TROUBLE SHOOTING CHART

WHEEL BALANCER

Rev. 06 Date: 22.01.2021

REVISION RECORD

Sl. No	Date	Rev No	Details of Revisions	Released On
1	12.04.2018	02		
2	18.02.2019	03	Changes made in Wheel Balancer – VL 65 DSP	
3	26.09.2019	04	Problems [S.no 32,to 35] added on page no 30 Service instructions SI-WB-016 Rev 01 (DL DSP Board - Sensor O/p zero) added	
4	22.04.2020	05	Gyrospin 200 added (Pg. 39-42)	
5	21.01.2021	06	Problems (S.no 33 to 37) added in Pg No: 37, 38	1.02.2021
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Wheel Balancer

Model : WB - VL - 50

Instruments & Tools required for troubleshooting: Multimeter 2. Soldering Iron 3. Screw driver set

WB- DL- 50 – Electronics			
Sl. No.	**Nature of Problem**	**Causes**	**Remedies**
1.	No display (machine dead)	• Check I/P AC supply for 230V50Hz • Fuse may be blown • Fuse holder may be having loose contacts • Check the transformer primary & secondary winding • MB may be faulty	• Correct it. • Check & replace the fuse • Check & replace the Fuse holder • Replace Transformer and confirm. • Replace MB & confirm
2.	Erratic & Garbage display	• EPROM may be having loose contact with the base • The MB may be faulty	• Remove, clean & re-fix the EPROM. If EPROM direct soldered, replace the Motherboard. • Check & replace the MB
3.	Electric shock in the machine	• Mains earthing may not be proper • If machine is connected to Stabilizer or UPS, disconnect and directly connect to the mains and confirm.	• Check & maintain Neutral to GND potential is within 3V AC
4.	RPM not correct	• Check for PU belt / Flat belt tightness • PU belt / Flat belt elongated • Small pulley may be loose • Revolution Encoder (round segment housing) may be loose • Dust in Encoder II • Encoder II defective	• Tighten the belt • Replace PU belt • Check for the tightness of grab screw of small pulley. • Check & tighten • Clean the Encoder • Replace Encoder II

WB- DL- 50 – Electronics			
Sl. No.	**Nature of Problem**	**Causes**	**Remedies**
5.	Motor not running **(Err-8)**	• Check fuse no.2 (20A) • Check + 12 V voltage at SSR (LED is glowing in SSR) • Check whether LED's move up to down or down to up, while shaft is rotated. • Check Motor separately.	• Replace fuse • If OK, replace SSR
6.	Distance rod not in home position (**Err-4**)	• Check whether the Distance rod is in home position • Check whether the teeth of rectangular segment plate block the Encoder II	• Ensure the distance rod is in 'home' position • Check & correct by adjusting the rectangular segment plate in the horizontal direction.
7.	Distance not measuring	• Encoder I PCB may be faulty • 10 pin FRC cable may be faulty • MB may be faulty	• Check & replace • Check & replace • Check & replace
8.	Some of the keys in the membrane keyboard not working	• Membrane keyboard may be faulty	• Replace the membrane keyboard.
9.	Asking repeated weights	• Check for any ply in the bearing (axial & radial) • Sensor fixing nuts may be loose • Brake shoe may be touching the shaft • Rotor assy may be having problem • Belts may be too tight. • Calibration may be out. • Check for dust cover fouling with sensor bolt.	• Arrest the ply using 'C' spanner. • Engine sensor tightness. • Maintain gap. • Replace rotor assy. • Maintain correct belt tightness • Do the calibration. • Maintain gap.

WB- DL- 50 – Electronics			
Sl. No.	**Nature of Problem**	**Causes**	**Remedies**
10.	Any one segment in any display not glowing.	• Check 7 segment display by swapping from next.	• Replace 7 segment display.
11.	Display shows “8888” switched ‘ON’.	• Mother board may be faulty	• Replace Mother Board.
12.	Automatic input of distance not working while touching the wheel.	• Check for discontinuity of wire from Encoder-I to square rod.	• Reconnect the wire.
WB- DL- 50 – Mechanical			
Sl. No.	**Nature of Problem**	**Causes**	**Remedies**
1.	Brake not effective (EM brake)	• Excess gap between brake drum and lining	• Adjust the gap (1 – 25 mm) by tightening the adjusting screw.
2.	Chattering noise while applying brake	• Uniform and constant force on the pedal not applied. • Brake inner cable loose at the top end. • Dirt between brake lining and drum	• Apply uniform and constant force on the pedal. • Tighten the inner cables. • Clean the dirt between the brake lining and the drum. Cleaning with cloth soaked in petrol is preferred.
3.	Brake pedal goes too much down	• The inner cable adjuster screw loose.	• Tighten the screw properly.
4.	Brake slips and wheel does not stop in spite of pressing the pedal for long time	• Too much of wear and tear on the lining	• Replace the brake shoe assembly.
5.	Noise while running Motor	• Motor fixing bolt loose.	• Tighten the fixing and check tightness of all fixings.

Wheel Balancer

Model : WB - VL - 60

FAULT DIAGNOSIS & TROUBLE SHOOTING

Sl. No.	Nature of Problem	Causes	Remedies
1.	MOV is burnt in the existing EMI & Motor control board (x2601& x2602)	• Due to high voltage in the Input supply	• Insist to install the 2Pole MCB with Type 'C' and 6A current rating or Kit is available (A5745) • Change the EMI & Motor control board(X2637-VL & X2638 - DL)& • also add MOV board –X2636 (for VL & DL) • x2601& x2602 are stopped.
2.	Communication Failure Error	• Due to serial Port cable Problem	• Change the new Serial Port cable(X2641) with internal RS232 Protection board
3.	"Eeprom Error" or "Error 10"	• Due to CPLD Mother board	• CPLD Mother board has to be sent to H.O for modification to overcome the error.
4.	Disk Boot Failure	• Flash Disk Problem	• Check for the detection in CMOS setup- not detecting – check the power connector cable • If it is detecting – change the setup to enlarge mode • Still not booting change the flash disk
5.	"No diplay" in VL models	• Due mini EVOC mother board	• Check the SMPS output voltages (+12v & +5 v) • Try to clear CMOS by short the jumper to jcc1 (in off condition) check the VGA connector is shaking • If yes provide the supporting clamp.
6.	Motor running slowly & vibration in the motor whenever the machine is on & sometimes brake not applying properly	• EMI & motor control board problem	• Due to traic leakage • Change EMI & motor control board

Sl. No.	Nature of Problem	Causes	Remedies
7.	In Calibration Mode Both Sa & Sb Millivolts Are Not Stable	• Power supply issues & improper earthing	• Check the machines should not working in the generator power supply or earthing should not exceed (>3v) • Check the foundation bolt fixing screws. • Check the MCD screw are tight • If all the above verified change for mother board
8.	In calibarion mode one side SA it is normal and other side SB it is not increasing	• Sensor or mother board	• Change the sensor wiring , SA to SB and SB to SA in the mother board connector • If reading are found to be reversed – problem may be with sensors • If reading are not changing , problem with mother board
9.	“No Index Pulse “Error When Start Key Pressed	• Mother board	• Check the 5volt is OK in the CNXX, if not change the mother board
10.	CMOS Checksum Bad	• Due Mini EVOC Mother Board Battery Problem	• Change the battery • If not possible, change the mother board
11.	Shows "8888" Keypad Not Working	• To Membrane Key Pad	• Remove The Membrane Keypad and On The Machine – If Display Is Ok – Problem With Key Pad

Error Codes - WB - DL - 60			
Sl. No.	**Nature of Problem**	**Causes**	**Remedies**
ERR 1	Wheel Guard not closed.	• Close wheel guard. Guard switch may not be having proper contacts. • Guard switch wires may not have continuity	• Check & replace the guard switch • Check for guard switch wire continuity till Mother Board.
ERR 2 **ERR 3**	Emergency switch closed. Guard switch not closed & Emergency switch closed.	• Emergency permanently shorted • Check for all the possibilities of ERR-1 & ERR-2	• Replace emergency switch
ERR 4	Distance rod not in home position.	• Check whether the distance rod is in home position • Check whether the teeth of rectangular segment plate block the Encoder III • Check the connection to Encoder I PCB	• Ensure the distance rod is in 'home' Position • Check & correct by adjusting the rectangular segment plate in the horizontal direction. • Replace Encoder III PCB. • Correct it.
ERR 5	Distance rod not in home position & Guard switch not closed.	• Check for all the possibilities of ERR-1 & ERR-4	-
ERR 6	Distance rod not in home position & Emergency switch closed.	• Check for all the possibilities of ERR-2 & ERR-4	-
ERR 7	Distance rod not in home position & Guard switch not closed & emergency switch closed.	• Check for all the possibilities of ERR-1, ERR-2 & ERR-4	-
ERR 8	Revolution encoder pulses missing.	• Check fuse No.2 (20A) • Check voltage at SSR +12V DC • Check Motor • Check the switch of brake pedal	• Replace fuse • If ok, replace SSR. If not ok, check the foot pedal switch or MB. • Replace Motor • The 12V supply to SSR is through the "NC" contacts. Check & ensure.
ERR 9	Timeout occurred during the motor run i.e., the motor did not reach the constant speed within 1 minute.	• Belt may be loose • AC input voltage is low • Small pulley may be slipping	• Replace belt • Check AC input voltage. It should not be below 180V • Replace small pulley.

Error Codes - WB - DL - 60			
Sl. No.	**Nature of Problem**	**Causes**	**Remedies**
ERR 10	EEPROM used for the first time or data stored in EEPROM corrupted.	• Data in the EEPROM may be corrupted	• Replace EEPROM or replace Mother board and do calibration & Save.
ERR 11	EEPROM write error.	• EEPROM may be defective	• Replace EEPROM or replace Mother board and do calibration & Save.
ERR 12	No index pulse detected	• Check the index board connector & FRC connector any loose conduct • Check index board fixing.	• Correct the index board connector & FRC connector • Correct the index board with correct position.
ERR 14	Weight signal not ok.	• Check the continuity of sensor wire • Sensor may be defective • Motherboard may be defective	• Replace wire • Replace sensor • Replace Mother Board.
ERR 16	Motor running in reverse direction	• Check for loose contact in 4 pin SR connector in Encoder-I PCB • Check for Round segment teeth • Dust accumulation in Encoder-II or Encoder-II itself defective.	• Directly solder. • Replace round segment teeth. • Try cleaning the Encoder-II PCB or replace Encoder-II PCB.
ERR 17	Shaft movement detected before unbalance run.	• Shaft was rotating while 'Start' key is pressed.	• Stop the shaft and press 'Start' key twice.
ERR 18	In Prog-6, data could not be uploaded, because the run not properly completed	• Mother board defective	• Replace Mother board.
ERR 20	Test cannot be conducted because ADC error detected at the time of power ON	• Mother board defective	• Replace Mother board.
ERR 21	EEPROM Read/Write test failed.	• Mother board defective	• Replace Mother board.
ERR 22	Only the first 16 locations are found to be ok and EEPROM can be used for WB-DL-20 (provided test program No.10 runs without any error).	• Mother board defective	• Replace Mother board.

