

Operating manual

CWB 525 PRO

Semi-automatic car wheel balancer • Installation, operation and maintenance

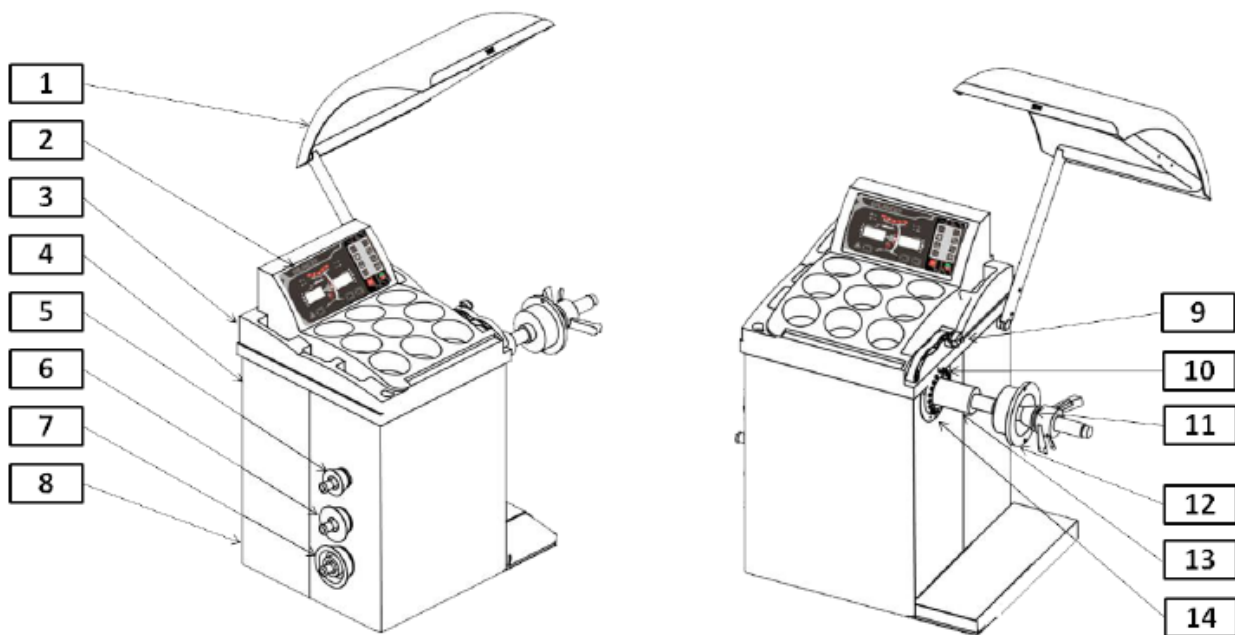


Fig. 1 - Components

English

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Revised edition of the supplied manual

About this manual

This revised edition is based on the supplied 60-page source, version JH202506.1.0 XRDV. The product designation is HAMMER TOOLS CWB 525 PRO. Figures and display codes come from the source; repeated explanations have been consolidated. Read the entire manual before installation and operation, keep it accessible and pass it to the next operator.

Important scope: the source describes several equipment variants and sometimes quotes higher capacities. This shop model is limited here to a maximum wheel weight of 65 kg and a rim diameter of 10-26". Larger menu input ranges do not authorise larger wheels. Check the rating plate and the equipment actually installed. Resolve discrepancies before commissioning; never exceed the lower confirmed limit.

The source omits the exact key or key combination for several special functions. These details are not invented here: names such as OPT, SPL or position search refer to the corresponding function on the installed control panel. If access is not clear on the machine, do not experiment; obtain the applicable operating instruction. Diagnostic access and undocumented key combinations in particular are reserved for qualified service personnel.

The source contains a generic unsigned conformity statement referring to 2006/42/EC and 2014/30/EU; its manufacturer and signature fields are blank. This translation neither replaces a valid machine-specific declaration of conformity nor creates a new manufacturer's declaration. Keep the separate CE documentation and rating plate supplied with the machine. Revision date of this edition: 07 October 2026.

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1. Safety

Only trained personnel may operate the machine. Incorrect inputs or calibration cause incorrect balancing results. Use the machine only within its operating limits. Never remove, damage or bypass safety devices. Stop using faulty equipment. Keep hands, clothing and tools away from rotating parts; attach weights only when the wheel has stopped completely.

Install on a level, solid, vibration-free floor, never on a slope. Provide at least 200 lx of workplace lighting. Protect from rain and direct weather exposure; do not use in explosive atmospheres. The source mentions a shelter for outdoor installation; this does not establish suitability for unprotected outdoor use. The supply must match the rating plate; electrical work is for qualified personnel only.

The protective hood must remain effective. Start a measuring run only with the hood closed; opening it must cause braking. Check condition and operation before use. If the hood switch is faulty, switch off and have it repaired. Disabling the protection, as suggested in the source, is not an acceptable workaround. Wait for standstill before opening the hood and working on the wheel.

Safety labels

Electrical voltage: hazard at the supply connection and switch. Shaft: do not load it during transport or lift the machine by it. Hands: crushing risk when clamping. Hood: opening initiates a protective stop. Earth: protective earth connection. Laser: never look directly into the source. Do not step: not a standing surface. The source's pedal labels apply only where equipped: wheel removal/clamping function with hood open, measurement stop/brake with hood closed. The standard version described here uses a manual quick-release nut.

2. Machine and equipment

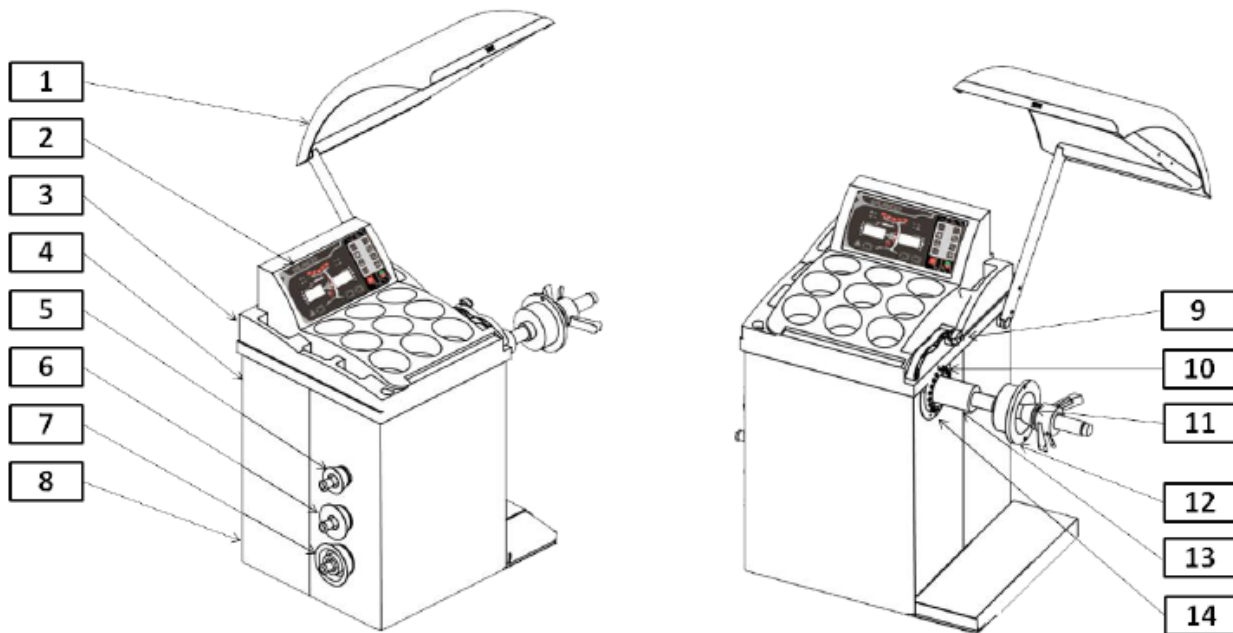


Fig. 1 - Components

Fig. 1: 1 protective hood; 2 display/control unit; 3 ABS cover and weight tray; 4 power switch; 5 cone no. 2; 6 cone no. 3; 7 cone no. 4; 8 housing; 9 automatic measuring arm; 10 laser marker; 11 cone no. 1; 12 mounting flange; 13 balancing shaft; 14 work light.

The source describes DYN, STA1-3, ALU1-7, EALU1-2, OPT, SPL, motorcycle DYN/STA, adapter zeroing, g/oz and mm/", automatic A/D measurement with lighting, arm-guided weight placement, 12/6 o'clock laser positions, automatic position search/locking, calibration and self-diagnosis. Its overview also lists STA4-5 without operating instructions; these are not assumed available here. Ultrasonic B measurement and automatic clamping are not confirmed as standard. Use only functions actually fitted.

