# Section 4
# Troubleshooting Information

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**Introduction**

The following pages contain a Table of Troubleshooting information for locating and correcting most service trouble which can develop. Careful inspection and accurate analysis of the systems listed in the Table of Troubleshooting Information will localize the trouble more quickly than any other method. This manual cannot cover all possible troubles and deficiencies that may occur. If a specific problem is not listed, isolate the major component in which the problem occurs, isolate whether the problem is electrical or hydraulic, and then isolate and correct the specific problem.

**IMPORTANT !**

This manual is intended only for all machines equipped with Load Sensing System. Any unrelated components, or serviceable parts not found on this manual should be referred to the standard Maintenance and Parts manuals of the specific models

| Probable Cause | Remedy |
|---|---|
| **4.1-1. All Controls Inoperative** | |
| 1. Loose or broken wire #7A from Base Terminal Strip to Control Module (CM1) at Pin #P2-12. | 1. Check for 24 Volts at P2-12. If no voltage present, check wire continuity. Replace if defective. |
| 2. Loose or broken wire #28 from Control Module (CM1) at Pin #P3-4 to 28CR1 Tilt Relay and 28CR2 Down Relay. | 2. Check for 24 Volts at P3-4. If voltage present check for 24 Volts at wire #28 on relays 28CR1 Tilt Relay and 28CR2 Down Relay. If no voltage present, check wire continuity. Replace if defective. |
| 3. Loose or broken wire #28E from Control Module (CM1) at Pin #P3-6 to 28ECR1 Aux. Tilt Relay and 28ECR2 Aux. Down Relay. | 3. Check for 24 Volts at P3-6. If voltage present check for 24 Volts at wire #28E on relays 28ECR1 Aux. Tilt Relay and 28ECR2 Aux. Down Relay. If no voltage present, check wire continuity. Replace if defective. |
| 4. Defective Pressure Transducer (PT1) or Angle Transducer (AT1) or related wiring. | 4. Refer to Transducer Troubleshooting Charts. |
| **4.1-2. No Drive And Lift Functions** | |
| 1. Defective 28CR1 Tilt Relay or 28ECR1 Aux. Tilt Relay. | 1. Check Relays for operation. Replace if defective. |
| 2. Loose or broken wire #02 to 28CR1 Tilt Relay or 28ECR1 Aux. Tilt Relay. | 2. Check continuity. Replace if defective. |
| 3. Loose or broken wire #19 from Base Terminal Strip to 28ECR1 Aux. Tilt Relay. | 3. Check continuity. Replace if defective. |
| 4. Defective 28ECR1 Aux. Tilt Relay. | 4. Check for 24 Volts at wire #19A. If no voltage present replace relay. |
| 5. Loose or broken wire #19A from 28ECR1 Aux. Tilt Relay to 28CR1 Tilt Relay. | 5. Check continuity. Replace if defective. |
| 6. Defective 28CR1 Tilt Relay. | 6. Check for 24 Volts at wire #19B. If no voltage present replace relay. |
| **4.1-3. No Down Function** | |
| 1. Loose or broken wire #02 from Base Terminal Strip to 28CR2 Down Enable Relay or 28ECR2 Aux. Down Enable Relay. | 1. Check continuity. Replace if defective. |
| 2. Loose or broken wire #13 from Base Terminal Strip to 28ECR2 Aux. Down Enable Relay. | 2. Check continuity. Replace if defective. |
| 3. Defective 28ECR2 Aux. Down Enable Relay. | 3. Check for 12 Volts at wire #13A. If no voltage present replace relay. |
| 4. Loose or broken wire #13A from 28ECR2 Aux. Down Enable Relay to 28CR2 Down Enable Relay. | 4. Check continuity. Replace if defective. |
| 5. Defective 28CR2 Down Enable Relay. | 5. Check for 24 Volts at wire #13B. If no voltage present replace relay. |