Error Codes - WB - DL - 60			
Sl. No.	**Nature of Problem**	**Causes**	**Remedies**
ERR 23	EEPROM read test failed.	• Mother board defective	• Replace Mother board.
ERR E01	RAM test failure	• Mother board defective	• Replace Mother board.
ERR E02	ADC-A and ADC-B conversion status check failure	• Mother board defective	• Replace Mother board.
ERR E03	ADC-A conversion status check failure	• Mother board defective	• Replace Mother board.
ERR E04	ADC-B conversion status check failure	• Mother board defective	• Replace Mother board.

Wheel Balancer

Model : WB - VL - 65

FAULT DIAGNOSIS & TROUBLE SHOOTING

Sl. No.	Nature of Problem	Causes	Remedies
1.	No Display	• MCB tripped off • Control Fuse blown • Power supply faulty • EMI & Motor Control Board • SMPS Faulty	• Change MCB to ON Position • Check and replace the Fuse • Check for proper power supply • Check the Input(CN2)/Output (CN6) voltage of the board • If no input check the Mains chord for power 230VAC • If no output Replace the board • If output voltage of EMI & Motor control board CN6 is ok, check the output voltage of SMPS • If no output Replace the SMPS
2.	Motor not running	• EMI Filter & Motor Control Board	• Check the voltages on CN8 & CN3 Connectors. • If no output Replace the board
3.	Wheel is not balanced and repeatedly asking weights	• Improper foundation	• Check for proper Foundation & also ensure the tightness of the Foundation Bolt
4.		• Incorrect parameter entry	• Enter the Wheel parameter correctly
5.	Guard switch not closed	• Wheel Guard not lowered during spinning of wheel	• Lower the wheel Guard and proceed
6.	Distance rod not in home position	• Distance measuring rod not in home position	• Move the distance measuring rod to home position and proceed.
7.	EEPROM Corrupted	• Calibration corrupted	• Perform calibration
8.	Error while saving position	• Improper calibration sequence	• Follow proper calibration sequence

FAULT DIAGNOSIS & TROUBLE SHOOTING

Sl. No.	Nature of Problem	Causes	Remedies
9.	Motor running continuously after brake applied	• EMI & Motor Control board Problem	• Check for any loose connection or Check the output voltage and if not, replace the board
10.	No Video	• MCB Tripped OFF	• Change MCB to ON position
11.		• POWER supply faulty	• Check for proper Power Supply connection
12.		• Monitor Switched OFF	• Switch ON the Monitor
13.		• Loose Connection in Monitor power cord	• Check for loose connection in Monitor power coed socket. if so fit it properly.
14.		• Control fuse blown	• Check and replace the Fuse
15.	Motor Not Running	• MCB tripped OFF • POWER supply faulty	• Change MCB to ON position. MCB may be faulty(GBL make) • Check for proper Power Supply connection
16.	Spark in Main cord socket	• Loose connection in the AC supply socket	• Connect the power mains with proper plug / socket combination
17.	Wheel is not balanced and repeatedly asking weights	• Improper foundation	• Check for proper foundation. Tighten the Foundation bolts
18.	Time out error in “wheel zero”/ “Raw calib” run. Switching from Wheel zero to Spindle zero the wheel starts spinning automatically without pressing START key	• Incorrect parameter entry	• Enter the wheel parameters correctly.
19.	Time out error in “wheel zero”/ “Raw calib” run. Switching from Wheel zero to Spindle zero the	• Improper calibration sequence	• Switch OFF and Restart the System. • Avoid repeatedly doing “Wheel zero” & “Raw calib” randomly. Always follow

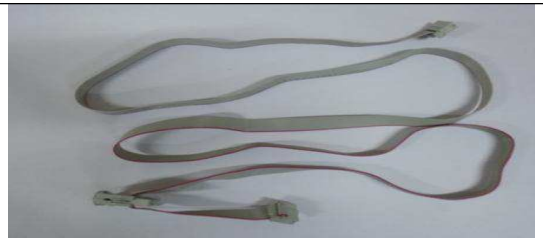
Sl. No.	Nature of Problem	Causes	Remedies
	wheel starts spinning automatically without pressing START key		the sequence “Spindle zero” Position Calib Outer calib Inner Calib Save.
20.	Time out error occurs in “Split weights” screen	• Improper position input	• Restart the machine and redo Split weight program. Do not rotate the wheel after entering the nearer Spoke position.

Wheel Balancer

Model : WB - VL - 65 DSP

Error Messages - Wheel Balancer (VL - 65 DSP)			
Sl. No.	**Nature of Problem**	**Causes**	**Remedies**
1.	EEPROM Corrupted	• Calibration data corrupted	• Perform calibration.
2.	Calibration data not saved	• Wheel rotated while saving calibration	• While calibration data is being saved, do not rotate the wheel or move the Distance measuring rod.
3.	Invalid weight received	• Spokes position is not saved properly	• Perform wheel run and do spokes program again
4.	Please re-enter number of spokes	-	• Redo split weight program
5.	Error, ignore / retry? (ESC / ENTER)	• Improper wheel position during split weight program	• Redo split weight program with proper positioning.
6.	Guard switch not closed	• Wheel guard not lowered during spinning of wheel	• Lower the wheel guard and press START key to proceed.
7.	Dist rod not at home position	• Distance measuring rod not in home position	• Move the distance measuring rod to home position & proceed
8.	Time out Error	-	• Press any key to clear the message. If the error persists, switch OFF and Restart the equipment
9.	Communication Timeout	-	• Press any key to clear the message. If the error persists, switch OFF and Restart the equipment
10.	Calib weight signal bad	• Improper weight added and plane selected	• Add correct calibration weight on the appropriate plane.
11.	More tyre unbalance	• Unbalance is greater than 300mV	• Use a better balanced wheel. If wheel is changed redo calibration from Spindle zero

Error Messages - Wheel Balancer (VL - 65 DSP)			
Sl. No.	**Nature of Problem**	**Causes**	**Remedies**
12.	Outer weight is too less to optimize	• Optimization is supported only when outer weight / static unbalance is greater than 75 gm.	
13.	Shaft movement detected	• Wheel rotated before pressing the START Key for starting wheel run	• Stop the wheel rotation and then press START key to proceed. If this error occurs immediately after a wheel run without giving any command Restart the equipment
14.	Width measuring rod not at Home position	• Width measuring rod not at Home Position	• Move the Width measuring rod to its Home Position
15.		• Width measuring rod connector may be loose	• Check the Width measuring rod is connected properly.
16.	Change default setting to Dynamic Balancing	• Calibration done when the default setting is static.	• Set the default setting to Dynamic and proceed to calibration
17.	Error while starting spindle zero	• Improper calibration sequence	• Switch OFF and Restart the equipment. Follow proper calibration sequence.
18.	Error while switching to calibration		
19.	Error while switching to tyre zero		
20.	Error saving position		
21.	Error while starting Outer calibration		
22.	Error while starting inner		
23.	Calibration	• Improper calibration sequence	• Switch OFF and Restart the equipment. Follow proper calibration sequence.
24.	Error while stopping the wheel		

Error Messages - Wheel Balancer (VL - 65 DSP)			
Sl. No.	**Nature of Problem**	**Causes**	**Remedies**
25.	Split weight not supported for Normal wheel	• Split weight mode is supported only for Alloy wheels with Outer unbalance weight ≥10 gm	
26.	Split weight not supported in Static mode		
27.	Outer weight is too small to split		
28.	Balancing mode cannot be changed from this screen		
29.	Static mode not available for ALU wheels	• Alloy wheel balancing can be done only in Dynamic balancing mode	
30.	Error while starting the Motor	• -	• Switch OFF and Restart the machine
31.	Asking Repeat weight & found error in tracking system count due to Electrical Noise		• Implement Toroidal core in Power I/P line to avoid noise problem • Indent the following Assembly: • Kit Name : WB-DL-65 DSP-E Power I/P assembly Kit code : X2714 • Refer Service instruction (SI-WB-003)
32.	A & B Signals reading jumping / Position tracking jumping problem		• To be replaced MX0117 WB-DL-65 DSP E model. • For other model MX0118 Implemented from machine serial number WB/7869 onwards,

Wheel Balancer

Models : WB DL65 DSP / DL65 DSP PREMIUM / DH 200

Error Messages - Wheel Balancer - WB DL65 DSP / DL65 DSP PREMIUM	
Error Code - Digital WB	**Reasons**
□ □ □ □ □ □	Wheel guard is Open
□ □ □ □ □ □	Emergency switch activation (Not applicable)
□ □ □ □ □ □	Distance rod not in home position
□ □ □ □ □ □	Signal from Encoder missing
□ □ □ □ □ □	RPM not reached
□ □ □ □ □ □	Calibration data not available
□ □ □ □ □ □ □	Timeout occurred during Run
□ □ □ □ □ □	No Index pulse detected
□ □ □ □ □ □	Index pulse detected always
□ □ □ □ □ □	Check the Calibration weight (whether 75 gm is added)
□ □ □ □ □ □	Spindle unbalance is more
□ □ □ □ □ □	Direction of rotation is wrong
□ □ □ □ □ □	Shaft movement is detected
□ □ □ □ □ □	Unbalance in tyre (used for calibration) is more

Error Messages - Wheel Balancer - WB DL65 DSP / DL65 DSP PREMIUM	
Error Code - Digital WB	**Reasons**
□ □ □ □ □ □	Rim Distance/Width is not within limit in ALU-2/P & ALU-3/P functions
□ □ □ □ □ □	Balancing program is in Static mode & ALU-2/P & ALU-3/P functions while entering into calibration
□ □ □ □ □ □	RPM exceeds the maximum limit
□ □ □ □ □ □	Calibration weight signal is low
□ □ □ □ □ □	Calibration weight signal is high
□ □ □ □ □ □	Calibration weight Cross over is more

FAULT DIAGNOSIS & TROUBLE SHOOTING

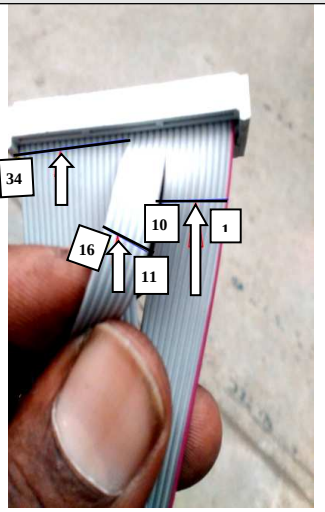
Sl. No.	Nature of Problem	Causes	Remedies
1.	MCB is getting trip automatically	• GBL MCB failure	• Check input voltage and may be high voltage • Check mcb function and replace
2.	Balancer shows zero zero weight display for all wheels	• Sensor milli volt is not reaching to required level	• Check SA & SB sensor milli volt • Check sensor lock nut loose & ensure proper tightness • Replace CPLD mother board and check • Replace the sensor if found faulty
3.	Error-4	• Distance rod not in home position	• Check FRC cable and ensure proper fixing • Check distance encoder segment teeth position & proper alignment • Replace distance encoder & check
4.	Error-8	• Signal from encoder missing	• Check brake switch condition & proper operation • Ensure distance encoder FRC cable & loose contact • Replace index board and check
5.	Motor is rotating after switch on main MCB	• Components short in motor controller board	• Check input voltage as per our recommendation • Replace motor controller board & check
6.	Duty cycle is not stable and rpm jumping	• Electrical noise & disturbance	• Ensure proper earthing & less than 3V • Ensure CVT 1KVA availability • Implement FRC cable with noise protection circuit
7.	ERR 01	• Guard may not be closed properly	• Close the Wheel guard properly and run. • Check the Wheel guard connector is inserted properly. • Check the Limit switch for proper contact.