Control panel and displays

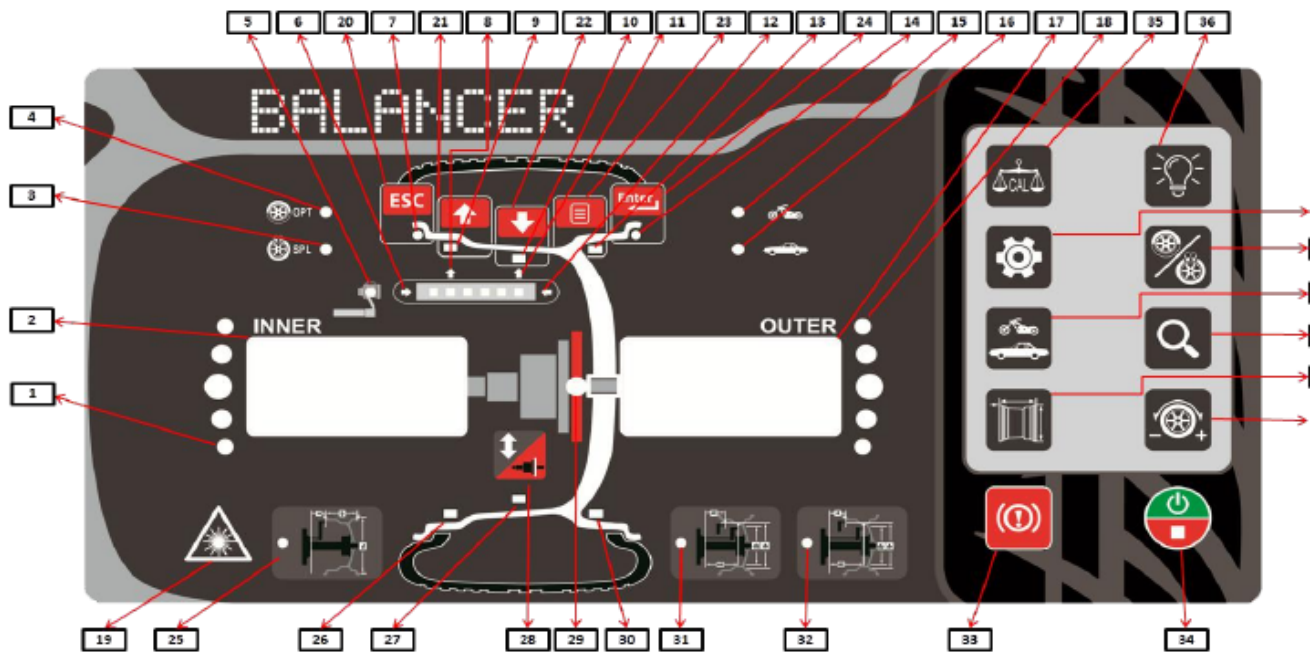


Fig. 2 - Control panel

INNER means the inner plane; OUTER means the outer plane. Indicators show angular position. ESC saves/returns, Enter opens/confirms menu items; up/down increases/decreases values. Hold the wheel-data key (wheel with +/-) while turning the wheel slowly to adjust values. The gear denotes settings, CAL calibration, the bulb lighting, the magnifier fine display, and the vehicle symbol vehicle mode. The red brake key and Start/Stop are at the lower right in Fig. 2. Check the labels on your machine; original figure numbers are visual references, not separate key codes.

3. Technical data

Rim diameter	10-26"
Rim width	1.5-20" (38-508 mm)
Max. wheel diameter	1,000 mm
Max. wheel weight	65 kg
Shaft	40 mm
Motor power	0.25 kW
Source supply; check rating plate	220 V / 50 Hz / 1~
Source ingress protection	IP54
Speed: shop / source maximum	>150 / 200 min ⁻¹
Source measurement time	7-11 s
Source distance A	10-285 mm
Balancing accuracy	±1 g
Source angular error	≤±1°
Source arm error	±1 mm
Source net weight	85 kg
Source environment	-20...+50 °C; RH ≤85 %

This table combines the confirmed shop configuration with supplementary source specifications. The source also lists a 110 V/60 Hz variant; do not substitute that supply for the rating-plate requirement. Inconsistent weight/inch conversions in the source have not been adopted as equivalent limits.

The source states operating noise <70 dB and, separately, sound power <85 dB with uncertainty K = 4 dB under EN ISO 3746:2010 at normal motor speed. These are different quantities, not a guarantee of safe workplace noise exposure. Room conditions, other machines and nearby work affect actual exposure.

4. Transport and installation

Transport and store in the original packaging. Observe orientation and stacking limits marked on it. Move the packaged machine with a forklift of adequate capacity in the indicated lifting direction. Never lift by the balancing shaft. Inspect packaging before opening; report damage to supplier and carrier. Check accessories against the packing list, remove the bolts between the feet and pallet, and place the machine securely. Do not commission it with missing or damaged parts.

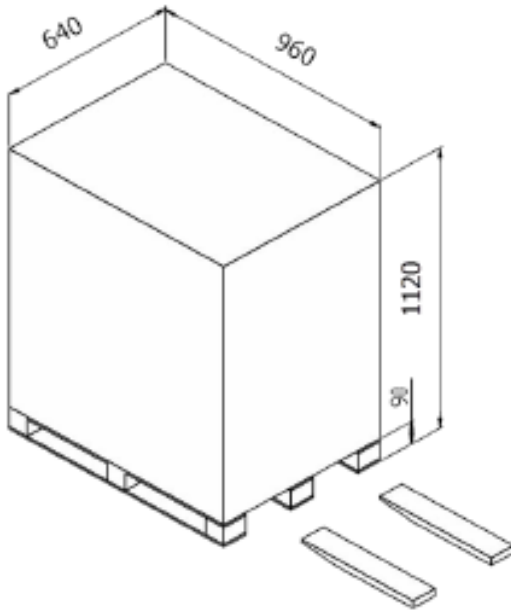


Fig. 3 - Transport

Fig. 4 shows a height of 1,660 mm with the hood open and a 1,240 mm extent in the illustrated side view. Plan-view clearances are 300 mm at the rear, 500 mm on the left and 1,000 mm on the wheel side. Dimensions are in mm. Allow additional room for operation and wheel handling. A suitable socket must be accessible without exposing cables to damage.

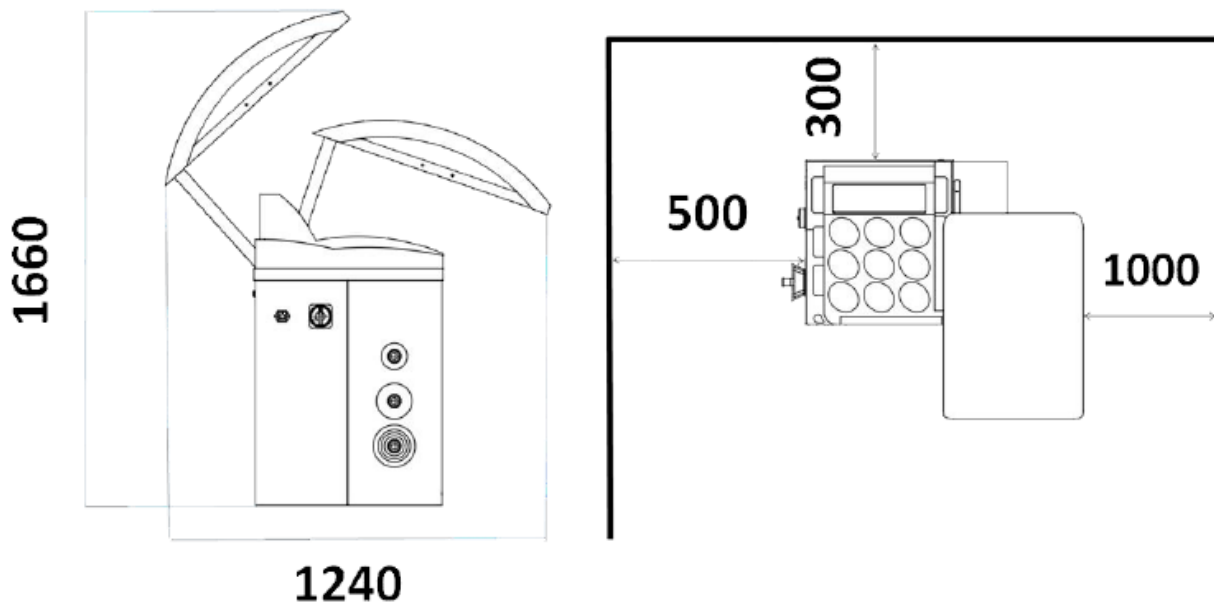


Fig. 4 - Installation space, mm

Fit the threaded shaft from the accessories as shown in Fig. 5. Fit hood support and hood as in Fig. 6; adjust the angle so the front edge of the closed hood is approximately 900 mm above the floor as specified in the source, then secure the fasteners. Fit the cone holders to the housing. Connect the power cable as in Fig. 7 after checking voltage, frequency, protective earth and supply capacity. At power-on the machine self-tests and normally enters DYN.

