the PFCS Server, Socket Port Numbers, and IP Parameters of the PFD are all configurable: \_\_\_\_\_

P F N/A

Verify all Machine IDs used by the PFD are configurable: \_\_\_\_\_

P F N/A

Verify all communication timeout values are configurable: \_\_\_\_\_

P F N/A

Verify number of retries is configurable (optional): \_\_\_\_\_

P F N/A

Verify connection status from PFD to PFCS: \_\_\_\_\_

P F N/A

Wait for first Keep Alive Message: \_\_\_\_\_

### Comments:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Requesting Machine ID (if applicable)

P  F  N/A

PFD Sends a "Keep Alive" Message to PFCS with "----" in place of the Machine ID: \_\_\_\_\_

P  F  N/A

Using the Machine ID received in the NAK Response the PFD Re-sends the "Keep Alive" Message to PFCS: \_\_\_\_\_

### Requesting Vehicle data (Message Type 0001)

P  F  N/A

PFD Sends A Request for Vehicle Data to PFCS: \_\_\_\_\_

P  F  N/A

PFD Receives a Valid ACK from PFCS: \_\_\_\_\_

P  F  N/A

PFD Receives Vehicle Data from PFCS: \_\_\_\_\_

P  F  N/A

PFD Send a Valid ACK to PFCS: \_\_\_\_\_

P  F  N/A

PFD Sends Keep Alive Message 2 Minutes after Receiving Data: \_\_\_\_\_

### Test Result Data (Message Type 0002)

P  F  N/A

PFD Sends Test Result Data to PFCS: \_\_\_\_\_

P  F  N/A

PFD Receives a Valid ACK from PFCS: \_\_\_\_\_

P  F  N/A

PFD Sends Keep Alive Message 2 Minutes after Sending Results: \_\_\_\_\_

P  F  N/A

Repeat Multiple Times with Combination of Pass and Fail Results: For Air tools (CE & Cooper) does not send actual values. Pass and fail are only valid info in result. Values are always zeroes. UEC Tool sends values \_\_\_\_\_

### Unsolicited Vehicle Data (Message Type 0003)

P F N/A  
   PFD Receives Unsolicited Vehicle Data from PFCS: \_\_\_\_\_

P F N/A  
   PFD Send a Valid ACK to PFCS: \_\_\_\_\_

Type of Data Storage Used To Hold Vehicle Data: \_\_\_\_\_

P F N/A  
   PFD Sends Keep Alive Message 2 Minutes after Receiving Data: \_\_\_\_\_

P F N/A  
   PFD Performs Operation Using Local Vehicle Data: \_\_\_\_\_

### Keep Alive Messages (Message Type 9999)

P F N/A  
   PFD Sends Keep Alive Message: \_\_\_\_\_

P F N/A  
   PFD Waited 2 Minutes after last valid message: \_\_\_\_\_

P F N/A  
   Keep Alive Message Contains Identification and Version Number: \_\_\_\_\_

Any Other Comments Sent Along with the "Keep Alive" Message: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Error Recovery for Requests for Vehicle Data (Message Type 0001)

P    F    N/A  
   No Response to a Request for Vehicle Data: \_\_\_\_\_

P    F    N/A  
   No Vehicle Data from PFCS after a Request for Vehicle Data: \_\_\_\_\_

P    F    N/A  
   Received a NAK-A for a Vehicle Data Request: \_\_\_\_\_

P    F    N/A  
   Received a NAK-B for a Vehicle Data Request: \_\_\_\_\_

P    F    N/A  
   Received an ACK-D for a Vehicle Data Request: \_\_\_\_\_

P    F    N/A  
   Received an NAK-E for a Vehicle Data Request: \_\_\_\_\_

P    F    N/A  
   Received an NAK-H for a Vehicle Data Request: \_\_\_\_\_

P    F    N/A  
   Received an NAK-J for a Vehicle Data Request: \_\_\_\_\_

P    F    N/A  
   PFCS sends Vehicle Data Containing Unrecognizable Characters: \_\_\_\_\_