Sl. No.	Nature of Problem	Causes	Remedies
8.	ERR 04	• Distance rod may not be at home position	• Ensure the Distance rod is in home position. • Check all the Encoder sensors are present in the distance encoder. Check the distance encoder board is blocked properly by the Distance segment plate. • Run the Distance measuring test (Ref. Chapt.4.5) and check the distance count is displayed correctly. • If the problem still exists, replace the E-Distance encoder board.
9.	ERR 08	• Revolution pulse from the revolution encoder board may not be received by the DSP IC	• Clean the slots in Round segment encoder and remove blockage, if any. • Clean the IRLED & Photo transistor slots in board holder. • Run the Tracking test (Ref. Chapt.4.6) & check Revolution pulse from the encoder & match the Round segment encoder slot with Rev. encoder board to get the correct count. • If the problem still exists replaces the board.
10.	ERR 09	• Required minimum RPM to calculate the unbalance may not be reached	• Check for the incoming power is correct. • Check for the belt tension.
11.	ERR 10	• Weight calibration data is not available in the DSP board	• Perform Weight calibration and save. Also, do Backup the calibration data

Sl. No.	Nature of Problem	Causes	Remedies
12.	ERR 11	• Required RPM to calculate the unbalance is not reached. • If empty shaft is run in Truck mode.	• Check for the incoming power is correct. • Check for the belt tension. • DO NOT run Empty shaft in Truck mode.
13.	ERR 12	• Index pulse from the Revolution encoder board may • not be received by the DSP IC	• Run the Tracking test and check the index pulse from the encoder is received correctly. If not, replace the Revolution encoder board.
14.	ERR 13	• Index pulse from the Revolution encoder board may • not be received by the DSP IC	• Run the Tracking test & check the index pulse from the encoder is received correctly. If not, replace the Revolution encoder board
15.	ERR 14	• 75 gm calibration Weight is not added during Inner and Outer calibration	• Ensure that the 75 gm calibration Weight is added at appropriate position during Inner and Outer calibration sequence.
16.	ERR 15	• Empty shaft millivolts may not be in specified range. • Empty shaft may have been run with QCLN/Cone/Wheel.	• Check for any shakes in cabinet foundation. • Check the Rotor assembly for it proper fitness. • Remove the QCLN/Cone/Wheel while running empty shaft. • If the problem still exists, check for DSP board analog section.
17.	ERR 16	• Shaft is rotating in Anticlockwise direction. • Phase may be interchanged (for HCV).	• Stop the shaft rotation and run the Wheel. • Ensure the correct phase is provided (for HCV).
18.	ERR 17	• Shaft is rotating in clockwise direction	• Stop the shaft rotation and run the Wheel
19.	ERR 19	• Tyre millivolts may not be in specified range.	• Use fairly balanced wheel (or with min. unbalance) and do the calibration

Sl. No.	Nature of Problem	Causes	Remedies
20.	NA	• Improper connectivity / loose contact	• Connect the FRC Cable (SBC to DSP) properly. • Run the Serial communication check test & check the communication to trouble shoot it. • If the problem still exists; replace the FRC cable or board.
21.	ERR 31	• Width rod may not be at home position	• Ensure that the Width rod is in home position. • Check for the home position voltage is in specified range.
22.	Keypad getting struck or not working Some of the keys are not working	• Loose contact in Keypad connection. • Keypad failure.	• Run the Key test (Ref. Chapt.4.4) and trouble shoot. • Check & ensure the Keypad connection is established. • Replace the Keypad.
23.	NO SOUND	• Buzzer may be disabled. • Buzzer connectors are loose. • Buzzer problem / Bad IC.	• Enable Buzzer in Program settings. • Check the buzzer connector is inserted properly. • If the problem still exists, replace the Buzzer
24.	NO DISPLAY	• Fuses may have got blown. • Fault in the SMPS.	• Replace the Fuses. • Replace the SMPS.
25.	Any one of the Voltages +5V, +12V and -12V is not properly generated	• Loose connection in the power Connector / Wire. • Faulty SMPS	• Trace out the defective area and solve the problem. • Replace the SMPS.
26.	Spark in the mains cord	• Loose connection in the AC socket	• Reconnect the power cord. • Trace out for the proper defect and solve the problem.

Sl. No.	Nature of Problem	Causes	Remedies
27.	System does not turn on	• System Fuse blown. • AC input power to the system may be low or no power input. • Problem with SMPS.	• Replace the Fuse. • Check the AC power input in the system using a Multimeter in AC Voltage mode. If Voltage is correct, check the AC Fuse. • Replace the SMPS.
28.	Electric shock in the system	• System Earth may not be proper	• Make arrangements for proper Earthing
29.	Brake pedal goes too much down	• The inner rod adjuster screw may be loose	• Tighten the screw properly
30.	Weight asking repeatedly (Wheel not getting balanced)	• Weight not added in the indicated position. • Wheel with more runout being balanced. • Re-treaded or patched tyre being balanced. • Balancer rotor disturbed. • Improper Earthing for Motor, equipment. • External noise. • While operating in Generator • Improper foundation or disturbed.	• Add the weight at exact position as indicated. • Replace the Tyre/Rim. • Balancing specifications cannot be met while using re-treaded tyres, • which is not recommended by Manufacturer. • Provide proper Earthing. • Provide isolated/dedicated power supply source and route it through • CVT. • Operate Balancer in Mains supply line. • Ensure proper foundation.
31.	Abnormal noise in Cabinet/Motor during balancing	• Improper foundation or disturbed. • Cabinet placed in uneven surface. • Motor belt tension may be more. • Loose contact in DMR/ Brake/Width/Wheel guard • Fitment	• Ensure proper foundation. • Ensure the floor surface is even. • Adjust the Belt for correction tension. • Identify & address the fitment problem of any part.

Sl. No.	Nature of Problem	Causes	Remedies
32.	Both inner and outer weight shows zero or Either inner or outer weight shows zero	• Loose connection in A and B sensor wiring. • DSP interface board to Processor board Frc cable defective. • In calibration while checking raw MV - SA and SB MV displayed zero.	  • FRC cable to be modified as shown in picture. • If problem not resolved, than change sensor sub assy.
33.	Both inner and outer weight shows zero or either inner or outer weight shows zero during rainy season	• While doing calibration ,Err 40 appeared in Tyre zero calibration.	• Refer the service instruction SI -WB -017 [As attached page no 50)
34.	For Truck wheels ,Machine is showing repeated weights in the inner plane . Machine is working satisfactorily with car wheels.	• Universal flange kit may damaged. • Problem with mother board	• Replace the Universal flange Kit . • If problem not resolved ,replace the mother board
35.	In wheel balancing run, with wheels machine is running continuously. Without wheels machine is working fine	• Problem with input ac voltage • Problem with Motor control board • Check the Motor capacitor	• Ensure the recommended the input ac voltage • Replace the motor control board • Replace the Motor capacitor

Wheel Balancer

Models : WB VL65 DSP / VL65 DSP LX/ VH 200

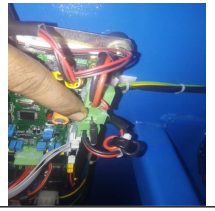
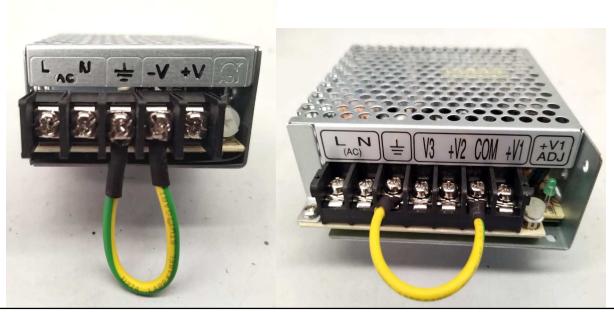
Sl. No.	Nature of Problem	Causes	Remedies
1.	Error during calibration- ensure proper weight fixing 75gm	• Sensor millivolt is not correct as per requirement	• Check proper earthing & less than 3v • Ensure sensor milli volt in sensor test • Check sensor lock nut condition & looseness • Ensure tightness of sensor lock nut • Replace respective sensor if found faulty
2.	Booting error and hang	• Software corrupt	• Ensure proper earthing • Ensure proper shutdown procedure • Replace memory card
3.	No display	• Loose contact	• Check input power • Check monitor HDMI cable loose contact & correct it • Check power led indication in raspberry mother board • Remove memory card & re fix properly • Replace the mother board if found faulty
4.	Junk display in the main screen	• Software corrupt	• Ensure proper earthing • Ensure proper shutdown procedure • Replace memory card
5.	MCB is getting trip automatically	• High voltage or MCB failure	• Check input voltage and may be high voltage • Correct the input voltage & check • Replace MCB and check
6.	Wheel guard not closed	• Guard may not be closed properly	• Close the Wheel guard properly and run. • Check the Wheel guard connector is inserted properly. • Check the Limit switch for proper contact.