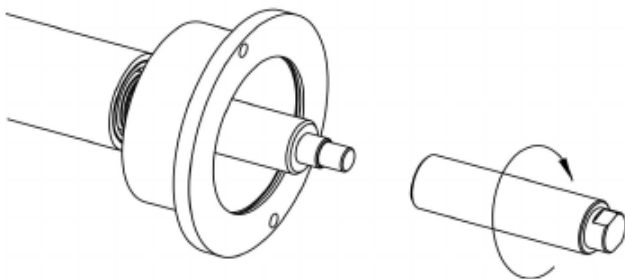


Fig. 5 - Threaded shaft

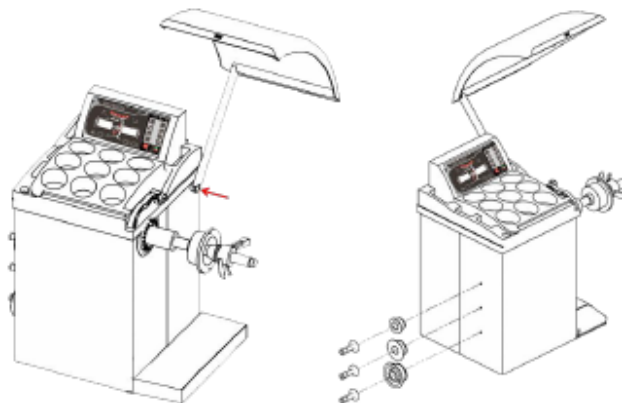


Fig. 6 - Hood and cone holders

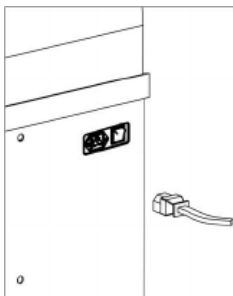


Fig. 7 - Power connection

5. Mounting and removing a wheel

Choose a cone that matches the centre bore: the bore must centre on the tapered surface, not bottom out at the end of the cone. Select forward or reverse mounting as in Fig. 8. Keep mating surfaces clean, centre the wheel correctly and tighten the quick-release nut securely. Check secure mounting before the measuring run. To remove, wait for standstill, release the nut, support the wheel and remove wheel and cone.

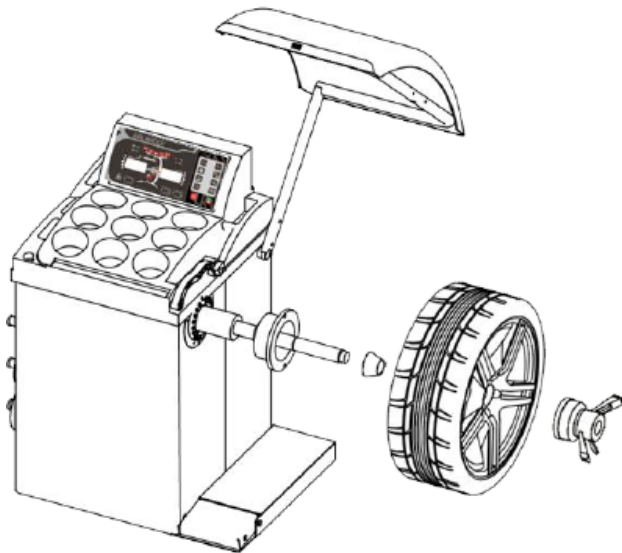


Fig. 8a - Forward mounting

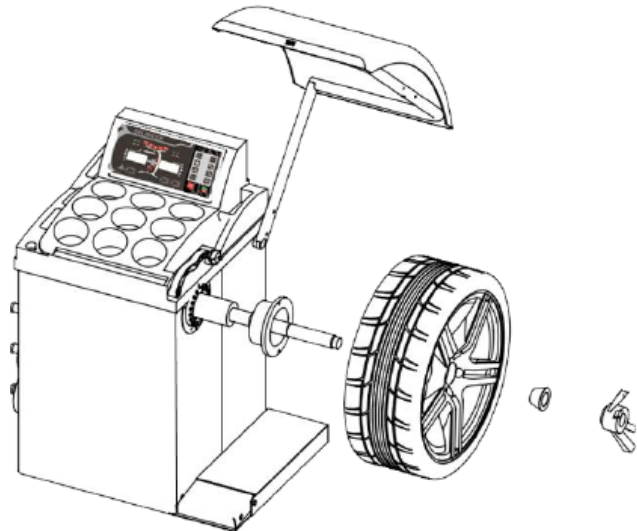


Fig. 8b - Reverse mounting

For very wide wheels the source describes optional extension flange XSTD-2X (Fig. 9); for rims without a centre bore it describes optional fixture XSTD-61 (Fig. 10). Use only compatible adapters; they do not override load or size limits. Adapter management can store up to five adapters with their parameters; select the adapter actually fitted before measuring. The source's access key combination is incomplete and must be confirmed for the machine.

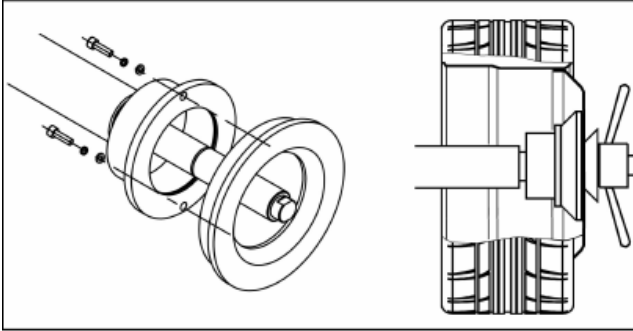


Fig. 9 - Extension flange

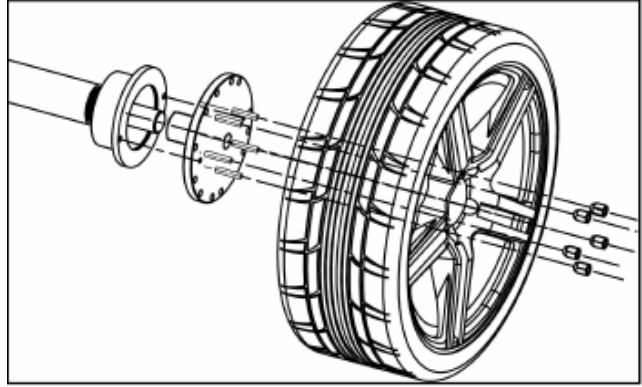


Fig. 10 - Centreless-rim fixture

Important scope: the source describes several equipment variants and sometimes quotes higher capacities. This shop model is limited here to a maximum wheel weight of 65 kg and a rim diameter of 10-26". Larger menu input ranges do not authorise larger wheels. Check the rating plate and the equipment actually installed. Resolve discrepancies before commissioning; never exceed the lower confirmed limit.

6. Entering wheel data

A = distance to the rim/weight plane in mm; D = rim diameter; B = rim width. Correct dimensions and weight planes are essential for accurate results. Examples such as A = 105 mm, D = 16" and B = 6" are not settings for other wheels. Check units before entering data.

Manual entry: select A, D and B in turn. Adjust with up/down, or hold the wheel-data key while slowly turning the wheel forward/backward. Measure actual rim width B with the width gauge and enter it. Return to the measurement display when complete.

Automatic entry: place the arm at the intended rim position and hold for about one second until the beep. A and D are stored. Return the arm fully, then enter B. The automatic width measurement on closing the hood described in the source requires an installed ultrasonic B sensor. Without that sensor, enter B manually. Return the arm to rest before every start.

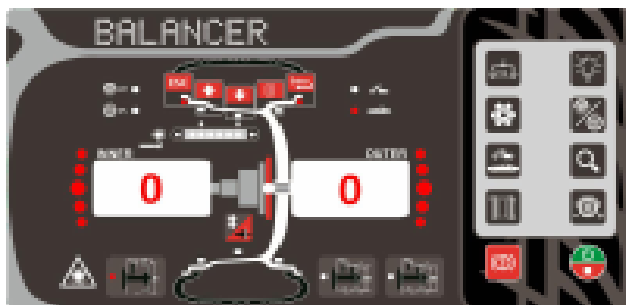
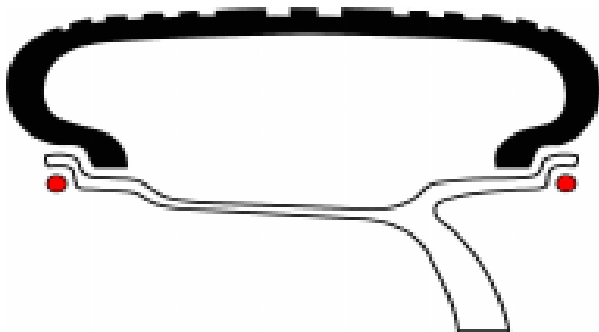


Fig. 12 - DYN

7. Dynamic balancing (DYN)

DYN is the normal power-on mode. The source states that ESC and Enter return from other measuring modes to DYN. Static balancing is recommended for rims narrower than 3". Clamp the wheel securely, select DYN and enter A/D/B. Close the hood; measurement starts automatically if hood-start is enabled, otherwise press Start. Do not interfere during rotation. The machine stops and, if enabled, positions automatically at the larger imbalance.

After standstill, attach the displayed inner weight at the marked 12 o'clock position on the inner rim edge. Use the position function to select the outer plane and attach its displayed weight at 12 o'clock. Source example: 30 g inside, 25 g outside. Always follow the actual readings. Close the hood and perform a check run, aiming for 0/0 within the selected tolerance. For residual imbalance, check centring, dimensions, weight size and placement.



Fig. 12 - DYN

8. Static balancing (STA)

Double-press weight-position key 1, 2 or 3 as described in the source to select STA1, STA2 or STA3. STA1 uses a clip-on rim weight; STA2/STA3 use an adhesive weight on the inner rim surface at different effective radii. D is decisive for static balancing; A/B can also be entered for subsequent mode changes. Existing DYN measurements can be reused for STA. An incorrect effective radius changes the required weight.