*Control Module Load Calibration - Failure Messages*

| Probable Cause | Remedy |
|---|---|
| **4.2-1. Flash Code F01: Check Hwfs** | |
| 1. This message is given if the GP102 startup tests have not completed. | 1. Check HELP message for more information. |
| **4.2-2. Flash Code F02: Not Ground Mode** | |
| 1. This message is given if the machine is not in ground mode (P2-2 must be high). | 1. Calibration can only be carried out in ground mode. |
| **4.2-3. Flash Code F03: Not Stopped** | |
| 1. This message is given if any function switch is closed. | 1. Check DIAGNOSTICS / SWITCHES to see which function switch is closed. |
| **4.2-4. Flash Code F04: Tilted** | |
| 1. This message is given if the machine is tilted. | 1. Calibration must be carried out with the machine level. If the machine is level, use the SETUPS / TILT SETUPS to set the GP102 level. |
| **4.2-5. Flash Code F05: Bad Height** | |
| 1. This message is given if the height sensor output (P4-3) is out of range at the start of calibration. | 1. The height sensor output must be between 1.0V and 4.0V. Check DIAGNOSTICS / SENSORS to see the output. A reading of 0V or 5V is probably due to a wiring problem. |
| **4.2-6. Flash Code F06: Check Elev** | |
| 1. This message is given if the elevation switch (P2-10) is open at the start of calibration, when the operator has confirmed the “PLATFORM DOWN?” question. | 1. If the platform is down, check the elevation switch wiring. |
| **4.2-7. Flash Code F08: Check Elev** | |
| 1. This message is given if the elevation switch (P2-10) is closed at the end of the DYNAMIC lift, when the platform should be fully raised. | 1. This message would occur if the UP switch was accidentally opened near the start of the DYNAMIC lift. If the platform is fully raised, check the elevation switch wiring. |
| **4.2-8. Flash Code F09: Bad Height** | |
| 1. This message is given if the height sensor output (P4-3) is out of range at the start of the DYNAMIC lift. | 1. The height sensor output must be between 1.0V and 4.0V. Check DIAGNOSTICS / SENSORS to see the output. |
| **4.2-9. Flash Code F10: Bad Height** | |
| 1. This message is given if the height sensor output (P4-3) is out of range at the end of the DYNAMIC lift. | 1. The height sensor output must be between 1.0V and 4.0V. Check DIAGNOSTICS / SENSORS to see the output. A reading of 0V or 5V is probably due to a wiring problem. |
| **4.2-10. Flash Code F11: Not Up** | |
| 1. This message occurs at the start of the DYNAMIC lift if the operator selects a function other than UP. | 1. Select the UP function. |

*Control Module Load Calibration - Failure Messages*

| Probable Cause | Remedy |
|---|---|
| **4.2-11. Flash Code F12: Too Many** | |
| 1. This message occurs if the DYNAMIC lift takes too long. This message could occur if the UP switch was not released at the end of the dynamic lift. | 1. If the machine takes more than two minutes to lift, the GP102 may need modification to avoid this problem. |
| **4.2-12. Flash Code F13: Low Height Range** | |
| 1. This message occurs at the end of the DYNAMIC lift if the height sensor output did not change sufficiently to give a reasonably accurate platform height estimate.<br>This message could occur if the UP switch was accidentally opened too early (when the platform is not fully raised). | 1. DIAGNOSTICS / SENSORS can be used to check the height sensor output (P4-3) when the platform is fully lowered and fully raised; a difference of at least 1V is to be expected. |
| **4.2-13. Flash Code F14: Bad Height** | |
| 1. This message occurs if the height sensor output (P4-3) is out of range during the DYNAMIC lift. | 1. The height sensor output must be between 1.0V and 4.0V. Check DIAGNOSTICS / SENSORS to see the output. A reading of 0V or 5V is probably due to a wiring problem. |
| **4.2-14. Flash Code F15: Check Elev** | |
| 1. This message is given if the elevation switch (P2-10) is open when the platform has been fully lowered after the DYNAMIC lift.<br>This message would occur if the DOWN switch was accidentally opened before the platform was fully lowered. | 1. If the platform is fully lowered, check the elevation switch. |
| **4.2-15. Flash Code F16: Low Elev.open** | |
| 1. This message is given if the elevation switch (P2-10) opened during lift at a too low height (below 5%). | 1. If it opens below 5%, the pressure is probably too unpredictable to allow reliable detection of an overloaded platform when initially raised. Check CALIBRATIONS / HEIGHT CALS; the “ElevUp” value shows the recorded height where the switch opened. |
| **4.2-16. Flash Code F17: High Elev.open** | |
| 1. This message is given if the elevation switch (P2-10) opened during lift at a too high height (above 25%). | 1. If it opens above 25%, the platform is too high when the overloaded platform is detected!<br>Check CALIBRATIONS / HEIGHT CALS; the “ElevUp” value shows the recorded height where the switch opened. |
| **4.2-17. Flash Code F18: Low Elev.close** | |
| 1. This message is given if the elevation switch (P2-10) closed during lower at a too low height (below 5%). | 1. If it closes below 5%, height sensor fault detection is compromised. Check CALIBRATIONS / HEIGHT CALS; the “ElevDown” value shows the recorded height where the switch opened. |