Sl. No.	Nature of Problem	Causes	Remedies
7.	Distance rod is not in Home position	• Distance rod may not be at home position	• Ensure the Distance rod is in home position. • Check all the Encoder sensors are present in the E-Distance encoder. Check the Distance encoder board is blocked properly by the Distance segment plate. • Run the Distance measuring test (Ref. Chapt.4.7) and check the distance count is displayed correctly. • If the problem still exists, replace the E-Distance encoder board.
8.	Revolution Encoder pulse is missing	• Revolution pulse from the Revolution encoder board may not be received by the DSP IC	• Clean the slots in Round segment encoder and remove blockage, if any. • Clean the IRLED & Photo transistor slots in board holder. • Run the Tracking test (Ref. Chapt.4.7) & check Revolution pulse from the encoder & match the Round segment encoder slot with Rev. encoder board to get the correct count. • If the problem still exists, replace the board.
9.	Minimum RPM is not reached	• Required minimum RPM to calculate the unbalance may not be reached	• Check for the incoming power is correct. • Check for the belt tension.
10.	Weight Calibration data is not available. Redo weight calibration	• Weight calibration data is not available in the DSP board	• Perform Weight calibration and save. Also, do Backup the calibration data

Sl. No.	Nature of Problem	Causes	Remedies
11.	Time out occurred during acquisition.	• Required RPM to calculate the unbalance is not reached. • If empty shaft is run in Truck mode.	• Check for the incoming power is correct. • Check for the belt tension. • DO NOT run Empty shaft in Truck mode.
12.	Index pulse missing.	• Index pulse from the Revolution encoder board may not be received by the DSP IC	• Run the Tracking test and check the index pulse from the encoder is received correctly. If not, replace the Revolution encoder board.
13.	Index pulse detected always	• Index pulse from the Revolution encoder board may not be received by the DSP IC	• Run the Tracking test & check the index pulse from the encoder is received correctly. If not, replace the Revolution encoder board
14.	Calibration weight signal is bad.	• 75 gm calibration Weight is not added during Inner and Outer calibration	• Ensure that the 75 gm calibration Weight is added at appropriate position during Inner and Outer calibration sequence.
15.	Spindle unbalance is beyond limits for calibration	• Empty shaft millivolts may not be in specified range. • Empty shaft may have been run with QCLN/ Cone/Wheel.	• Check for any shake in cabinet foundation. • Check the Rotor assembly for it proper fitness. • Remove the QCLN/Cone/Wheel while running empty shaft. • If the problem still exists, check for DSP board analog section.
16.	Reverse direction run is detected	• Shaft is rotating in Anti- clockwise direction. • Phase may be interchanged (for HCV).	• Stop the shaft rotation and run the Wheel. • Ensure the correct phase is provided (for HCV).
17.	Shaft movement detected during START. Stop shaft movement and try again	• Shaft is rotating in clockwise direction	• Stop the shaft rotation and run the Wheel

Sl. No.	Nature of Problem	Causes	Remedies
18.	Tyre unbalance is beyond limits for calibration	• Tyre millivolts may not be in specified range.	• Use fairly balanced wheel (or with min. unbalance) and do the calibration
19.	Error in communication. Check cables and power	• Improper connectivity / loose contact	• Connect the FRC Cable (SBC to DSP) properly. • Run the Serial communication check test (Ref. Chapt.4.10) & check the communication to trouble shoot it. • If the problem still exists, replace the FRC cable or board.
20.	Width rod is not in Home position	• Width rod may not be at home position	• Ensure that the Width rod is in home position. • Check for the home position voltage is in specified range.
21.	• Keypad getting struck or not working • Some of the keys are not working	• Loose contact in Keypad connection. • Keypad failure.	• Run the Key test (Ref. Chapt.4.6) and trouble shoot. • Check & ensure the Keypad connection is established. • Replace the Keypad.
22.	No sound	• Buzzer may be disabled. • Buzzer connectors are loose. • Buzzer problem / Bad IC.	• Enable Buzzer in Program settings. • Check the buzzer connector is inserted properly. • If the problem still exists, replace the Buzzer
23.	No display	• Fuses may have got blown. • Fault in the SMPS.	• Replace the Fuses. • Replace the SMPS.
24.	Any one of the Voltages +5V, +12V and -12V is not properly generated	• Loose connection in the power Connector / Wire. • Faulty SMPS	• Trace out the defective area and solve the problem. • Replace the SMPS.
25.	Spark in the Mains cord	• Loose connection in the AC socket	• Reconnect the power cord. • Trace out for the proper defect and solve the problem.

Sl. No.	Nature of Problem	Causes	Remedies
26.	System does not turn ON	• System Fuse blown. • AC input power to the system may be low or no power input. • Problem with SMPS. • Problem with SBC board.	• Replace the Fuse. • Check the AC power input in the system using a Multimeter in AC Voltage mode. If Voltage is is correct, check the AC Fuse. • Replace the SMPS. • Replace the SBC board.
27.	Electric shock in the system	• System Earth may not be proper	• Make arrangements for proper Earthing
28.	Brake pedal goes too much down	• The inner rod adjuster screw may be loose	• Tighten the screw properly
29.	• No signal • Not booting	• Loose contact in HDMI cable. • Improper fitment of SDHC card.	• HDMI cable firmly. • Insert & lock the SDHC card with slot in SBC board properly. • If the problem still exists, replace the SDHC card with Balancing program.
30.	System booting, but, hangs at Welcome screen when " Loading"	• Loose contact in communication cable((SBC to DSP Mother board – flat ribbon cable) • Faulty cable. (SBC to DSP Mother board – flat ribbon cable) • Improper fitment of SDHC card.	• Fix cable firmly. • Replace the cable • Insert & lock the SDHC card with slot in SBC board properly. • If the problem still exists, replace the SDHC card with balancing program.
31.	Weight asking repeatedly (Wheel not getting balanced)	• Weight not added in the indicated position. • Wheel with more runout being balanced. • Re-treaded or patched tyre being balanced. • Balancer rotor disturbed. • Improper Earthing for Motor, equipment. • External noise. • While operating in Generator • Improper foundation or disturbed.	• Add the weight at exact position as indicated. • Replace the Tyre/Rim. • Balancing specifications cannot be met while using re-treaded tyres, which is not recommended by Manufacturer. • Provide proper Earthing. • Provide isolated/dedicated power supply source and route it through CVT. • Operate Balancer in Mains supply line. • Ensure proper foundation.

Sl. No.	Nature of Problem	Causes	Remedies
32.	Abnormal noise in Cabinet/Motor during balancing	• Improper foundation or disturbed. • Cabinet placed in uneven surface. • Motor belt tension may be more. • Loose contact in DMR/ Brake/Width/Wheel guard fitment.	• Ensure proper foundation. • Ensure the floor surface is even. • Adjust the Belt for correction tension. • Identify & address the fitment problem of any part.
33.	1.System restarts automatically 2.System restarts while hammering the Balancing Weight	• Check the input voltage of raspberry mother board. • Check the SD card contact with mother board • Check the input supply phoenix connector terminal leads. • Loose contact Its very thin wire, after taking the sleeves fold the internal wire (Double) and fix into the phoenix connector	• Check the 5v input supply of raspberry mother board. If not available, check the 5v supply at DSP mother board. If available problem with 5v input supply cable. Loose connection. Or cable faulty. Replace the cable • Remove and re fix SD card . Ensure proper contact between mother board and SD card. Its very thin wire ,after taking the sleeves fold the internal wire [double] and fix into the phoenix connector 
34.	Both inner and outer weight shows zero or Either inner or outer weight shows zero	Refer the problem S no 32 mentioned Additionally • SMPS DC GND wire is not shorted.	• **DC Ground** to be shorted with **Earth** in SMPS, 

Sl. No.	Nature of Problem	Causes	Remedies
35.	No video signal in monitor	• Problem with input ac supply to PC console • HDMI monitor cable loose contact • Check the SMPS output voltage • Check the input voltage of Raspberry mother board at DSP mother board terminal	• Correct it • Remove and re fix the cable properly • If not available, check the input 230V AC supply .If input supply is ok ,then replace SMPS • If the voltage dropped less than 5v, then replace DSP mother board**. Some times due to mother board short 5V supply from SMPS dropped**
36.	Motor running continuously	• Motor control board problem.	• Remove the CN4 connector and check. If motor running continuously, replace motor control board
37.	Observed motor goes to continuous running mode intermittently in balancing mode	• Check FRC cable • Check the DC GND connection of SMPS • Check the SMPS voltage	• Replace with Wurth make FRC cable • Short the DC GND connection with earth terminal of SMPS. • Increase SMPS voltage from 5.10V to 5.20V

Wheel Balancer

Model : Gyrospin 200

FAULT DIAGNOSIS & TROUBLE SHOOTING

Sl. No.	Nature of Problem	Causes	Remedies
1.	No digital display	• Power supply faulty • Display cable faulty • Control fuse blown • SMPS faulty	• Check for proper power supply connection • Change the cable or fix the cable properly • Check and replace the Fuse • Check &replace SMPS
2.	Motor not running	• Absence of 230v ac Power supply to motor control board • Motor control board faulty • Mother board faulty	• Check 230 v ac input to Motor control board • Replace Motor control board ,if 12v dc available in motor control board • Check 12 V DC input to motor control board from mother board. If not Replace mother board
3.	Spark in the Mains cord socket	• Loose connection in the AC • supply socket	• Connect the power mains with proper plug / socket combination
4.	Wheel is not balanced and repeatedly asking weights	• Improper Earthing • Improper foundation • Incorrect parameter entry • Calibration disturbed	• Check the Neutral to Earth is <3V & ensure the same • Check for proper foundation. Tighten the Foundation bolts • Enter the wheel parameters correctly • Redo calibration(Single point calibration) with minimum 18 inch Dia wheel
5.	Reverse direction run is detected.	• Shaft is rotating anti clockwise	• Motor fault. Replace motor.
6.	When switch on the machine ,motor running continuously	• Motor control board faulty	• Remove 12V DC connection from motor control board, and check. If motor running continuously replace motor control board
7.	Unbalance weight displayed But Motor didn't stop	• Faulty motor capacitor	• Replace motor capacitor

Error Messages			
Sl. No.	**Error Codes**	**Causes**	**Remedies**
1.	ERR-01	• Wheel guard is Open • Wheel guard switch problem • Guard switch wire connecting to mother board , cut or loose	• Close the wheel guard • Replace the push button switch • Check and replace the wire with connector
2.	ERR-08	• Signal from Encoder missing	• Check and replace index board • Check and replace FRC cable • If there is no shaft moment ,check motor and replace • If there is no shaft moment check motor control board
3.	ERR-09	• RPM not reached	• Check the 230 v ac input ac supply . If not there correct the input ac supply
4.	ERR-10	• Calibration data not available	• Perform calibration
5.	ERR-12	• No Index pulse detected	• Check and replace index board • Check and replace FRC cable .
6.	ERR-13	• Index pulse detected always	• Clean the index board and index wheel with air • Check the index in track test option available in setting-If no index ,replace index board
7.	ERR-14	• Check the Calibration weight (whether 50 gm is added)	• Check 50 g added while doing calibration in 3rd step • Check the piezo sensor connection to mother board. Any loose connection correct it • Check the piezo sensor lock nut condition, If loose tighten the lock nut of piezo sensor
8.	ERR-15	• Spindle unbalance is more	• Check foundation , if require do the foundation correctly • Check the motor belt tension .
9.	ERR-16	• Direction of rotation is wrong	• Clean the index board and replace • Check the motor capacitor and motor .