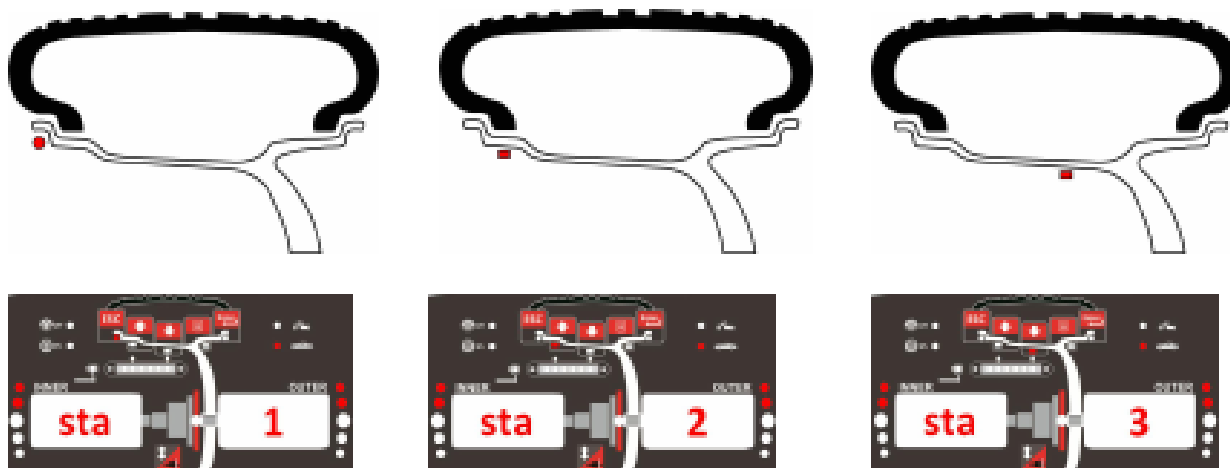


Fig. 15 - STA1 / STA2 / STA3

Select the correct plane, enter diameter, return the arm and measure with the hood closed. After standstill, position the wheel as indicated and attach exactly the displayed weight at the selected plane. Perform a check run. One source example conflicts between 30 g and 35 g; use the actual machine display, not that example value.

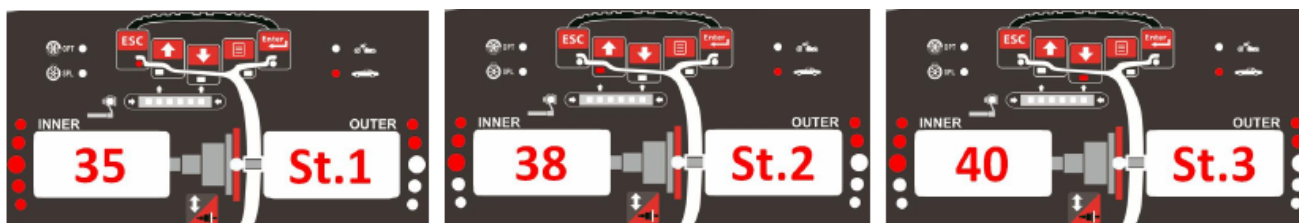


Fig. 17 - Different effective radii

9. Tyre/rim optimisation (OPT)

OPT is intended only for DYN or STA. Changing the angular relationship between tyre and rim can reduce the correction weight required. The adjustable starting threshold is 30-100 g of static imbalance. Below it, the machine indicates OPT is unnecessary and returns. If imbalance is sufficient, select OPT; any active position lock is released.

OPT1: mark the tyre at the valve position with chalk. Turn the valve to 12 o'clock, hold it there and confirm the step. OPT2: remove the wheel, demount the tyre with a suitable tyre changer, clamp the bare rim on the balancer, turn the valve to 12 o'clock again and confirm. Tyre work requires trained personnel and suitable equipment.

OPT3: close the hood and run the optimisation measurement. The display shows the predicted remaining imbalance after optimisation, 15 g in the example. After standstill, turn the rim until the outer position indicator is fully lit; mark the rim at 12 o'clock. Remove it and refit the tyre with its original mark aligned to the new rim mark. End the program, rebalance and check the wheel. OPT can be cancelled, but any dismantled wheel must still be correctly reassembled and checked. Exact confirmation/cancel keys are omitted in the source; observe the note on missing key instructions.

10. Alloy rims (ALU)

ALU1-7 differ in the position and type of the two correction weights. According to the source, weight-position keys 2 + 4 select ALU1; other combinations of keys 1-5 select the remaining programs. Fig. 18 shows the planes. Choose a mode matching the actual weight placement, with planes spaced as far apart as practicable. Enter A/D/B. Existing DYN measurements can be reused when changing mode. The machine derives weight positions from rim data; observe the geometry in Fig. 20.

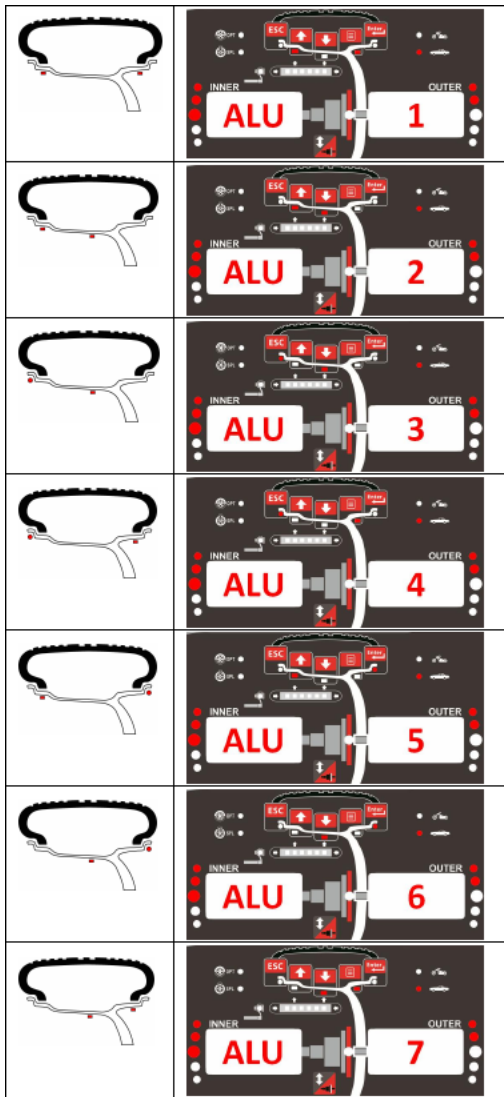


Fig. 18 - ALU1-7: weight planes

Measure with the hood closed, wait for standstill and fit the displayed weights at the chosen planes. Source ALU2 example: 30 g inside at 12 o'clock, 3/4" inwards from the rim edge; 25 g outside at 12 o'clock, 1/2" inwards from the illustrated flange edge. These offsets apply only to the illustrated ALU2 geometry, not universally. Then check for 0/0. EALU is useful for freely chosen adhesive planes because their positions are measured directly.

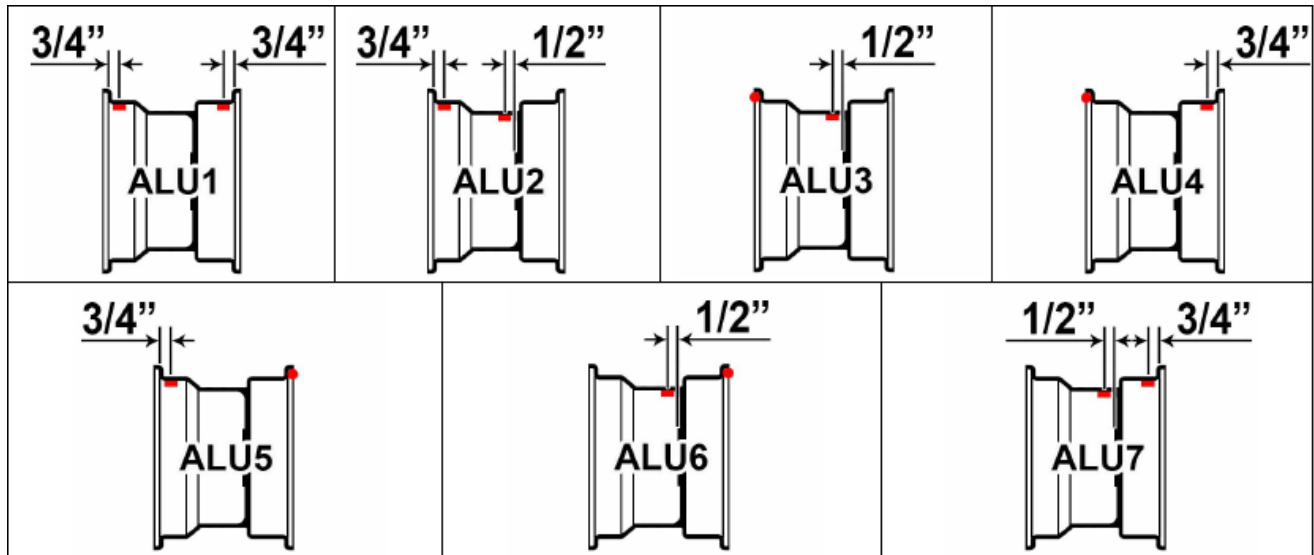


Fig. 20 - ALU geometry

11. Measured weight planes (EALU)

Measure position 1 and then position 2 with the arm, holding each until the beep. Do not return the arm to rest between the two measurements. The machine identifies EALU1 or EALU2 from the points (Fig. 21). EALU1 uses adhesive weights inside and outside; EALU2 uses a clip-on weight inside and adhesive weight outside. Return the arm, close the hood and measure. After standstill, automatic positioning/locking at the larger imbalance occurs if enabled.