*Control Module Load Calibration - Failure Messages*

| Probable Cause | Remedy |
|---|---|
| **4.2-18. Flash Code F19: High Elev.close** | |
| 1. This message is given if the elevation switch (P2-10) closed during lower at a too high height (above 25%). | 1. When the switch is closed, overload detection is normally disabled but if the switch closes above 25%, the platform is too high to allow disabled overload. Check CALIBRATIONS / HEIGHT CALS; the "ElevUp" value shows the recorded height where the switch opened. |
| **4.2-19. Flash Code F20: Height<>0%** | |
| 1. This message occurs if the platform height is not 0% after the platform has been fully lowered during either STATIC lift. | 1. The platform must return to the same height each time it is fully lowered. Check DIAGNOSTICS / SYSTEM to check the height. |
| **4.2-20. Flash Code F21:Height<>0%** | |
| 1. This message occurs if the platform height is not 0% before the platform is raised during either STATIC lift. | 1. The platform must be at 0% height when it is fully lowered. Check DIAGNOSTICS / SYSTEM to check the height. |
| **4.2-21. Flash Code F22:Height<>100%** | |
| 1. This message occurs if the platform height is not 100% after the platform has been fully raised during either STATIC lift. | 1. The platform must return to the same height each time it is fully raised. Check DIAGNOSTICS / SYSTEM to check the height. |
| **4.2-22. Flash Code F23:Height<>100%** | |
| 1. This message occurs if the platform height is not 100% before the platform is lowered during either STATIC lift. | 1. The platform must be at 100% height when it is fully raised. Check DIAGNOSTICS / SYSTEM to check the height. |
| **4.2-23. Flash Code F24:Too Many** | |
| 1. This message occurs if too many static measurements are taken during either STATIC lift or lower. | 1. It is likely that there is a problem with the lift cylinder pressure; the GP102 should only need about 10 measurements for most vehicles. The SETUPS / HEIGHT SETUPS / MIN LIFT time could be increased to force a longer time between static measurements, but this should not be necessary. |
| **4.2-24. Flash Code F25:Check Elev** | |
| 1. This message indicates a problem with the elevation switch (P2-10) during the STATIC phases. | 1. The switch is either staying closed to a higher height, or staying open to a lower height, than that recorded during the DYNAMIC phase. |
| **4.2-25. Flash Code F26:Check Elev** | |
| 1. This message indicates a problem with the elevation switch (P2-10) during the STATIC phases. | 1. The switch is opening or closing at a different height than that recorded during the DYNAMIC phase. |
| **4.2-26. Flash Code F27:Bad Height** | |
| 1. This message indicates a problem with the height sensor output (P4-3) during the STATIC phases. | 1. The height sensor output must be between 1.0V and 4.0V at all times. Check DIAGNOSTICS / SENSORS to see the output. A reading of 0V or 5V is probably due to a wiring problem. |

