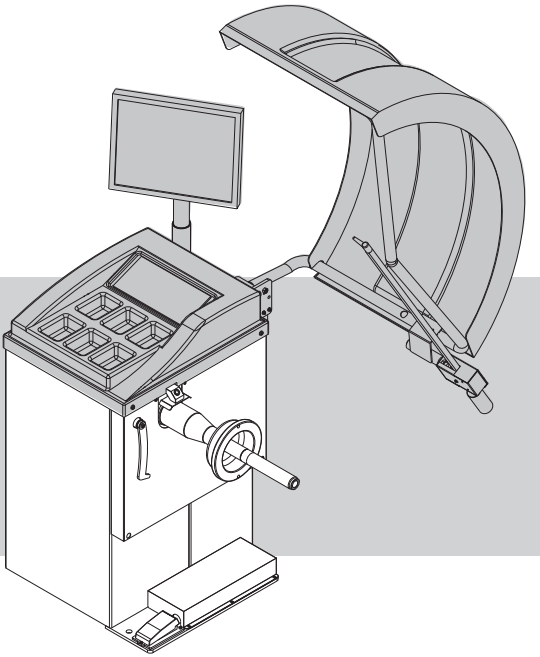
HESHBON®

HESHBON Wheel Balancer

Installation/Operation & Maintenance Manual



HW-105

Before use, read and understand this manual thoroughly. "Safety Cautions" are established to keep your safe and prevent damages on properties, so you are wanted to read them carefully. The manual may be changed without any prior notice for quality improvement.

Thanks you for purchasing this automobile maintenance device of HESHBON.
To use this product safely and efficiently, it is useful to read this manual carefully.
Better quality and service will be given to you.

- Make sure to always keep this manual for future reference.
- Refer to this manual for components, installation instructions, usage and quality assurance.
- For safety purpose, this product should be also given to end users.

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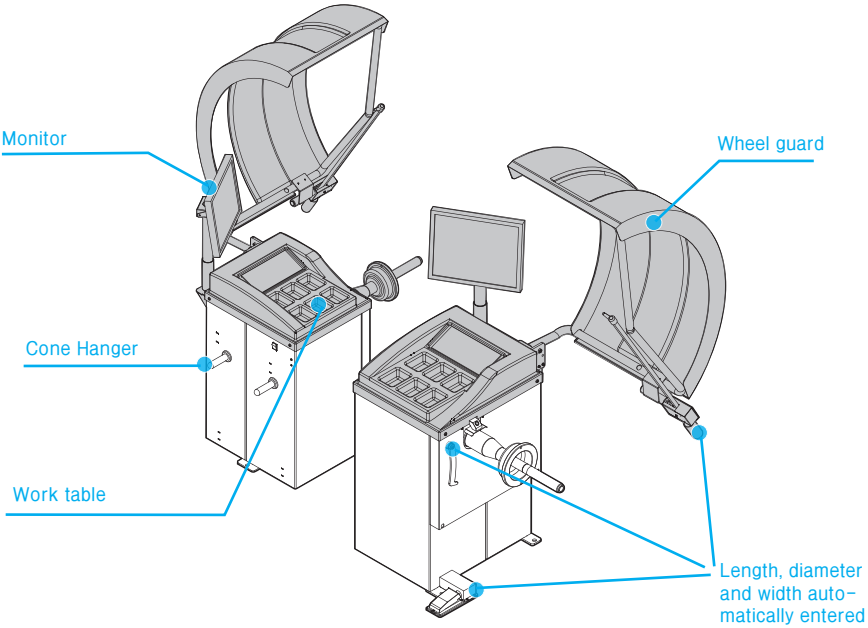
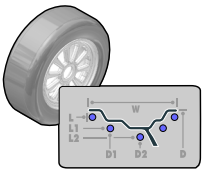
■This manual is prepared on March 2009.
Specifications in this manual are subject to change for quality improvement without prior notice.