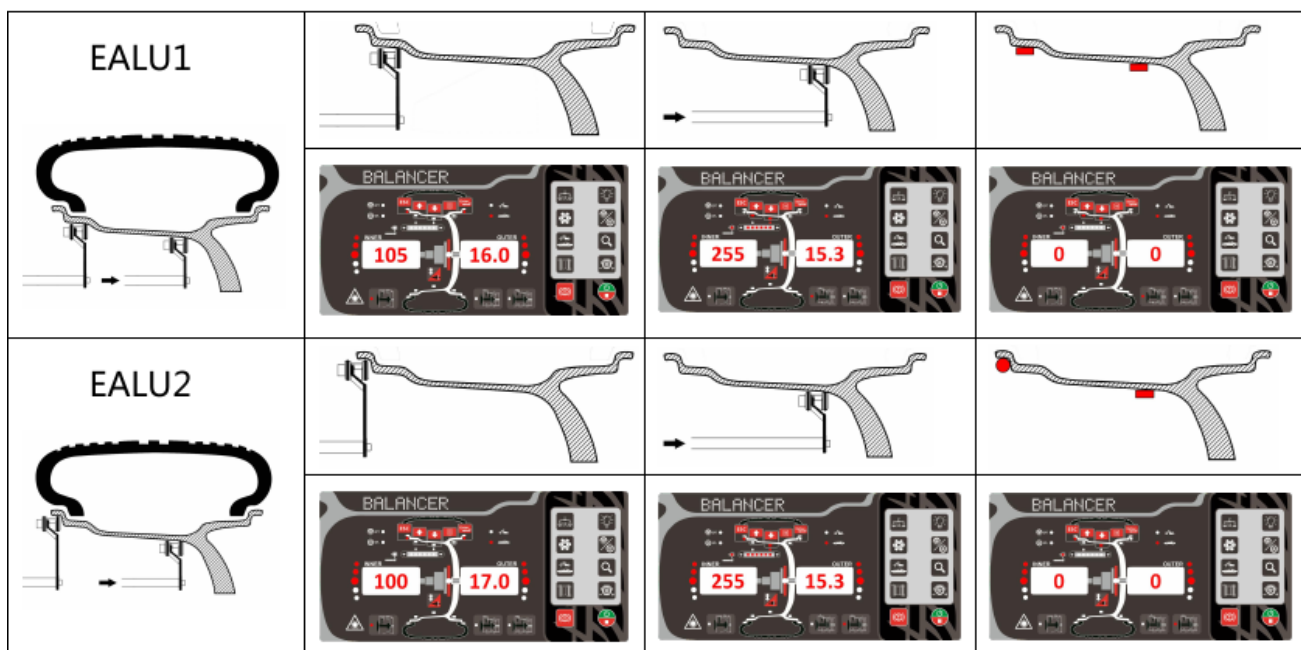


Fig. 21 - EALU1 / EALU2 measuring points

For the outer adhesive weight, follow the flashing value, e.g. 55 g. Remove the backing and place the weight adhesive-side up in the arm holder (Fig. 23). Extend the arm following the LED arrows. Beeps become faster near the target and continuous at the correct position. Press the weight in place and return the arm (Fig. 24). Select the inner plane with the position function: for EALU1 use the arm and adhesive weight similarly; for EALU2 fit the clip-on weight at the 12 o'clock laser mark. Perform a check run.

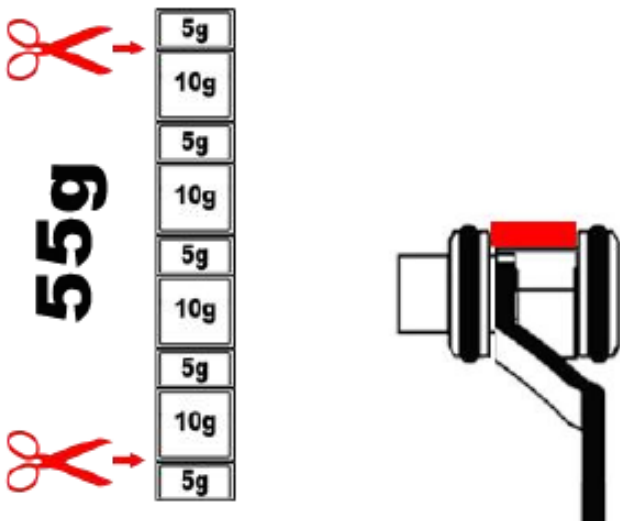


Fig. 23 - Weight in arm holder

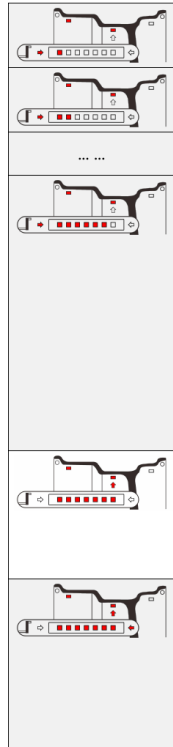


Fig. 24 - Arm guidance: target at continuous tone

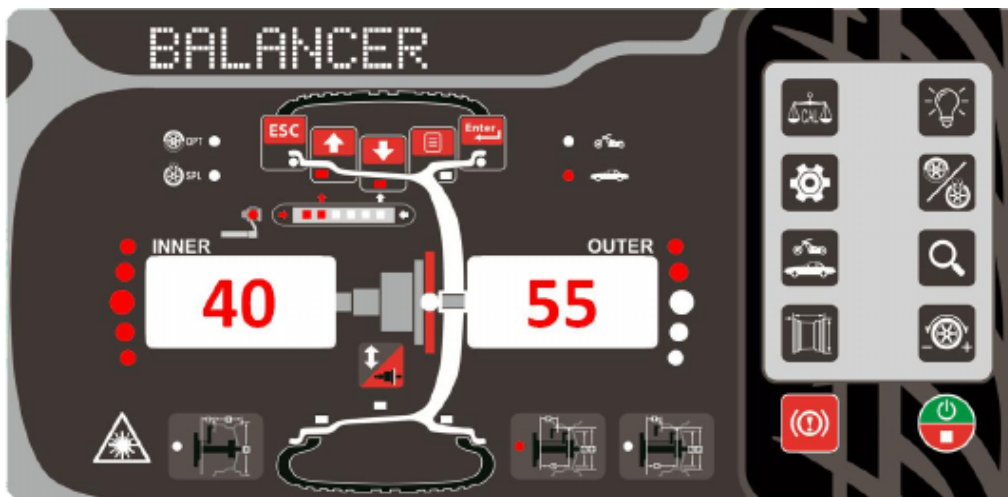


Fig. 25 - EALU1 inner plane

12. Hiding weights behind spokes (SPL)

SPL divides an outer adhesive correction vector between two neighbouring spokes. The two weights are not simply halves of the original. It applies to outer imbalance in ALU2, ALU3 and EALU. Measure first, then select SPL. If the required position is already behind a spoke, splitting may be unnecessary. Always check after fitting both displayed split weights.

SPL1 for equally spaced spokes: at “Hid”, set the spoke count from 3 to 10 by holding the wheel-data key and slowly turning the wheel. Place any spoke at 12 o'clock and confirm. The machine calculates the two hidden positions. Follow each position indication and fit the displayed mass behind the corresponding spoke. Use SPL2 for unequal spoke spacing.

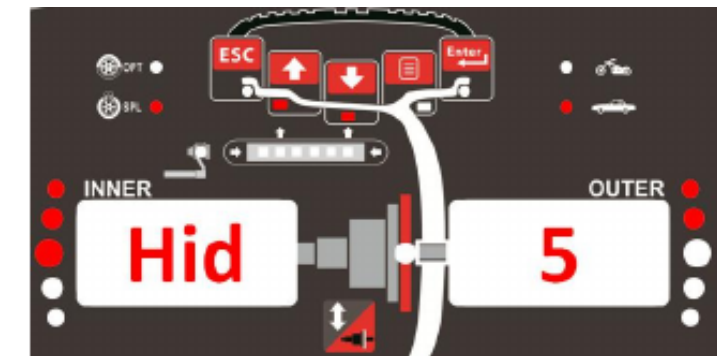


Fig. 26 - SPL1: spoke count

Hid=3	Hid=4	Hid=5	Hid=6	Hid=7	Hid=8	Hid=9	Hid=10

Fig. 27 - 3-10 spokes

SPL2: turn the first adjacent spoke on one side of the intended correction position to 12 o'clock and confirm at "SP.1". Turn the adjacent spoke on the other side to 12 o'clock and confirm at "SP.2". Fit both calculated weights at their indicated positions. Exit SPL and perform a check run. The source names the function but omits the exact entry/exit keys; do not guess key combinations.