*Control Module Load Calibration - Failure Messages*

| Probable Cause | Remedy |
|---|---|
| **4.2-27. Flash Code F30:Bad Heights** | |
| 1. This message indicates that the recorded heights are not increasing during either STATIC lift, or are not decreasing during either STATIC lower. | 1. It may be possible to cause this problem by repeatedly opening and closing the UP or DOWN switch during the STATIC phases. |
| **4.2-28. Flash Code F31:Reject Curve** | |
| 1. The DYNAMIC pressure curve is unacceptable. | 1. An initial pressure peak when the platform lifted cannot be found between 0% and 15% height.<br>Check the pressure sensor and lift cylinder hydraulics. |
| **4.2-29. Flash Code F32:Reject Curve** | |
| 1. The DYNAMIC pressure curve is unacceptable. | 1. There should be a lowest pressure about halfway through the lift (ie: near 50% height); the lowest pressure measured is at too low a height.<br>Check the pressure sensor and lift cylinder hydraulics. |
| **4.2-30. Flash Code F33:Reject Curve** | |
| 1. The DYNAMIC pressure curve is unacceptable. | 1. There should be a lowest pressure about halfway through the lift (ie: near 50% height); the lowest pressure measured is at too high a height.<br>Check the pressure sensor and lift cylinder hydraulics. |
| **4.2-31. Flash Code F34:Reject Curve** | |
| 1. The DYNAMIC pressure curve is unacceptable. | 1. There is not enough difference between the initial pressure peak and the minimum pressure.<br>Check the pressure sensor and lift cylinder hydraulics. |
| **4.2-32. Flash Code F40:Reject Delta** | |
| 1. This message indicates that there is not enough difference between the loaded & empty pressure.<br>This message could also occur if the wrong pressure sensor was fitted (eg: a 5000psi sensor when a 2000psi one is needed) | 1. This message could occur if the platform were not properly loaded during the STATIC LOADED phase, or if the platform were not properly empty during the STATIC EMPTY phase.<br>Check CALIBRATIONS / HEIGHT CALS; the “Height” indicates the first height at which there was insufficient difference and the “Up” and “Down” values show the loaded pressure (first) and the difference between loaded and empty pressure (second). |
| **4.2-33. Flash Code F42:Low Pressure** | |
| 1. This message indicates that the pressure is too low (0.5V or less) when the elevation switch opens during the DYNAMIC lift. | 1. This message would occur if the pressure sensor was disconnected, or if there were some other wiring error.<br>Check DIAGNOSTICS / SENSORS to check the pressure. |
| **4.2-34. Flash Code F43:High Pressure** | |
| 1. This message indicates that the pressure is too high (4.5V or more) when the elevation switch opens during the DYNAMIC lift. | 1. This message would occur if the wrong pressure sensor was fitted, or if there were some other wiring error.<br>Check DIAGNOSTICS / SENSORS to check the pressure. |

*Control Module Load Calibration - Failure Messages*

| Probable Cause | Remedy |
|---|---|
| **4.2-35. Flash Code F44:Low Pressure** | |
| 1. This message indicates that the pressure is too low (0.5V or less) at a STATIC measurement point. | 1. This message would occur if the pressure sensor was disconnected, or if there were some other wiring error. Check DIAGNOSTICS / SENSORS to check the pressure. |
| **4.2-36. Flash Code F45:High Pressure** | |
| 1. This message indicates that the pressure is too high (4.5V or more) at a STATIC measurement point. | 1. This message would occur if the wrong pressure sensor was fitted, or if there were some other wiring error. Check DIAGNOSTICS / SENSORS to check the pressure. |
| **4.2-37. Flash Code F46:Check Elev** | |
| 1. This message indicates that the elevation switch opened more than once during the DYNAMIC lift. | |
| **4.2-38. Flash Code F47:Check Elev** | |
| 1. This message indicates that the elevation switch closed more than once during the DYNAMIC lower. | |