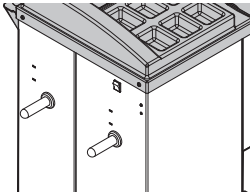
Features





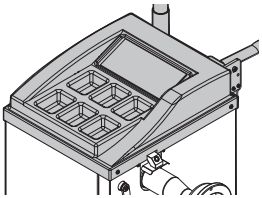
■ Various modes to balance wheels

▶Various modes are supported so that tire wheel can be facilitated conveniently and easily. Especially, aluminum wheel function is additionally supported to be applicable to aluminum wheel recently used by plentiful drivers.



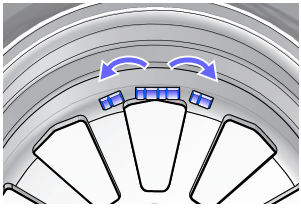
■ Cone Hanger

▶Cones used for holding tires can be easily and conveniently hung on this hanger. Besides them, other various tools can be placed on them.



■ Work Table

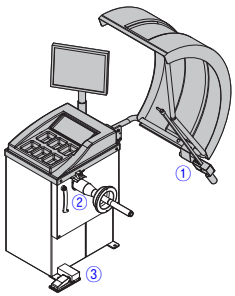
▶6 weight pockets(weights) are available to adjust the balance of wheel and arranged by sizes.



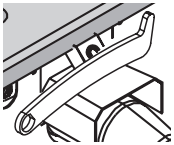
■ Weight separation for aluminum wheel

▶Unbalanced position on an aluminum wheel 's outer plane is divided into two parts, enabling lead weights to be applied behind two wheel spokes.

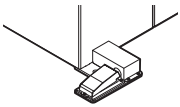
① Width gauge



②Automatic gauge arm

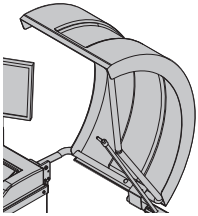


③ brake pedal



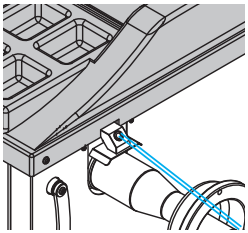
■ Distance, diameter and width automatically entered

▶Wheel's specifications, length, diameter and width can be conveniently and automatically measured using brake pedal, automatic gauge arm width gauge. (option)



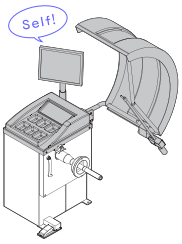
■ Wheel guard as a safeguard for operators

▶Wheel guard is prepared to ensure the safety and convenience of operators during working.



■ Laser pointer(Option)