Fig. 28 - Spoke at 12 o'clock

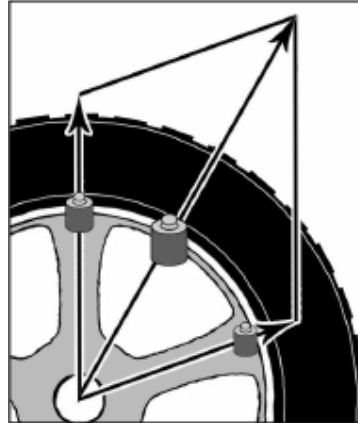


Fig. 29 - Vector split

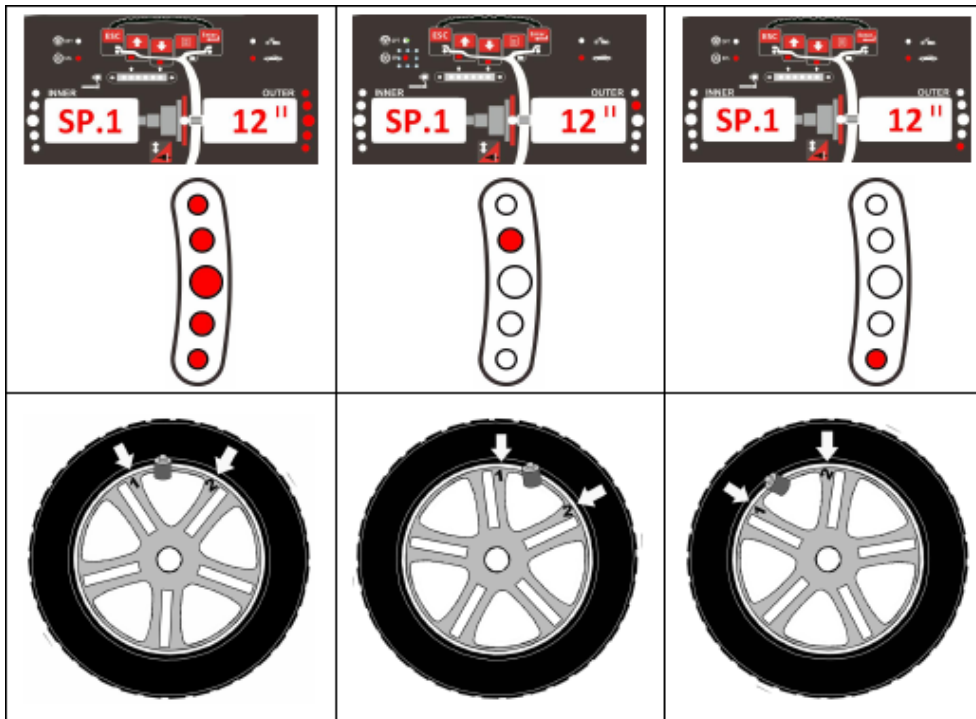


Fig. 32 - SPL2: adjacent spokes

13. Motorcycle wheels and adapters

Use the correct motorcycle adapter and measuring-arm extension (Figs. 33-35). Fit the adapter without a wheel and select motorcycle mode. Perform adapter zeroing ("to CAL"): close the hood, wait for the run to finish and check the zero display (Fig. 36). Then secure the wheel as in Fig. 37. Fit the arm extension, enter A/D/B correctly and balance dynamically as in section 7. For static motorcycle balancing select weight position 3 and follow section 8. Check mounting and zeroing after adapter changes or implausible results. The source confirms zeroing but does not provide its complete key combination.



Fig. 33 - Motorcycle mode

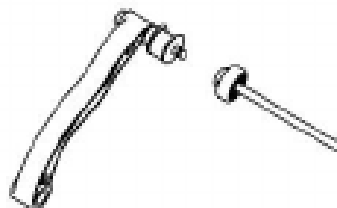


Fig. 34 - Arm extension

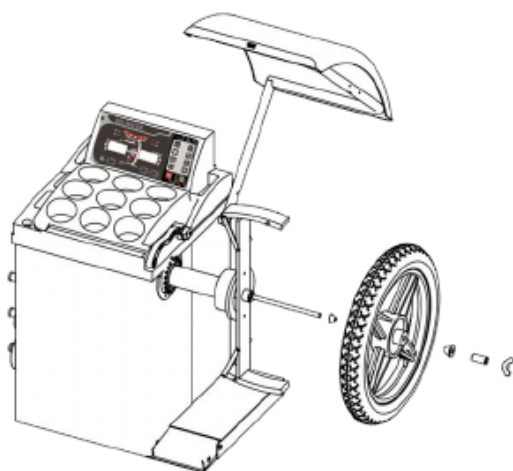


Fig. 35 - Motorcycle adapter

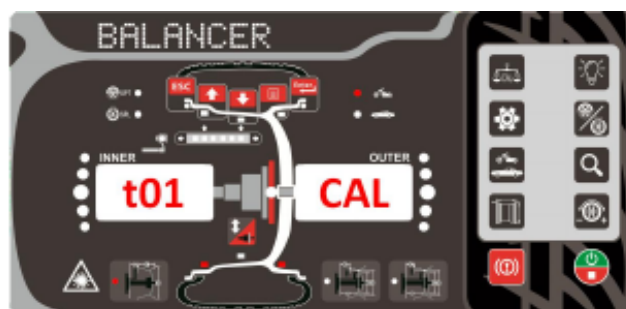


Fig. 36 - Zero adapter

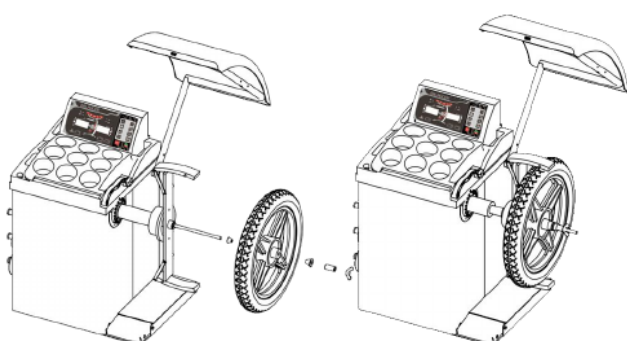


Fig. 37 - Mounting motorcycle wheel

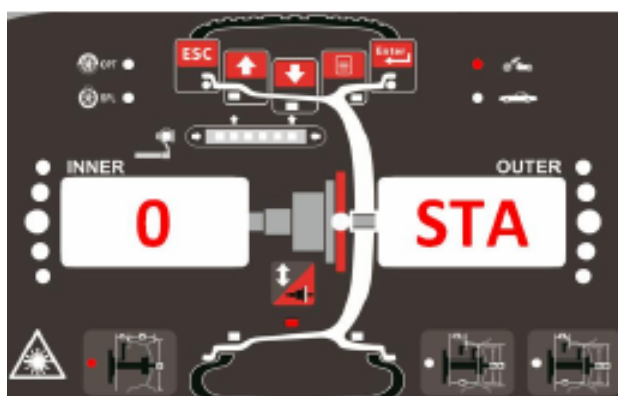


Fig. 38 - Motorcycle STA

14. Additional functions

Fine display: hold the magnifier key to view unrounded INNER/OUTER imbalance values; release it to restore the stepped display. Example: 30/25 g on the normal display corresponds to 31/24 g on the fine display. The source mentions a key combination to latch fine display but does not identify it fully. No combination is specified here.

Cleaning position: the adhesive-surface positioning function can indicate 12 or 6 o'clock; the laser marks the location. Clean only at complete standstill, keeping clear of any automatic movement. Ensure a clean, suitable bonding surface before applying weights. The position diagrams do not replace selection of the correct ALU/EALU program.

Lighting: the lamp key switches the work light on/off manually; it switches off automatically after 100 seconds. Arm movement can also control it if enabled. Sleep mode: after the selected idle time, main functions enter standby; a key press or operating movement wakes the machine. Sleep does not safely isolate the supply and is not a substitute for disconnection before maintenance.

Precision mode: in DYN, 0/0 is reached within the described residual range below 5 g inside/outside and below 5 g static, taking residual static imbalance into account. Saving mode reduces weight usage within the intended balancing accuracy. A high display threshold can hide residual imbalance; zero does not mean absolutely no imbalance. Select g/oz and mm/" in settings.

15. Settings

Open the settings function. Enter opens/confirm, arrows change values, ESC saves and returns. The wheel-data key with slow wheel rotation can also adjust values. Information menu: software version/release date and cumulative usage count. Menu groups cover information, hood, imbalance display, A/B/D parameters and auxiliary functions.

Hood: "eff on" enables safety monitoring and must remain active during operation. "ctl on/off" separately controls automatic measurement start when closing. Disabling automatic start must not be confused with disabling safety monitoring. Do not measure with defective monitoring.

Imbalance display: default unit g or oz. Suppression threshold 0-50 g or 0-1.75 oz; smaller values are hidden. Saving mode "On", precision mode "Off". Choose deliberately; do not use suppression to conceal an incorrect result.

A: startup value adjustable 10-350 mm, default 115 mm. D: mm/"; resolution 1 or 5 mm, or 0.1 or 0.5"; startup range 254-813 mm (10-32"), default 572 mm (22.5"). B: mm/"; with the same resolutions; startup range 38-636 mm (1.5-25"), default 209 mm (8.25"). These menu ranges partly exceed approved measuring/wheel limits: retain 10-26", width 1.5-20" and maximum 65 kg. A/D share an assembly and can be disabled together for temporary manual entry after an arm fault. This does not permit disabling safety functions.

Other settings: beeper on/off; sleep Off or 5, 10, 15, 20, 25, 30, 40, 50, 60, 90, 120 minutes; laser on/off; arm-controlled light on/off; OPT threshold 30-100 g (alternative display 1.00-3.50 oz); automatic position search/locking on/off. Check and save the intended values before leaving the menu.

