**18.0 Intellitrol Firmware Acceptance Test Procedure Check List**

**Reference: Firmware Acceptance Test Procedure V 1.5**

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| --- | --- | --- | --- |
| Tester: JHC/HP | Date: October 2019 | Firmware Rev: 1.7.0 | Pass/Fail: Pass |
|  | | | |
| Issues | | | disposition |
| Vehicle stays authorized if there is a wet probe. | | |  |
| Certificate error not logged in SuperTIM fault log | | |  |
| Compartment count error not logged in SuperTIM fault log | | |  |
| Incorrect time stored on SuperTIM. GMT time. | | |  |
| Always allowed to bypass ground fault | | |  |
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| --- | --- | --- |
| New features | | |
| Item | Applicable ATP reference (if any) | disposition |
| DCD / SuperTim features | 11.9 – 11.13f |  |
| Show version on startup |  |  |
| Differentiate between wet, open, and shorted sensor |  |  |
| Dome out logging added to event log |  |  |
| Maintenance error logging added to event log |  |  |
| Added modbus command 5B to calculate number of probes connected |  |  |
| Added modbus command 5C to change between ADC tables used to calculate the number of probes |  |  |
| Added modbus command 5D to display which ADC table is being used to calculate the number of probes |  |  |
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| Bug Fixes | | |
| Item | Applicable ATP reference (if any) | disposition |
| Improved accuracy of compartment counting | 6.1 |  |
| Dead man default open time changed from 3 seconds to 1 second |  |  |
| Correctly display firmware version in all locations |  |  |
| Green permit bar flashes when bypass key is successfully added |  |  |
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| **Test Ref** | **SRS Ref** | **Title** | **Comments (Sensor types, etc.)** | **Pass** |
| 5. | SUP6,7 | Verify Power on Diagnostic (POD) |  | X |
| 5.1 | N/A | Power Up and Reset LED Display Sequence |  | X |
| 5.2 | N/A | Idle State Display |  | X |
| 5.3 | N/A | Permit State Display |  | X |
| 5.4 | N/A | CPU Jumper change |  | X |
| 5.5 | SFR 6 | Test for shorts with truck not connected |  | X |
| 6.0 | N/A | Test Five Wire Optic Sensors |  | X |
| 6.1 | SFR 1 | Test connection of dry 5-wire truck | Alternate table tested, this version only | X |
| 6.1.3 | N/A | Test 5-wire compartment count |  | X |
| 6.1.5 | SFR 1 | Test disconnect of 5 wire truck |  | X |
| 6.1.8 | N/A | Test 5-wire wet sensor detection |  | X |
| 6.2 | N/A | Test connection of 5 wire wet truck |  | X |
| 6.3 | SFR 6 | Test the optic IN pulse shorted to ground |  | X |
| 6.4 | SFR 6 | Test the optic OUT pulse shorted to ground |  | X |
| 6.5 | SFR 6 | Test the optic OUT and IN pulse lines shorted together |  | X |
| 6.6 | N/A | Supported Five Wire Sensors | NA unless changes to 5-wire signal generation/analysis have been done | X |
| 7.0 | N/A | Test Thermistor and Two Wire Optic Sensors |  | X |
| 7.1 | SFR 6 | Test thermistor bias voltage fault reporting |  | X |
| 7.2 | N/A | Check for presence of Jump-Start Voltage. (+20 Volts) |  | X |
| 7.3 | N/A | Test connection of dry thermistor / 2-wire truck |  | X |
| 7.3.7 | SFR 1 | Test thermistor / 2-wire wet sensor detection |  | X |
| 7.4 | SFR 1 | Test connection of thermistor / 2-wire wet truck |  | X |
| 7.5 | SFR 6 | Test detection of thermistor / 2-wire open sensor |  | X |
| 7.6 | SFR 6 | Test detection of thermistor / 2-wire shorted sensor |  | X |
| 7.7 | N/A | Supported two-wire sensors | NA unless changes to 2-wire signal generation/analysis have been done | X |
| 8.0 | N/A | Test Intellicheck |  | X |
| 8.1 | N/A | SHO Intellicheck configuration |  | X |
| 8.2 | N/A | Test Compatibility Modules |  | X |
| 9.0 | N/A | Test Ground Verification. |  | X |
| 9.1 | N/A | Enable Ground Verification. |  | X |
| 9.2. | N/A | Test a dry set of sensors with a ground bolt |  | X |
| 9.3 | SFR 2 | Test a dry set of sensors without the ground bolt |  | X |
| 9.4. | SFR 2 | Test a ground bolt short |  | X |
| 9.5 | SFR 2 | Test a ground bolt open |  | X |
| 9.6. | SFR 2 | Test a wet sensor with a ground bolt |  | X |
| 9.7. | SFR 1 | Test a wet sensor without the ground bolt |  | X |
| 9.8 | N/A | Test Resistive Ground |  | X |
| 10.0 | N/A | Test TB3 Pin 5-6 output as Truck here |  | X |
| 11.0 | N/A | Test Vehicle Identification |  | X |
| 11.1. | N/A | Test a dry set of sensors with a TIM in the vehicle list |  | X |
| 11.2. | N/A | Test Disconnect of the TIM |  | X |
| 11.3. | N/A | Test a dry set of sensors with a TIM not in the vehicle list |  | X |
| 11.4. | N/A | Test overfill with a TIM in the vehicle list |  | X |
| 11.5. | N/A | Test Disconnect of the TIM after overfill | Vehicle stays authorized if there is a wet probe. Same as in version 1.6.36. | Fail |
| 11.6. | SFR 1 | Test a wet set of sensors with a TIM not in the vehicle list |  | X |
| 11.7. | N/A | Test Register 0E Mode 5 option (VIP Passive ID) |  | X |
| 11.8 | N/A | Test Register 7B option (Read TIM with VIP disabled) |  | X |
| 11.9 | N/A | Test a SuperTIM Alternate ID |  | X |
| 11.10 |  | SuperTim Certificate check | Certificate number returned by modbus command is off by one. Tim uses 1 – 5, modbus uses 0 – 4. Modbus command to select which certificates are used for authorization check is off by one. Sending command to use 1 – 3 uses 1 – 2. Error not logged in SuperTIM fault log. | X |
| 11.11 |  | SuperTim Compartment Count | Error not logged in SuperTIM fault log. | X |
| 11.12 |  | SuperTim - Intellitrol Load Mode |  | X |
| 11.12a |  | Time Stamp | Incorrect time stored on SuperTIM. GMT time. | X |
| 11.12b |  | Fuel Type | Incorrect time stored on SuperTIM. GMT time. | X |
| 11.13 |  | SuperTim – Intellitrol Unload Mode |  | X |
| 11.13a |  | Unload time | Incorrect time stored on SuperTIM. GMT time. | X |
| 11.13b |  | Fuel Type – Load mode to Unload mode |  | X |
| 11.13c |  | Fuel Type – Programmer to Unload mode |  | X |
| 11.13d |  | Alternate ID check |  | X |
| 11.13e |  | Certificate Check | Same as above | X |
| 11.13f |  | Compartment Count | Same as above | X |
| 12.0 | N/A | Test Relay Contact Sensing and Response |  | X |
| 12.1. | N/A | Hot wire Permit relay |  | X |
| 12.2. | SFR 6 | Shorted Backup Permit Relay Test |  | X |
| 12.3. | SFR 6 | Shorted Main Permit Relay Test |  | X |
| 13.0 | N/A | Deadman Function |  | X |
| 13.0.1 |  | Verify Mode Selection |  | X |
| 13.0.2 |  | Verify Open Time |  | X |
| 13.1.1 |  | Basic Function – Standard Deadman | 1.5 seconds | X |
| 13.1.2 |  | Vary Open time – Standard Deadman | 31 seconds when set to 30. 10.7 seconds when set to 10. | X |
| 13.1.3 |  | Bypass with Standard Deadman |  | X |
| 13.2.1 |  | Basic Function – Active Deadman |  | X |
| 13.2.2 |  | Vary Open time – Active Deadman |  | X |
| 13.2.3 |  | Vary Close time – Active Deadman |  | X |
| 13.2.4 |  | Vary Warning Time – Active Deadman |  | X |
| 13.2.5 |  | Bypass with Active Deadman |  | X |
| 14.0 | N/A | Test Bypass Functionality |  | X |
| 14.1 | N/A | Test Add Bypass Key S/N Feature |  | X |
| 14.2 | N/A | Test Bypass of a Wet Truck |  | X |
| 14.3 | SFR 1 | Test Non-Bypass of a Dry Truck becoming Wet while fueling |  | X |
| 14.4 | N/A | Test Bypass of a Ground Fault |  | X |
| 14.5 | SFR 2 | Test Non-Bypass of a Ground Fault Occurring while fueling | Always allowed to bypass ground fault. Same as in version 1.6.36. | Fail |
| 14.6 | N/A | Test Bypass of a VIP Fault |  | X |
| 14.7 | N/A | Test Bypass of a VIP Fault while fueling |  | X |
| 14.8 | N/A | Test Bypass of Multiple Fault |  | X |
| 14.9 | N/A | Test Hardwired Bypass Key | Service LED does not flash. Same as in version 1.6.36. | X |
| 14.10 | N/A | Test Bypass of standard Deadman |  | X |
| 14.11 | N/A | Bypass with active Deadman |  | X |
| 15.0 | N/A | Miscellaneous Tests |  | X |
| 15.1 | N/A | Two dummies and sensor with vapor switch |  | X |
| 15.2 | N/A | Test Charge Pump | 5 wire optic bypass wet charge pump waveform erratic | X |
| 15.3 | N/A | Test Stability |  | X |
| 15.4 | N/A | Test mixed Sensor Recognition |  | X |