Error Messages			
Sl. No.	**Error Codes**	**Causes**	**Remedies**
10.	ERR-17	• Shaft movement detected	• Ensure that there is no shaft movement before start the balance run.
11.	ERR-19	• Unbalance in tyre (used for calibration) is more	• Use a better balanced wheel for calibration. do calibration from Spindle zero
12.	ERR-36	• Rim Distance/Width is not within limit in ALU-2/P & ALU-3/P functions	• -
13.	ERR-37	• Balancing program is in Static mode while entering into calibration	• Ensure machine is in dynamic Moe ,before entering into calibration
14.	ERR-39	• RPM exceeds the maximum limit	• Check the input 230v ac frequency.
15.	ERR-40	• Calibration weight signal is low	• Check 50 g added while doing calibration in 3rd step • Check the piezo sensor connection to mother board. Any loose connection correct it • Check the piezo sensor lock nut condition, If loose tighten the lock nut of piezo sensor
16.	ERR-41	• Calibration weight signal is high	• Use a better balanced wheel for calibration. do calibration from Spindle zero
17.	ERR-54	• Runout & Faceout sensor not in zero position	• Check for the Sensor is in contact with any part. If so, move it to zero position. If the problem still persists, contact Service personnel

Important Technical Information

Importance of Toroidal cores

This technical Bulletin describes a method to resolve an unanticipated problem faced in our Wheel Balancer model **WB DL 65 DSP E**.

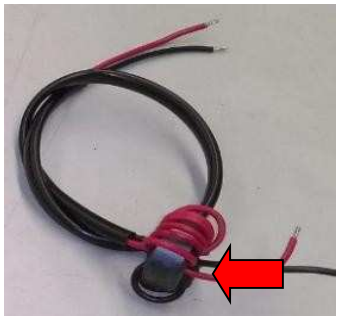
At some workshop locations, the radiated Noise in the environment Or Conducted Noise passing through the power line affects the normal operation of Wheel Balancer. Fast transmission of noise will obstruct the sensitive communications passing the cable from Main board. It is not common in all countries. But, it might occur in some places.

To overcome this situation, it is mandatory to implement toroidal cores in the Wheel Balancer - Model : **WB DL 65 DSP E** as per the procedure demonstrated in the video link given below.

These toroidal cores are easily available in the market and we request you to procure them and install in the Wheel balancer, if you encounter this situation.

Video Link: https://www.dropbox.com/s/rluo5z13czql2bz/WB_toroidal%20core%20implementation%20proced_ure.zip?dl=0

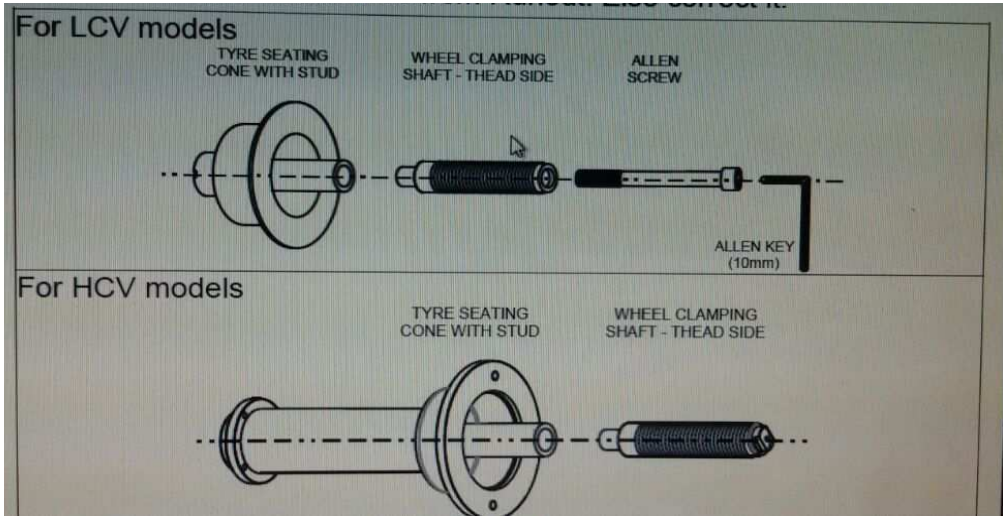
Please refer to the pictures of cables implemented with Toroidal core:

SMPS DC output cable Toroidal T27 – Each wire 6 turns	**Brake ON / Motor ON Cable** Toroidal T14 - 3 Turns	**AC Input Power cable** Toroidal T27 – Each wire 6 turns
		

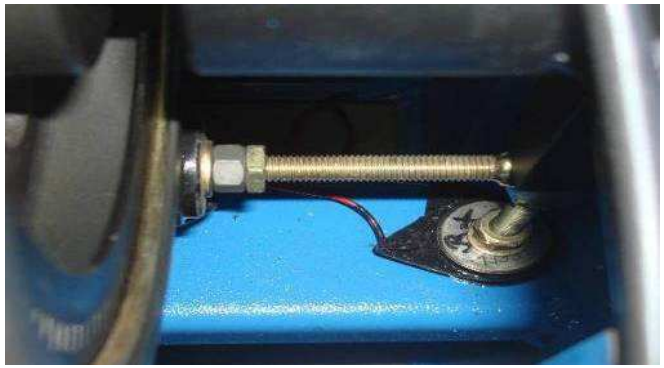
Automatic Distance measuring cable Toroidal T14 – 3 Turns	Automatic Width Measuring cable Toroidal T14 – 3 Turns
	

Threaded Shaft:

- Threaded shaft: Ensure full tight by using Allen key to avoid QCLN damage.



- Sensor lock nut: Apply thread seal to avoid lock nut loose and calibration disturbance



Wheel Balancer precaution in Video Model

Subject:

It has been noticed in recent times few wheel balancer VL models, there has been memory card corruption issues & “calibration weight signal bad”. It can be prevented in few instances with the following precautions.

Calibration Wheel:

In our model of wheel balancer, during calibration **we recommend usage of a steel wheel with Rim diameter of <13 inch and width of 4 inch**. If any wheel above Rim dia of 15 inch is used there are chances of display of error “Calibration weight signal bad”. This error is corrected from Sl.no.: WB7198 & you can use any steel wheel with minimum unbalance for calibration. This error occurs only during calibration and will not appear during normal operation.

Securing the SD card with Anabond

One of the reasons for failure of loading of the wheel balancer software is narrowed down to insecure SD card fixation. During service or replacement, the SD card with balancer software is inserted in the raspberry mother board. However due to prolonged vibration the connectivity in the card tend to loose and result in improper booting and SD card corruption. To avoid this we advice to secure the SD card with an anabond666(glue) which is similar setup used at factory during production.

a) Ensure the correct direction of Memory card and insert it into the respective slot provided in Linux SBC board

b) Press the Memory card gently from outer side to lock it with the SBC board slot properly and ensure it by observing the lock sound.

c) Clean the Memory card location and ensure it is free from dust/foreign particles. Apply a thin layer of Anabond666 through the Nozzle at top side of mating region as shown below:

Improper shut down.

One of the possible reasons for corruption of SD card in wheel balancer is identified due to improper shut down. In our earlier version there was no proper shutdown of the system. To avoid further failure we have added a shut down icon as in the picture below. This feature is available from machine sl.no WB7190. Click the button (highlighted below) for proper shut down of the s/w and switch off the MCB to *Power OFF* the complete machine

Usage of CVT

We recommend usage of CVT (Constant voltage transformer) in places where voltage fluctuations are observed. It is a good practice to use CVT in all the places where the wheel balancer is installed. This will ensure proper input AC voltage is supplied.

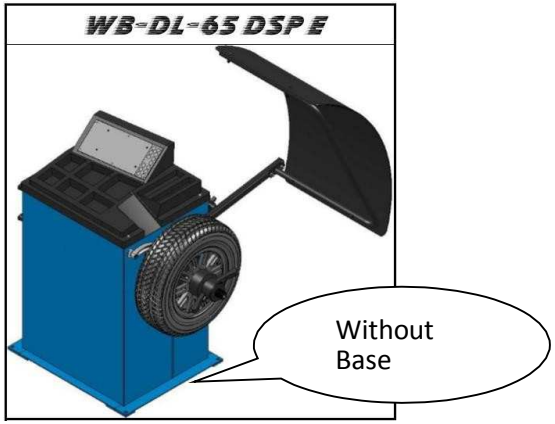
Wheel Balancer Foundation

This technical bulletin provides the information about the importance of anchoring foundation bolts in our Wheel Balancers.

Foundation for wheel balancer is mandatory. Operating a wheel balancer without anchoring foundation bolts will cause vibration in the machine while balancing large unbalance wheels and requires repeated runs for balancing. Hence, the accuracy is affected.

Moreover, in our Entry level model WB DL 65 DSP E, while balancing a larger dia wheel without anchoring, the chances of wheel balancer toppling is more since the base plate extension is not provided unlike other models. Image given below for reference.

As a safety instruction, we recommend to follow the below procedure while installing the wheel balancers.



1) Wheel balancer has to be placed on a leveled floor. Any tilt / gap in the base has to be arrested by inserting shims.
2) All the 4 slots provided at the base plate has to be anchored with the bolts supplied along with the wheel balancers.
3) Ensure uniform tightness to the bolts.

Click the below link to download and view the step by step anchoring procedure in a video format:

https://cp.sync.com/dl/aeda73300#f2r89fm7-db8m52gr-5bm9afne-2qkrdxbg

Wheel Balancer wheel seating cones

This bulletin provides the detailed information about the various types of wheel seating Cones available for our Wheel Balancers which are supplies as Standard & Optional.

Car & LCV Wheel Balancer (All models with shaft dia 36mm):

PART CODE	SCOPE OF SUPPLY	PART DESCRIPTION	IMAGE	TECHNICAL SPECIFICATION
P2801	Standard	LCV Wheel seating cone Type-I		Suitable for wheel bore □ 48mm to □ 77mm
P2659	Standard	LCV Wheel seating cone, Type-II		Suitable for wheel bore 76mm to □ 107mm
P2802	Standard	LCV Wheel seating cone		Suitable for wheel bore □ 104mm to □ 122mm
A2770	Optional	Wheel seating cone, LCV, Double end with Spacer.		Suitable for wheel bore Ø124mm to □ 168mm
A2536	Optional	Universal Flange kit		Suitable for Blind wheels.
A2693	Standard	Universal flange kit assembly		

PART CODE	SCOPE OF SUPPLY	PART DESCRIPTION	IMAGE	TECHNICAL SPECIFICATION
P0547	Optional	LCV Wheel seating cone Type-I		Suitable for wheel bore □ 48mm to □ 77mm
P0499	Optional	LCV Wheel seating cone, Type-II		Suitable for wheel bore □ 76mm to □ 107mm
P0463	Optional	LCV Wheel seating cone		Suitable for wheel bore □ 104mm to □ 122mm
P2961 P2964	Optional	HCV Wheel seating dual cone Type-I		Suitable for Wheel bore □ 212mm to □ 223mm
P2962 P2965	Optional	HCV Wheel seating dual cone, Type-II		Suitable for wheel bore Ø124mm to □ 168mm
P2963 P2964	Optional	HCV Wheel seating dual cone, Type-III		Suitable for wheel bore **Ø281mm** to **291mm**

Note: All double ended cones will be supplied as kit Assy with respective spacer.

Software Installation procedure

Due to various reasons like abrupt shutdown, bad block / clusters in SD memory card and unexpected voltage spikes, the operating system of wheel balancer (Linux version) gets corrupted and as a result will start showing errors at boot up sequence.