16. Calibration

Only instructed personnel may calibrate. Incorrect calibration invalidates all results. Open calibration through CAL/function selection and navigate with Enter, arrows and ESC. Close the hood for every run. Prepare a sound wheel with a 14-17" steel rim and the correct 100 g test weight; arm calibration requires gauge XSTD-02. Do not substitute arbitrary weights or improvised gauges. Check plausibility with a reference wheel afterwards.

Weight calibration "CAL -G-", three steps (Fig. 57): 1. Secure the wheel and measure without the added test weight; the program advances automatically. 2. Clip 100 g to the outside at 12 o'clock, close the hood and measure. 3. Remove that same 100 g from the outside and clip it inside at 12 o'clock; measure again. The program then returns to calibration. Remove the test weight afterwards.

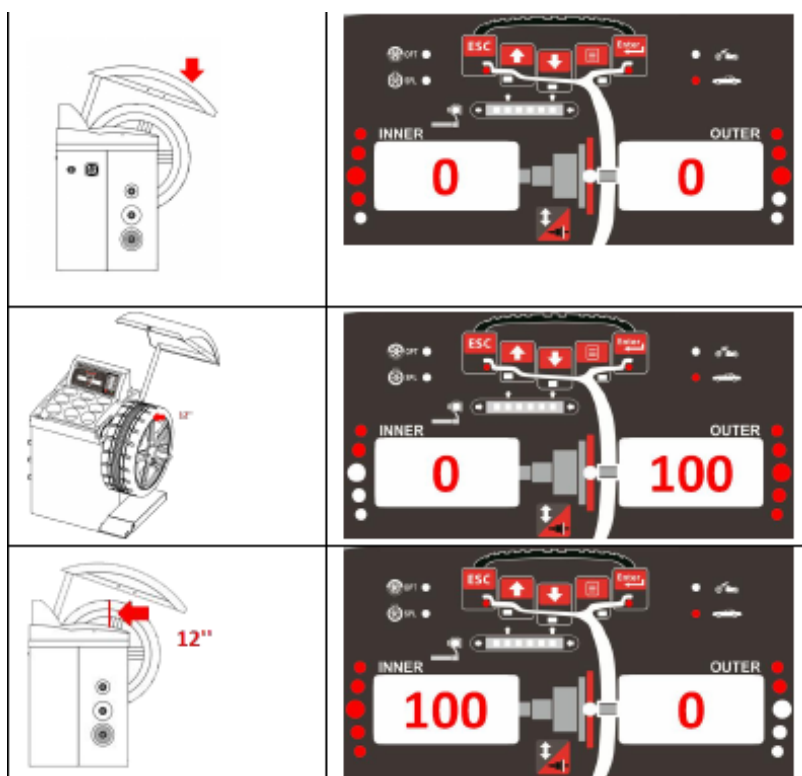


Fig. 57 - No test weight / 100 g outside / 100 g inside

Shaft zero calibration "CAL G-0" (Figs. 58/59): mount a 14-17" steel-rim wheel. Mark a common reference position on hub and shaft, close the hood and run the first measurement. At standstill, loosen the wheel, rotate it exactly 180° relative to the shaft and secure it again. Perform the second run with the hood closed. Calibration completes and the menu returns.

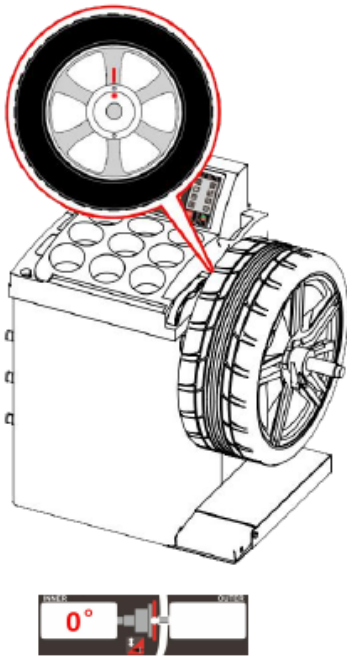


Fig. 58 - Shaft calibration: starting position

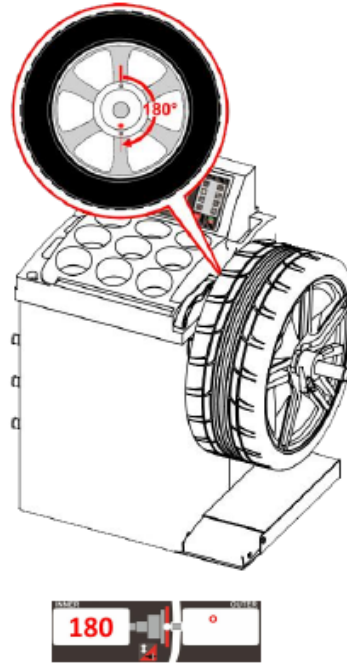


Fig. 59 - Wheel shifted by 180°

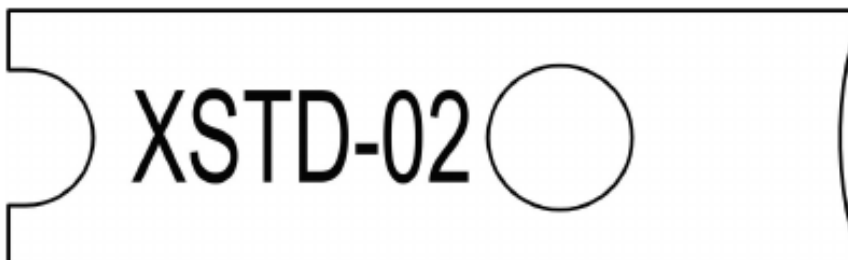


Fig. 60 - Calibration gauge XSTD-02

A calibration “CAL -a-” (Fig. 61): fully return the arm to zero (“CL.a a0”) and confirm. At “CL.a 100”, place XSTD-02 between arm and housing as illustrated and confirm. “a=...” now follows arm movement. Fully return the arm to finish. D calibration “CAL -d-” (Fig. 62): confirm the arm at zero (“CL.d d0”). At “CL.d d1”, place the gauge between arm and shaft as shown and confirm; “d=...” displays the measured value. Confirm the next step: the laser lights. Align the centre of the arm head with the laser line (“CL.d 0°”) and confirm. The source does not show the exact confirmation key in these paragraphs; establish it from the machine-specific instruction before service work.

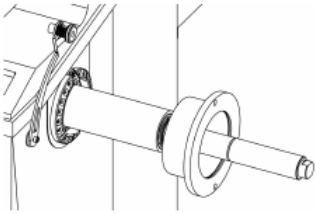
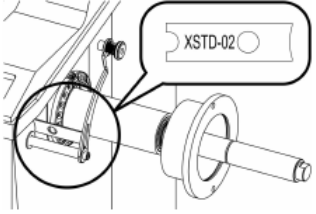
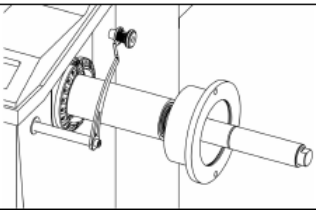
1		
2		
3		

Fig. 61 - A: zero / 100 mm / check

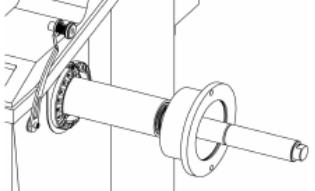
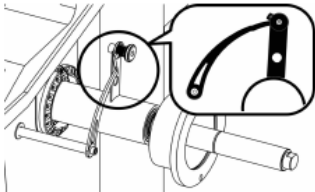
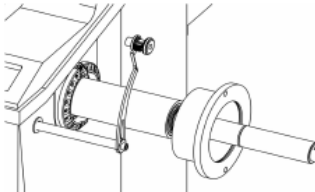
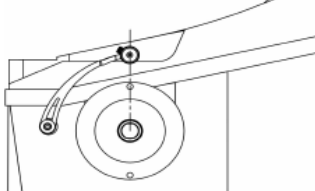
1		
2		
		
3		

Fig. 62 - D: zero / reference / laser alignment

17. Diagnostics and service

Diagnostics and internal work are for qualified personnel only. Disconnect and secure against reconnection before opening. The source describes diagnostic entry by holding a key during power-on and then pressing plus, but omits the first key. This is not a complete access instruction: do not guess it. Diagnostic values support troubleshooting and do not authorise work on exposed live parts.

LED test: segments and indicators light in sequence. Key/switch test: INNER/OUTER show the number of the operated key or hood switch; the source's two-key exit combination is incomplete. Encoder: turn the wheel by hand; POS should run from 0 to 359°, with P0/P1/P2 showing sensor signals. Piezo sensors: each channel ranges from -2048 to +2048, near zero at rest; each of the two sensors has two channels selected with arrows.

A test: arm extension should match the 0-350 mm reading. D test: raise the arm; the display should match the checked rim diameter, e.g. 14". Optional ultrasonic B test: move an object in front of the sensor; the distance reading should respond. Motor test: while Start is held, INNER/OUTER show rpm; up = forward, down = reverse, red brake key = electromagnetic lock (Fig. 51). Perform only under controlled service conditions with effective guarding.