P    F    N/A  
   PFCS sends Vehicle Data with Invalid Message Length: \_\_\_\_\_

P    F    N/A  
   Delayed Response: \_\_\_\_\_

P    F    N/A  
   PFCS Sends Message With Duplicate Sequence Number: \_\_\_\_\_

P    F    N/A  
   PFCS Sends Invalid Vehicle Data: \_\_\_\_\_

### Comments:

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## Error Recovery for Receiving Unsolicited Data (Message Type 0003)

P F N/A  
   PFCS sends Vehicle Data Containing Unrecognizable Characters: \_\_\_\_\_

P F N/A  
   PFCS sends Vehicle Data with Invalid Message Length: \_\_\_\_\_

P F N/A  
   PFCS Sends Message with Wrong Build Information: \_\_\_\_\_

P F N/A  
   PFCS Sends Message With Duplicate Sequence Number: \_\_\_\_\_

P F N/A  
   Sequence Number Mismatch with PFCS Message: \_\_\_\_\_

P F N/A  
   PFCS Sends Message with Invalid Message Type: \_\_\_\_\_

Is Loss of Data Acceptable (Y/N):

If not Acceptable Identify Manual Procedures: \_\_\_\_\_

### Comments:

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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Error Recovery for Keep Alive Messages (Message Type 9999)

P F N/A  
   PFD receives No ACK from PFCS for "Keep Alive" Messages: \_\_\_\_\_

P F N/A  
   Received a NAK-B: \_\_\_\_\_

### Comments:

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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Miscellaneous Error Recovery Procedures

P  F  N/A

PFCS Closes Connection to PFD: \_\_\_\_\_

P  F  N/A

PFCS Sends an Unexpected Message: \_\_\_\_\_

### Comments:

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## Shutdown

P  F  N/A

Perform PFD Shutdown Closing All Connections to PFCS: Must shut down communication on device for graceful disconnect in TCP/IP mode. Just shutting off the power is a non-graceful shutdown.

P  F  N/A

If using an RS232 Connection Check That DTR Pin is Low: \_\_\_\_\_

P  F  N/A

Check For Peer Disconnect in PFCS: \_\_\_\_\_

### Comments:

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# Integrated Testing

P  F  N/A

Thoroughly Check Communications between PFD and PFCS: \_\_\_\_\_

Identify PFD limitations: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

P  F  N/A

Perform Parallel Testing with Test Result Data on One Port and Unsolicited Vehicle Data on the Other Port: \_\_\_\_\_

P  F  N/A

Ensure that the PFD Cannot Send a Message to PFCS while Still Processing an Older One: \_\_\_\_\_

P  F  N/A

Validate PFD Logging and Debugging Exists: \_\_\_\_\_

P  F  N/A

Check Any User Interface and Setup Screens on the PFD: \_\_\_\_\_

P  F  N/A

Connect the PFD to UNIX to ensure the PFD can Communicate: \_\_\_\_\_

Identify any process issues: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

P  F  N/A

Ensure the PFD can not send test result data requiring VIN data when the local database is empty: \_\_\_\_\_

If the PFD expects Unsolicited Vehicle Data what Procedures Should be Followed when the Data is not Locally available? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

P  F  N/A

Unplug cable and check for peer disconnect in PFCS: \_\_\_\_\_

## Comments:

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## PFD Documentation

P F N/A

PFD Has Documentation on All Setup Procedures: \_\_\_\_\_

P F N/A

PFD Has Documentation on All Error Recovery Procedures: \_\_\_\_\_

### Comments:

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This Checklist handles as much testing as is possible in the test environment. When the vendor installs the PFD in the plant it is the vendor's responsibility to address any production issues.

ITM: Henry Gehringer \_\_\_\_\_ 10/21/04  
NAME SIGNATURE DATE

OEM: Richard Lysaght \_\_\_\_\_ 10/21/04  
NAME SIGNATURE DATE