To resolve the above field complaint, so far we have been replacing the entire SD card preloaded with the OS and front end software, **which is specific for each models of Wheel Balancers**. This resulted in maintaining separate SD Card for each version / models.

Now, we have completely simplified the process by incorporating the below options which will make the job of service technician much simpler.

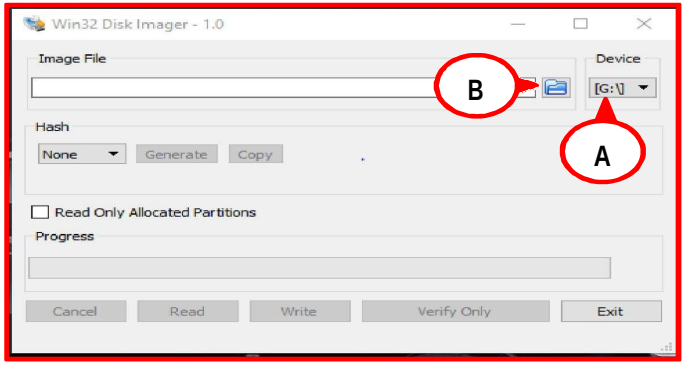
1) OS with Application file is provided to download from web link and reinstall it against S/W corruption.
2) Front end software made common to all models and options given to configure / reconfigure the required model and branding.

The following tutorial explains the procedure of software Re-installation in detail,

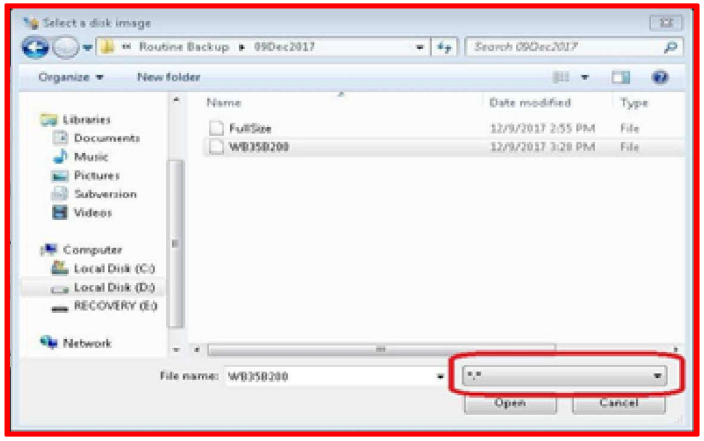
1. Click the below link to download the file name "WB35B201.rar "https://drive.google.com/file/d/106LlMwt0EGZFZK3Zaa6lgRb-_1Hvl-tf/view?usp=sharing
2. A zip file of 2 GB size will get downloaded.
3. After download, extract the file and save in your PC / Laptop
4. Click the next link given below to download the **WIN32 disk imager** software from the website. https://www.techspot.com/downloads/5361-win32-disk-imager.html
5. Run the downloaded setup file (**WIN32 disk imager**) which will prompt you to install in the PC / Laptop. Proceed as per the screen

guided information.

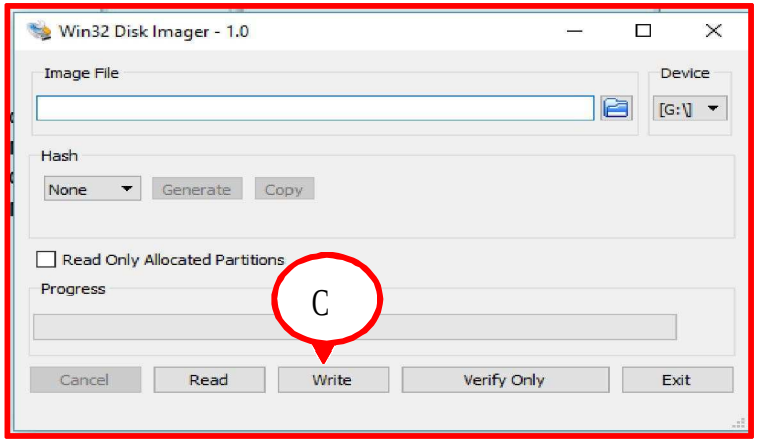
6. Insert a SD card (**Micro SD card, 16 GB, Class 10**) in the SD card reader and interface it to the PC / Laptop.
7. Open the windows explorer and ensure the SD card reader has been detected by the PC / Laptop.
8. Execute the win32 disk imager software. System will prompt a screen as shown below.
9. Ensure the device(SD Card) has got detected in the Win 32 disk manager {Indicated as (A)}
10. Click on the Folder icon (Indicated as B) Which will prompt the below screen.



11. Click on the drop down box and choose file type as *.*
12. Locate the file which was downloaded from the link (WB35B201.rar) and click open.
13. Once the file is loaded in the software, System prompts the below screen. Now Click on the “Write” button (indicated by C)



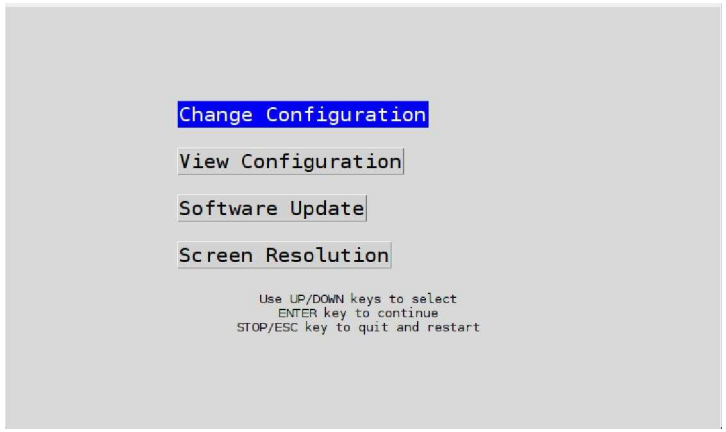
14. **A 'Overwrite Confirm' window** will appear. Click on 'Yes' and wait till the write process completes.
15. After the write process is complete, close the win32disk imager software and safely eject the SD card using the safe eject option in windows tray.



Now SD CARD is ready to configure in wheel Balancer

Procedure to configure the software in the Wheel Balancer:

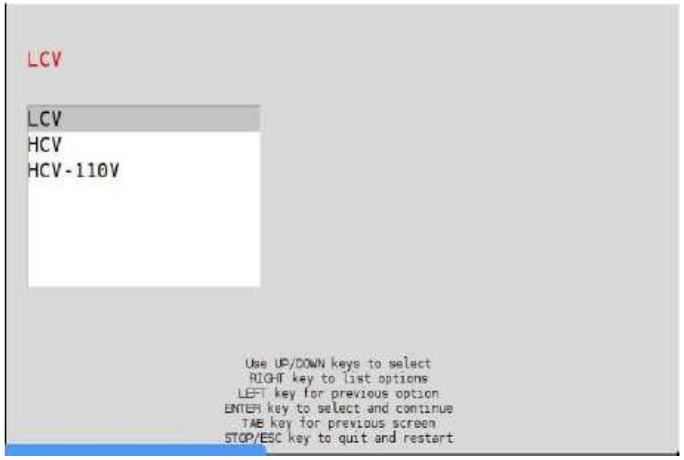
1. Remove the dried hot glue pasted above the existing SD Card in wheel balancer and eject it out from the Raspberry Pi board.
2. Insert the New SD card and Switch ON the machine.
3. Wait until the system boots with progress running. After a while, a settings symbol will be displayed at the right bottom corner of monitor.
4. The software is now ready to configure for the first time and system will automatically go to the ***Configuration*** menu (shown below). Or else, Press the key, while is displayed in screen
5. Enter the Password by pressing the keys "◀◀▲▶◀" and then press key
6. The following ***Configuration*** Menu will be displayed. Press key

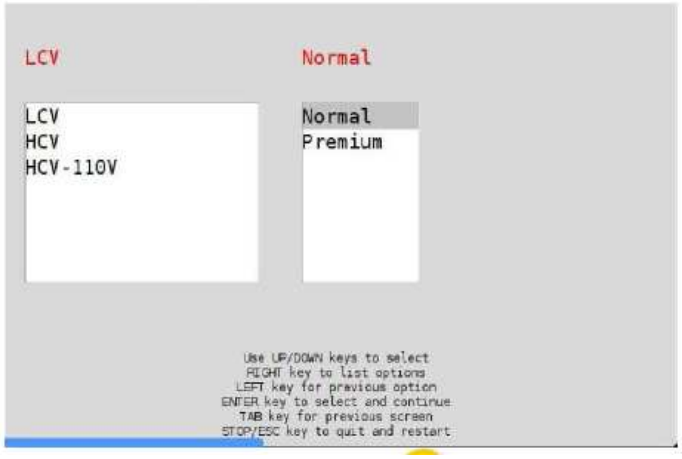


7. System will display to choose the appropriate model (LCV, HCV or HCV 110V). Choose the correct model using ▼ and press ▶ for confirmation.

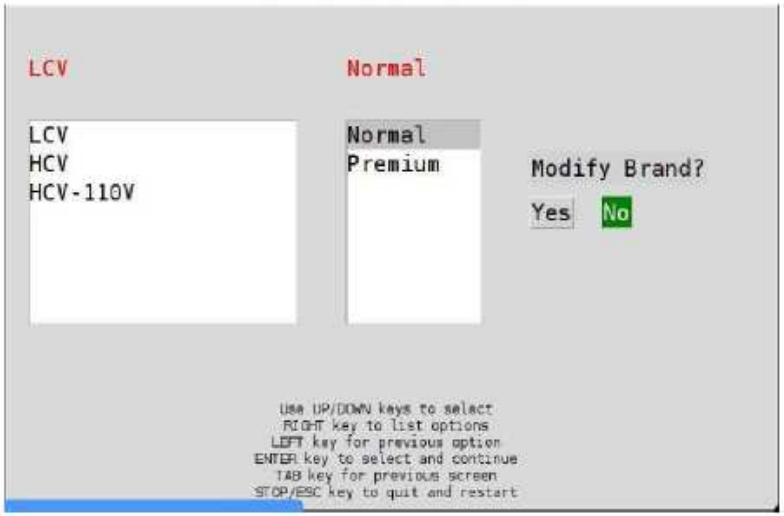
LCV	=	Car wheel balancer
HCV	=	Truck Wheel Balancer
HCV 110v	=	Truck wheel Balancer operated in 110 volt power supply

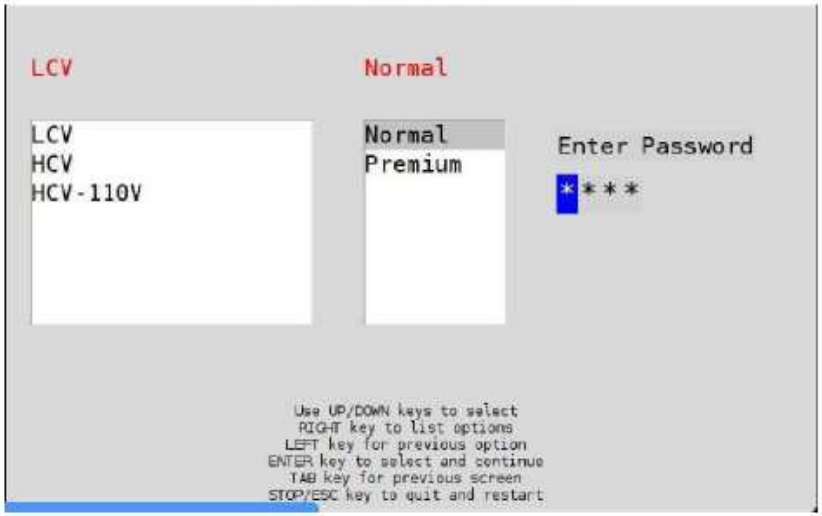
8. After choosing the model, system will again display to choose the type of wheel balancer ***Normal OrPremium***. Choose the type using ▼ / ▲ key and press ▶ key which will save and proceed to next sequence.