ADDENDUM:

**Appendix 1 - ASCII Character to Hex conversion**

|  |  |
| --- | --- |
| Ascii | Hex |
| a | 61 |
| b | 62 |
| c | 63 |
| d | 64 |
| e | 65 |
| f | 66 |
| g | 67 |
| h | 68 |
| i | 69 |
| j | 6A |
| k | 6B |
| l | 6C |
| m | 6D |
| n | 6E |
| o | 6F |
| p | 70 |
| q | 71 |
| r | 72 |
| s | 73 |
| t | 74 |
| u | 75 |
| v | 76 |
| w | 77 |
| x | 78 |
| y | 79 |
| z | 7A |

|  |  |
| --- | --- |
| Ascii | Hex |
| 0 | 30 |
| 1 | 31 |
| 2 | 32 |
| 3 | 33 |
| 4 | 34 |
| 5 | 35 |
| 6 | 36 |
| 7 | 37 |
| 8 | 38 |
| 9 | 39 |

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| --- | --- |
| Ascii | Hex |
| A | 41 |
| B | 42 |
| C | 43 |
| D | 44 |
| E | 45 |
| F | 46 |
| G | 47 |
| H | 48 |
| I | 49 |
| J | 4A |
| K | 4B |
| L | 4C |
| M | 4D |
| N | 4E |
| O | 4F |
| P | 50 |
| Q | 51 |
| R | 52 |
| S | 53 |
| T | 54 |
| U | 55 |
| V | 56 |
| W | 57 |
| X | 58 |
| Y | 59 |
| Z | 5A |