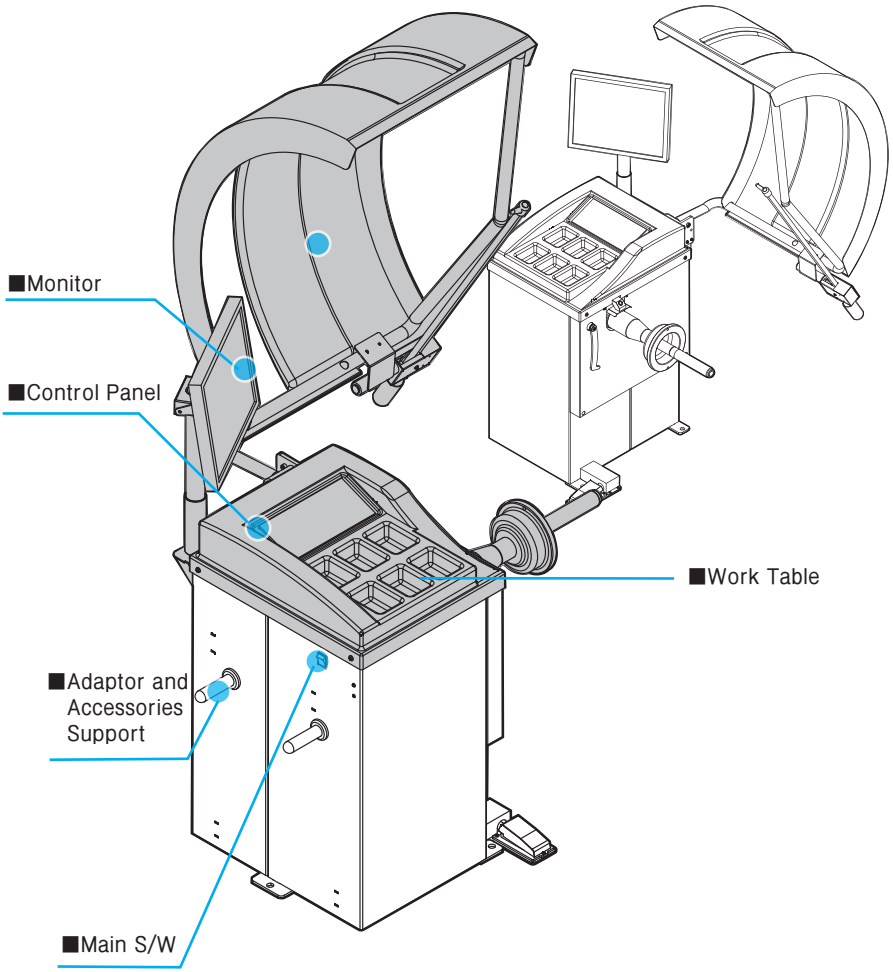
▶Laser pointer indicates the exact weight correction point with the laser beam so that can apply the weight easily after measuring.