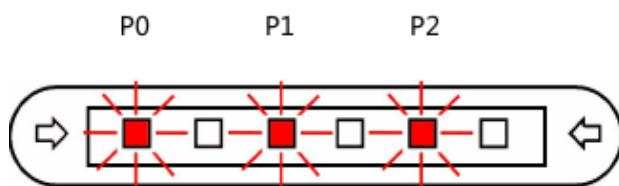


Fig. 45 - Encoder signals



Fig. 51 - Forward / reverse / lock

18. Display codes

Off Off	Stop activated
Go Go	Measurement running
dyn bal	Dynamic balancing
St.1...St.3	Static mode 1-3
- -	Idle/standby display
a=... / d=... / b=...	Distance / diameter / width input
a1=... / a2=...	Plane 1 / 2 distance
d1=... / d2=...	Plane 1 / 2 diameter
6 / 12	Working/cleaning position at 6 / 12 o'clock
CAL -G-	Weight calibration
CAL G-0	Shaft zero calibration
CAL -a-	Calibrate measuring arm A
CL.a a0 / CL.a 100	A zero / A at 100 mm
CAL -d-	Calibrate measuring arm D
CL.d d0 / CL.d d1	D zero / D reference position

18. Display codes

CL.d 0°	Measuring-head zero angle
CAL -b- / CL.b...	B calibration / reference length; only with option and matching service instruction
Spd... / tst	Speed rpm / test status
no FLA / Set FLA	No adapter / configure adapter
-x- yyy	Adapter x: parameter yyy mm
no. -1-...no. -5-	Configure adapters 1-5
FLA -1-...FLA -5-	Select adapters 1-5
Opt / SPL	Optimisation / spoke split
Hid / SP.1 / SP.2	Spoke count / first / second spoke
to CAL	Zero motorcycle adapter
ALU -1-...ALU -7-	ALU mode 1-7
AL.S -1-...AL.S -2-	EALU mode 1-2

19. Faults and remedies

Wait for standstill before any intervention and disconnect before mechanical/electrical work. Operators should perform only the simple checks described here. Repairs to boards, drive, sensors and safety switches require qualified personnel. Do not overcome recurring faults by repeated starts or disabling protection.

Err 00	Wheel lift not down. If fitted, lower fully to the floor; otherwise have service check configuration.
Err 01	Hood open at start: close it. If fault persists, have the switch checked/repared. Stop use; do not disable protection.
Err 02	Speed too low. Service checks motor control/power board, belt and encoder. With credible reading below 150 rpm, also check frequency/rating plate: a 60 Hz version on 50 Hz may be the cause. Do not modify electrics yourself.
Err 10	A arm fault. Restart; if persistent, diagnostics/service. Temporarily enter A/D manually only if all other functions are safe.
Err 11	A not calibrated: calibrate under section 16.
Err 12	A not at zero: fully return the arm.

19. Faults and remedies

Err 15	D arm fault. Restart; if persistent, diagnostics/service. Temporary manual A/D only with otherwise safe equipment.
Err 16	D not calibrated: calibrate under section 16.
Err 20	Optional B sensor fault. Restart; service checks connector with power isolated. Enter B manually temporarily if needed.
Err 21	B not calibrated. Matching service instruction required; source has no complete B calibration procedure.
Err CAL	Factory settings absent: qualified service required; do not invent values.
Err Data	Calibration procedure error: check section 16 and correct gauge/position, then repeat correctly.
Err SYS	System fault: stop use and obtain service.

20. Care, decommissioning and disposal

The source provides no defined maintenance schedule or lubricant specification. This edition does not invent intervals or lubricants. Before use check for damage, secure wheel/adaptor mounting, clean contact surfaces, sound hood and cables. Keep the machine clean and dry; prevent liquid entering electrical parts. If repeatability changes, first check centring, contamination, inputs and calibration. Perform further maintenance according to machine-specific service instructions.

Decommissioning/dismantling requires trained personnel. Switch off and disconnect all electrical connections, secure against reconnection and verify absence of voltage; cover or isolate adjacent live parts. If pressure lines are connected, isolate and fully depressurise them. Secure the machine against tipping/sliding. Separate components by material and collect any operating fluids separately for disposal under local rules. The source mentions oil, refrigerant and glycol generically; this does not establish their presence in this machine. Establish transport data and safe lifting points before loading.

The source states operating noise <70 dB and, separately, sound power <85 dB with uncertainty K = 4 dB under EN ISO 3746:2010 at normal motor speed. These are different quantities, not a guarantee of safe workplace noise exposure. Room conditions, other machines and nearby work affect actual exposure.

21. Electrical schematic overview

The source diagram is a service overview, not an instruction for untrained intervention. Connector/wire identifiers are unchanged. It may show optional assemblies and a different display variant; compare actual wiring and rating plate before work. Only qualified electrical personnel may inspect or repair; isolate safely first.

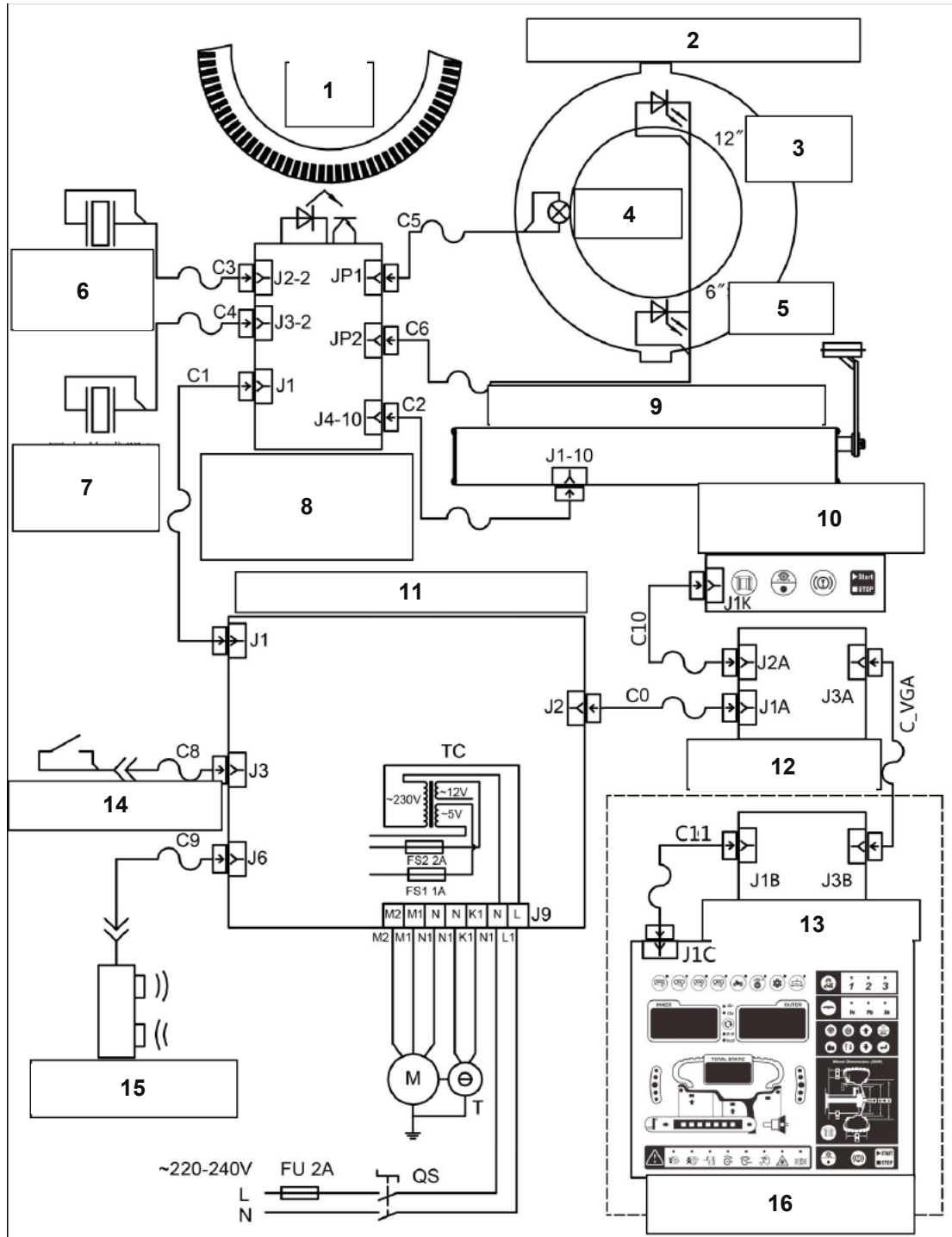


Fig. 76 - Electrical schematic overview

Schematic legend

1. Encoder disc
2. Laser/lighting assembly
3. 12 o'clock laser
4. Work light
5. 6 o'clock laser
6. Piezo sensor 1
7. Piezo sensor 2
8. Encoder/sensor board
9. Automatic A/D measuring arm
10. Keyboard board
11. CPU mainboard and drive board
12. Adapter board A
13. Adapter board B
14. Hood switch
15. Ultrasonic B sensor (optional)
16. LED display controller

Documentation note

The source contains a generic unsigned conformity statement referring to 2006/42/EC and 2014/30/EU; its manufacturer and signature fields are blank. This translation neither replaces a valid machine-specific declaration of conformity nor creates a new manufacturer's declaration. Keep the separate CE documentation and rating plate supplied with the machine. Revision date of this edition: 07 October 2026.