9. System will prompt you for “Modify Brand “YES” OR “NO”. Choose “Yes” and press Key.

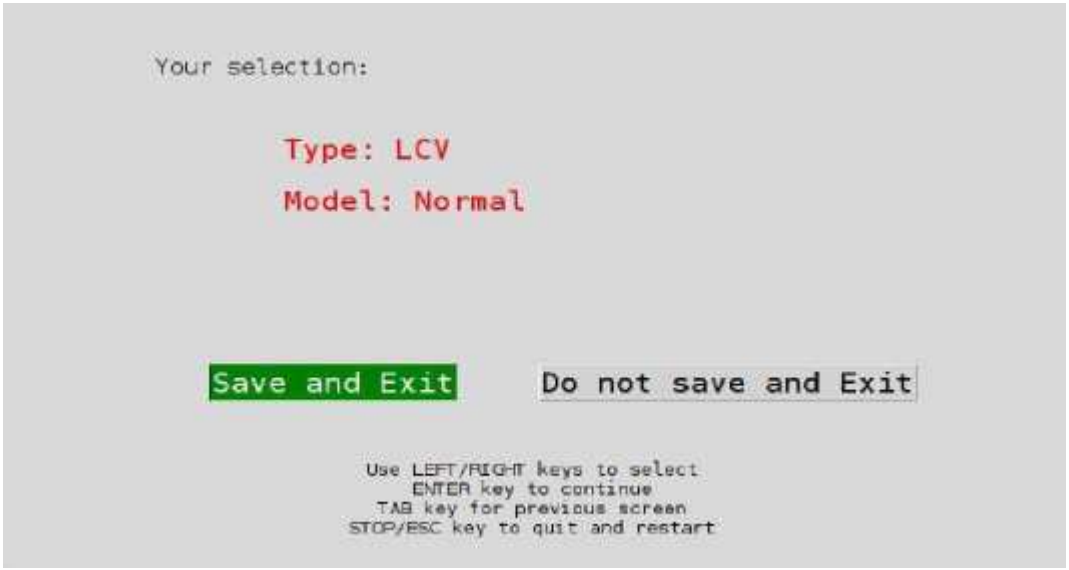




10. Now System will ask for a password. Type the password. For Each Private branding a separate password will be assigned. As a default, password for Manatec brand is **3685**

11. To set the password, **key** which will enable to increase the numeric number. Once the required number is set on the first window, press key to move to next window. Set password in all the 4 windows and press Enter key

12. Select “**Save and Exit**” and press key to save the configuration and exit



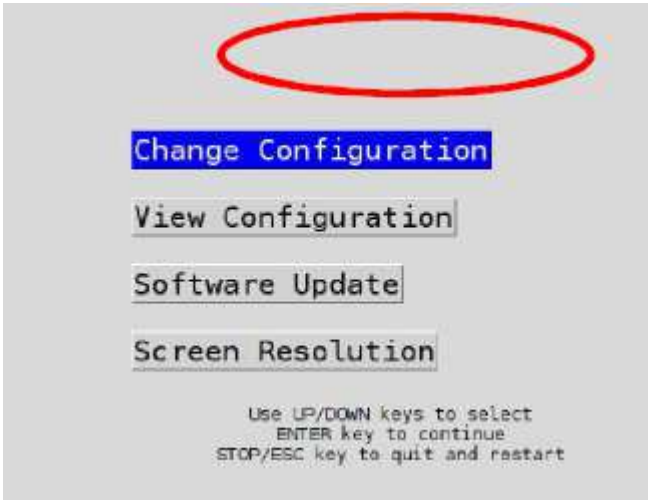
13. System will automatically reboot twice to set the configurations and display the ***Welcome*** screen.

Screen Resolution:

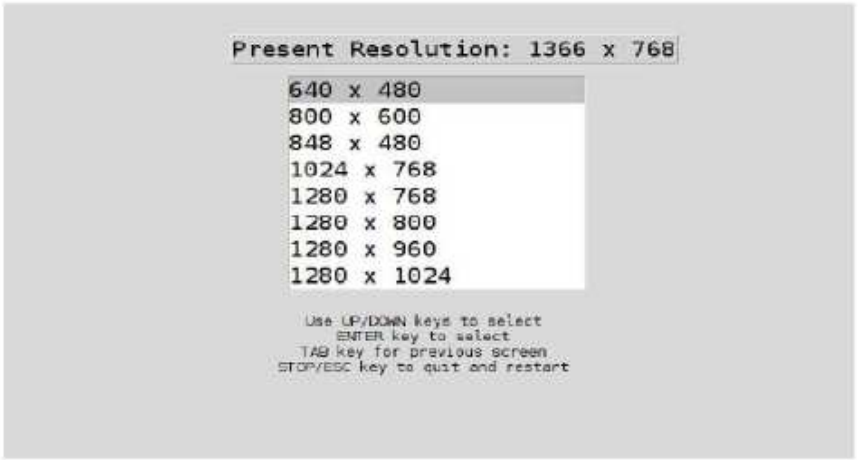
This option is provided to set the Monitor screen resolution at customer place itself if the Wheel balancer is supplied without Monitor.

1. Reboot the system and wait until settings symbol displayed at the right bottom corner of monitor.
2. Press the settings  in the key pad for Wheel Balancer

3. Enter the Password by pressing the keys "◀◀▲▶◀" and then press ↵ key.
4. 4.The following ***Configuration*** Menu will be displayed.
5. Once entered into this option, Select screen resolution and press enter key.



6. List of resolutions supported by Wheel balancer Hardware will be listed. User can select the required resolution by referring the Monitor specification and press ↵ key.



NOTE: If the screen resolution selected is beyond the Monitor specification, system will adopt the default resolution. For Square Monitor, set 800 x 600 and for Wide screen monitors, set 1360 x 768.

The system will automatically re-start twice and come to ***HOME screen***.

Perform Weight calibration, Diameter & Width calibration to complete the process.

The above procedure is available as a short video in the below link,

https://drive.google.com/file/d/1DLsOU7dWKO8p_b1w3CDc3O9K7aXCSkM0/view

FAULT DIAGNOSIS & TROUBLE SHOOTING

Checklist for Wheel Balancer:

Sl. No.	Check Points	Ok / Not Ok	Remarks
1.	Check AC Power: - Voltage (230V±10% or 110V±10%) ,		
2.	Check the AC frequency (50HZ ± 1HZ or 60HZ ±1Hz)		
3.	Check the Earthing (Neutral to Earth voltage <3AC)		
4.	Verify Machine connected with Genset Power. If yes, the frequency should be stable within ±2 HZ. If not, an UPS with AVR (Minimum 2 KVA capacity)to be used in the output of Generator. The Wheel balancer power to be given from UPS.		
5.	Check the foundation is made and machine is resting stable on the Ground(without any shaking in machine when motor running)		
6.	Check Motor belt tightness. It should not be tighter & looser.		
7.	Check the belt is not in worn out condition		
8.	Check all the connectors to the Mother Board are having proper contact to the Board.		
9.	Check the Motor Fixing screws & bolts are intact		
10.	Check the Rotor assembly Fixing screws & bolts are intact		
11.	Check the sensor fixing bolts are intact		
12.	Check the Revolution Encoder (plastic) visually for any damage and ensure the fixing is tight.		
13.	Check the revolution Pulse counts(0-399)and ensure count not missing in Tracking Program		

Sl. No.	Check Points	Ok / Not Ok	Remarks
14.	Check the brake Shoe Gap (minimum 1 mm) and ensure they do not touch with the pulley.		
15.	Check the Top cover not touching with the driven Pulley due excess weights kept on top.		
16.	Check whether any other Heavy Electrical Equipment like Car washer, Air Compressor etc., is connected to same power line of WB. If so, give a separate AC power from another line and check.		
17.	Do Re-calibration(preferably with small wheels- Rim dia<14") and check weight display & Position is ok using known weight.		
18.	Repeat this 3 times and check for repeatability. The repeatability of weight reading should be within ±5g and ±5 ° for the unbalance position.		
19.	If Premium model, check the Width and Diameter calibration and ensure the Width and diameter readings with more than one wheel.		

Note : It is recommended to give AC power to Wheel Balancer through a CVT (Minimum 1 KVA capacity) as it will take care of AC Voltage fluctuations / transients and noise problems, which may affect the function of WB.

SAFETY UNIT REQUIREMENTS & MATRIX

Sl	Product	Req.	Capacity	Remarks	Earthing	Stabiliser/ Servo Stabiliser	Inverter	CVT	UPS
1	Balancer	CVT	CVT-1KVA	Good Earthing, Constant frequency 50Hz for genset operation	Compulsory and less than 3V	Not recommended	Not recommended	Recommended	Not recommended

WB Linux Video model - Guide for replacement of SD card (Memory card) in field in case of Corruption								
S.No	Model	M/C serial Numbers		Raspberry Pi version	Front End SW version	DSP Board FW version	Replacement parts / configuration recommended for " Memory card corruption"	Remarks
		From	To					
LCV MODELS :								
1	WB-VL-65 DSP LX	WB5955	WB6632	Raspberry Pi 1	1.00,1.02	1.00 & 1.01	1. Micro SD Card with FE SW ver.1.02	-
		WB6687	WB8003	Raspberry Pi 2 Ver 1.1	3.02	2.03	1. Micro SD Card with FE SW ver.2.03	-
		WB8067	WB8113	Raspberry Pi 2 Ver 1.2	4.00	2.05	1. Micro SD Card with FE SW ver.4.01	SW update through Pen drive feature available
		WB8133	TILL DATE	Raspberry Pi 3	4.01	2.05		SW update through Pen drive feature available
2	WB-VL-65 DSP premium LX	WB6160	WB6626	Raspberry Pi 1	1.02	1.01	1. Micro SD Card with FE SW ver.1.02	
		WB6666	WB8026	Raspberry Pi 2 Ver 1.1	3.00 to 3.02	2.00 to 2.03	1. Micro SD Card with FE SW ver.3.02	SW update through Pen drive feature available
		NIL	NIL	Raspberry Pi 2 Ver 1.2	3.03	2.04	1. Micro SD Card with FE SW ver.4.01	SW update through Pen drive feature available
		WB8127	TILL DATE	Raspberry Pi 3	4.01	2.05		SW update through Pen drive feature available
HCV MODELS :								
3	WB-VH-200 DSP LX (415V, 50/60hz, 3 PHASE)	WB6070	WB6503	Raspberry Pi 1	1.02	1.01	1. Micro SD Card with FE SW ver.1.02 (for VH200)	
		WB6886	WB8052	Raspberry Pi 2 Ver 1.1	4.02	2.03	1. Micro SD Card with FE SW ver.4.02 (for VH200)	SW update through Pen drive feature available
		NIL	NIL	Raspberry Pi 2 Ver 1.2	4.03	2.04	1. Micro SD Card with FE SW ver.4.03 (for VH200)	SW update through Pen drive feature available
		WB8227	TILL DATE	Raspberry Pi 3	TBD	TBD		SW update through Pen drive feature available