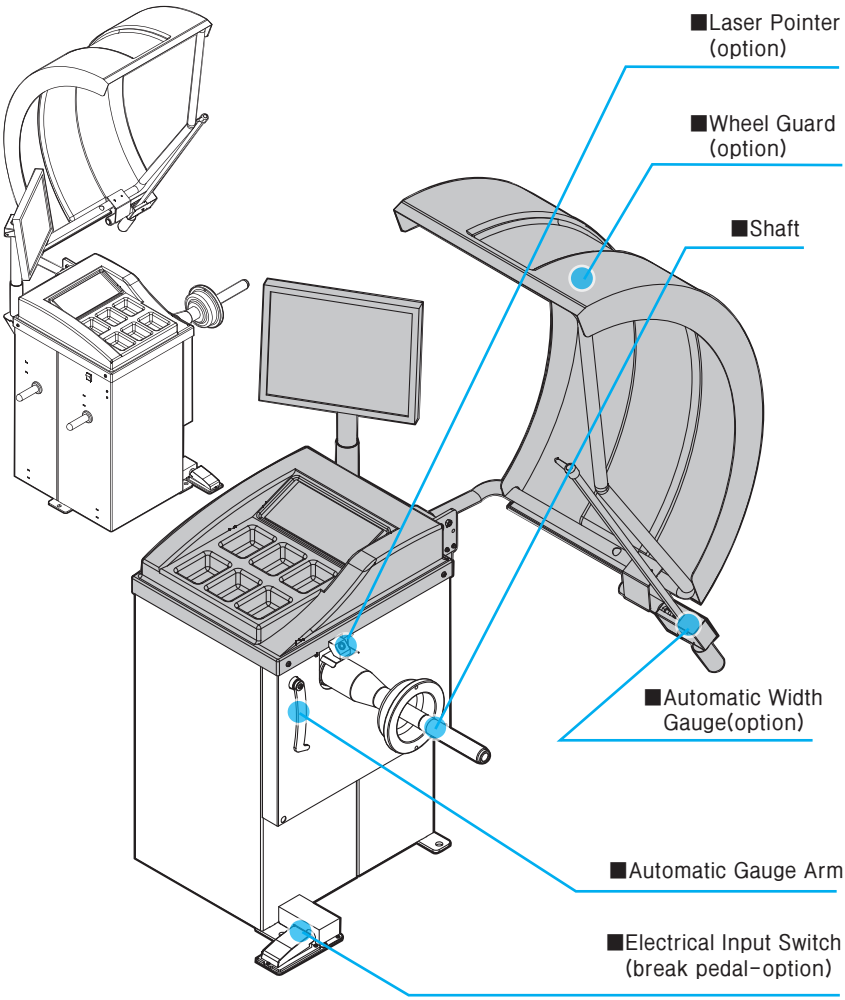


■Self-calibration function

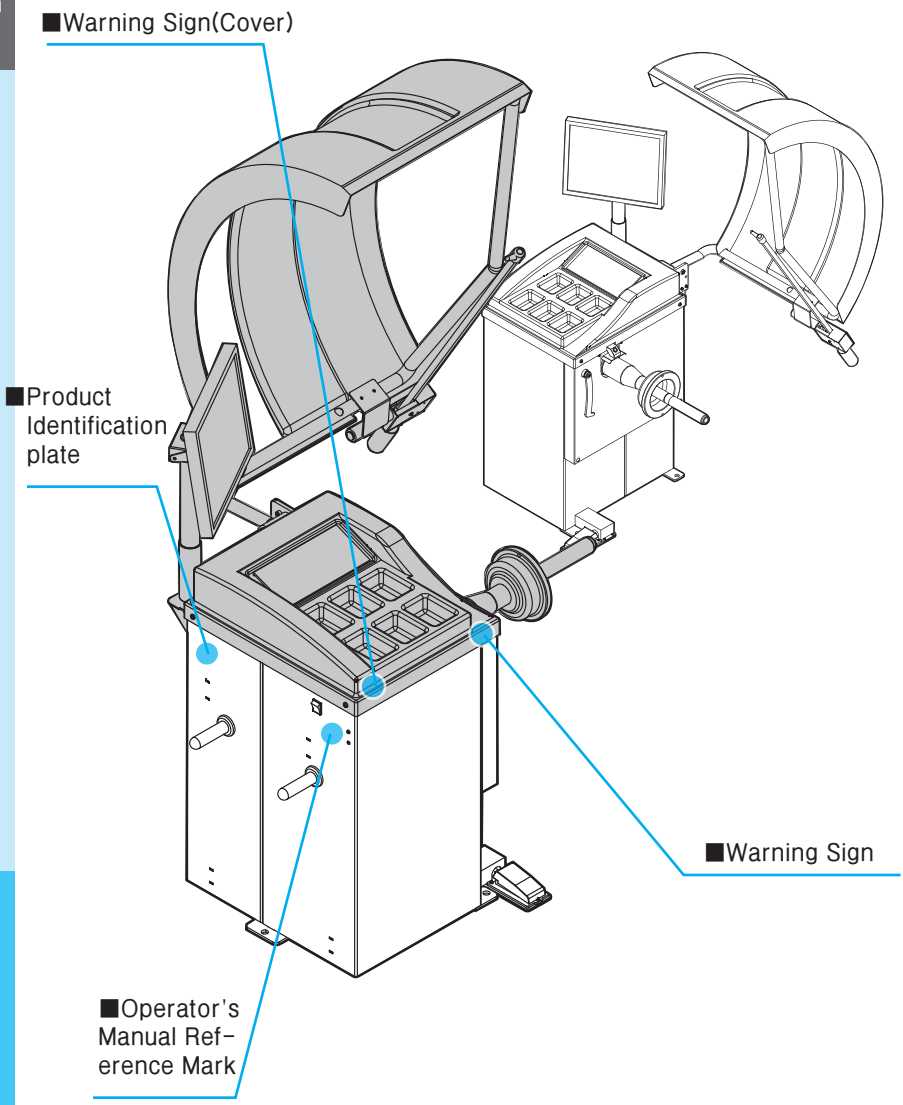
▶Self-calibration is to be executed for precise repairs in order to assure right measurements by zero-setting.