WB Linux Video model - Guide report for replacement version / parts for " Calibration signal bad" error										
S. No	Model	M/C serial Numbers		Raspberry Pi version	DSP Board		Front End SW version	DSP Board FW version	Replacement parts / configuration recommended for "CALIB. SIGNAL BAD" error during Calibration.	Remarks
		From	To		PCB Rev. NO	CODE NO				
LCV MODELS :										
1	WB-VL-65 DSP LX	WB5955	WB6632	Raspberry Pi 1	Not reqd	A2710	1.00,1.02	1.00 & 1.01	1. Micro SD Card with FE SW ver.xxx (New- to be developed) 2. DSP Board with FE ver .xxxx (New - to be developed)	The Front end SW and FW is under development and will be given before 31/08/17.
		WB6687	WB8003	Raspberry Pi 2 Ver 1.1	Not reqd	MX0102	3.00 to 3.02	2.00 to 2.03	1. Micro SD Card with FE SW ver.3.02 2. DSP board with version.2.03	
		WB8067	WB8113	Raspberry Pi 2 Ver 1.2	Not reqd	MX0102	4.00	2.05	Not Applicable. Already implemented with the Solution given SW and FW.	
		WB8133	Till Date	Raspberry Pi 3	Not reqd	MX0102	4.01	2.05		
2	WB-VL-65 DSP premium LX	WB6160	WB6626	Raspberry Pi 1	Not reqd	A2712	1.02	1.01	1. Micro SD Card with FE SW ver.xxx(New- to be developed) 2. DSP Board with FE ver .xxxx(New - to be developed)	The Front end Sw and FW is under development and will be given before 31/08/17.
		WB6666	WB8026	Raspberry Pi 2 Ver 1.1	Not reqd	MX0103	3.00 to 3.02	2.00 to 2.03	1. Micro SD Card with FE SW ver.3.02 2. DSP board with version.2.03	For GASOL, Saudi
		NIL	NIL	Raspberry Pi 2 Ver 1.2	Not reqd	MX0103	3.03	2.04	Not Applicable. Already implemented with the Solution given SW and FW.	

2	WB-VL-65 DSP premium LX	WB8127	TILL DATE	Raspberry Pi 3	Not reqd	MX0103	4.01	2.05		
HCV MODELS										
3	WB-VH-200 DSP LX (415V, 50/60hz, 3 PHASE)	WB6070	WB6503	Raspberry Pi 1	Not reqd	A2728& A2729	1.02	1.01	1. Micro SD Card with FE SW ver.xxx(New- to be developed) 2. DSP Board with FE ver .xxxx(New - to be developed)	The Front end Sw and FW is under development and will be given before 31/08/17.
		WB6886	WB8052	Raspberry Pi 2 Ver 1.1	Not reqd	MX0104 & MX0105	4.02	2.03	Not Applicable. Already implemented with the Solution given SW and FW.	
		NIL	NIL	Raspberry Pi 2 Ver 1.2	Not reqd	MX0104 & MX0105	4.03	2.04		
		WB8227		Raspberry Pi 3	Not reqd	MX0104 & MX0105	TBD	TBD		

WHEEL BALANCER- ECN IMPLEMENTATION DETAILS

S.N	NAME OF SPARE / ASSY	ECN/RCN/ PRN/IOM NUMBER	ECN/RCN/PRN/IOM DATE	IMPLEMENTATION APPLICABLE M/C MODELS	IMPLEMENTATION DETAILS	PURPOSE OF IMPLEMENTATION	IMPLEMENTATION DATE	IMPLEMENTED MACHINE STARTING SL No
1	Video model power panel assy	PI-WB-001	18.12.15	NA	In VL Model memory card insert to resperry board and apply anabond 666 for avoid loose contect.		26-Dec-15	WB 6622 VL 65 DSP LX

WHEEL BALANCER- ECN IMPLEMENTATION DETAILS								
S.N	**NAME OF SPARE / ASSY**	**ECN/RCN/ PRN/IOM NUMBER**	**ECN/RCN/PRN/IOM DATE**	**IMPLEMENTATION APPLICABLE M/C MODELS**	**IMPLEMENTATION DETAILS**	**PURPOSE OF IMPLEMENTATION**	**IMPLEMENTATION DATE**	**IMPLEMENTED MACHINE STARTING SL No**
2	Video model power panel assy	RCN/WB/R30	25.11.15	VL 65 DSP Prem Lx	E2675- SBC board (Rassperry board), linex compatible version Pi 2 is implemented.	RAM speed 512MB to Increase 1GB RAM	18-Jan-16	WB 6666
3	Power panel assy	RCN/WB/R34	04.05.17	Video Models	In Video model E2710 - Rasberry Pi3 board is Implemented.	Due to change for current updation.	22-Jun-17	WB 8127

SI-WB-016 Rev 01 (DL DSP brd - Sensor OP zero)

SERVICE INSTRUCTION			No.	SI-WB-017
Product	**Wheel balancer**		Rev.	**01**
Model	**Z2187 / Z2188, WB-DL-65** **Z2189 / Z2190, WB-DL-65**	**DSP (230V / 110V)** **DSP Premium (230V / 110V)**	Date	**12.08.2019**

Sub. : Replacement of DSP board Hardware & Firmware to overcome zero Sensor output problems during rainy seasons in coastal areas in Field

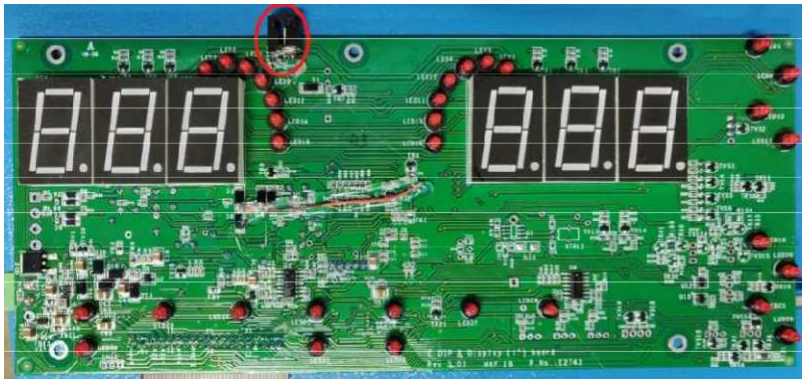
Following modifications are to be carried out in the above listed Digital Wheel balancer models (Sl.No. WB-5990 to WB-10130) in field wherever the Sensor output becomes zero during rainy seasons:

Indent the below parts:

Code	Description	Qty
X2753	E DSP Display Board	1
E2505	Con, 2Pin, Male with Lock, Vert, 2.54mm, PTH	1
E0250	Con, 2Pin, Male, R/A, 2.54mmPTH, Black	1
E2740	Cable, FRC, 40Pin (F) to 40Pin (M), 600mm	1
E2741	Cable, FRC, 40Pin (F) to 40Pin (F), 900mm	1
E4047	Con, 2Pin, Phoenix (F), MSTB 2.5/2-ST-5.08	1
X2759	DSP I/F board, Premium	1

Following modifications to be made in the Production:

1. In E-DSP display board (X2753), replace 3Pin SR Male connector for Buzzer at CN4 location to 2Pin SR Male (Pin1&2) (E0250). Apply one more layer of conformal coating. Test the board for its functions.



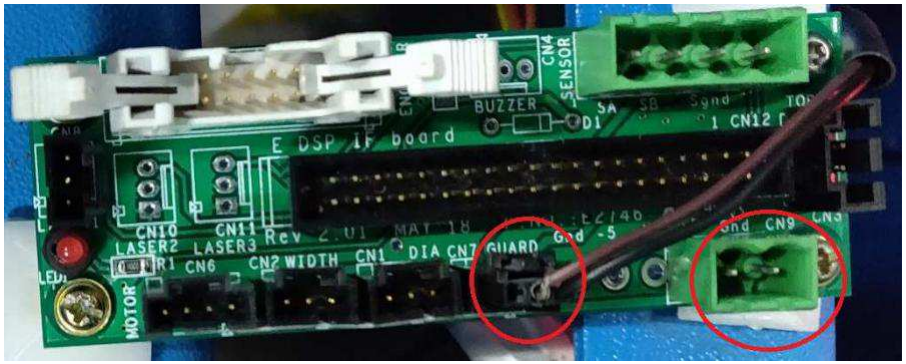
2. In DSP Interface board (X2759) , replace 3Pin SR connector (Male) for Wheel Guard at CN7 location to 2Pin SR Male (Pin1&2) (E2505). Apply one more layer of conformal coating. Test the board for its functions as per Testing procedure.
3. Program the required model Firmware with Ver.6.3S (released for this purpose alone) through Boot loader.
4. In FRC cable (E2741), split the wires Pin11 to 16 separately.
5. Perform Two point calibration. Verify the Calibration. If found OK, backup the data.

Following modifications to be carried out in Field machine:

1. Replace the E-DSP Display board (For WB-DL-65 DSP - A2749 / MX0121, For WB-DL-65 DSP Premium - A2750 / MX0122**)** with new Revision E-DSP Display board (X2753) with Firmware Ver.6.3S.

2. Replace the DSP Interface board (X2704) with new Revision (X2759) Interface board. The Power connector CN9 will be 2Pin Phoenix Male in new board (5Pin Phoenix Male in existing Board). So, Remove the wires +5V and GND from 5Pin Phoenix Female connector and connect it (Pin1 = GND and Pin2 = +5V) to 2Pin Phoenix Female connector (E4047). Connect the 2Pin Phoenix Female to CN9 in Interface Board.

Note: The New E DSP Display board requires only Single supply (+5V).



3. Replace the 34Pin FRC cable with 40Pin FRC cables - 900mm (E2741) connected with I/F board side and 600mm (E2740) to be connected on E-DSP Display board side.

4. Perform Single point calibration (Weight calibration alone for Normal model. Dia, Width calibration in addition for Premium models).
   Note: For Premium Models, during Width and Dia calibration, set 2.40V for Zero position.

5. Check the Wheel balancing function. Check Width and Diameter function (N/A for Normal model).

Check and confirm Sensor output zero problems are solved.

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