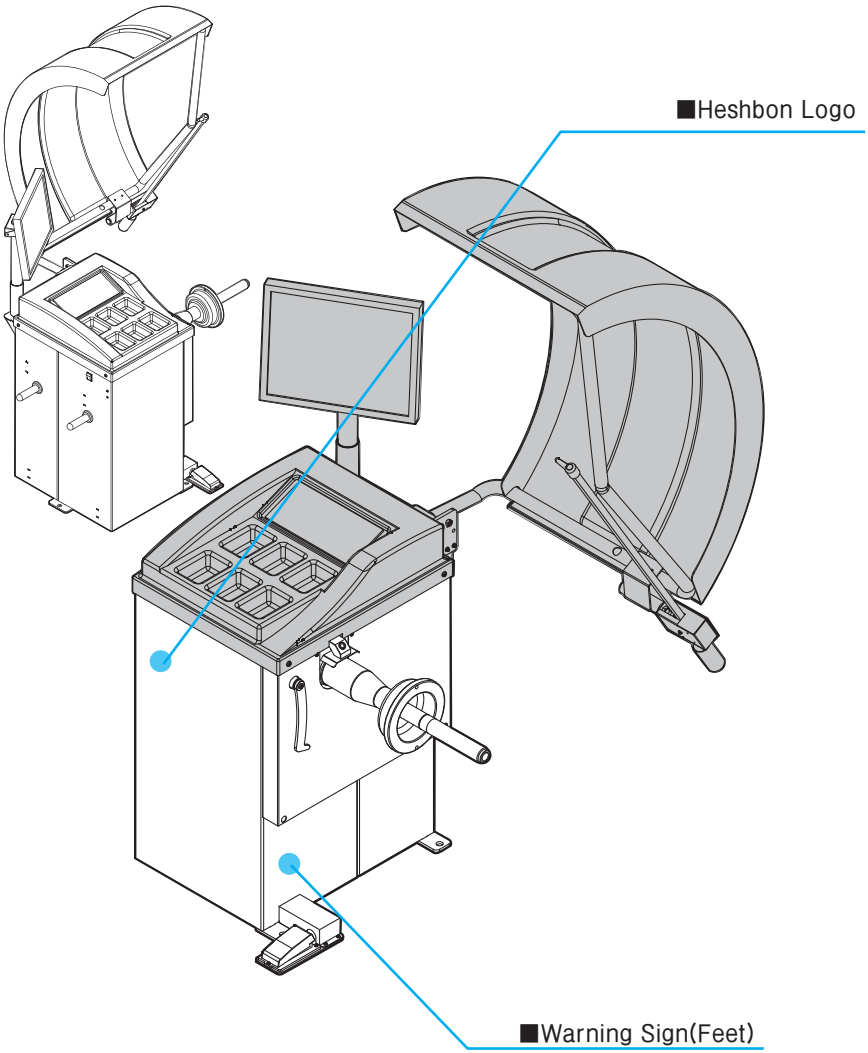
Parts' names


■Monitor
■Control Panel
■Work Table
■Adaptor and Accessories Support
■Main S/W


■Laser Pointer
(option)
■Wheel Guard
(option)
■Shaft
■Automatic Width
Gauge(option)
■Automatic Gauge Arm
■Electrical Input Switch
(break pedal-option)

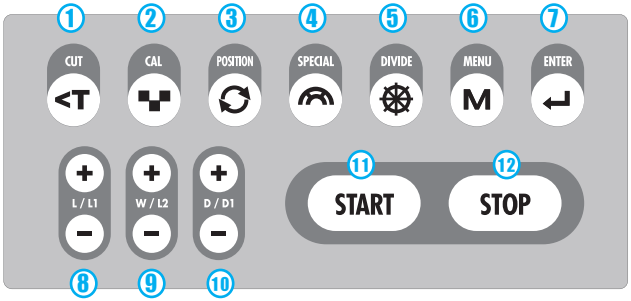
Positions of name plate and labels




■Heshbon Logo
■Warning Sign(Feet)

Functions of Control Panel

■ Name



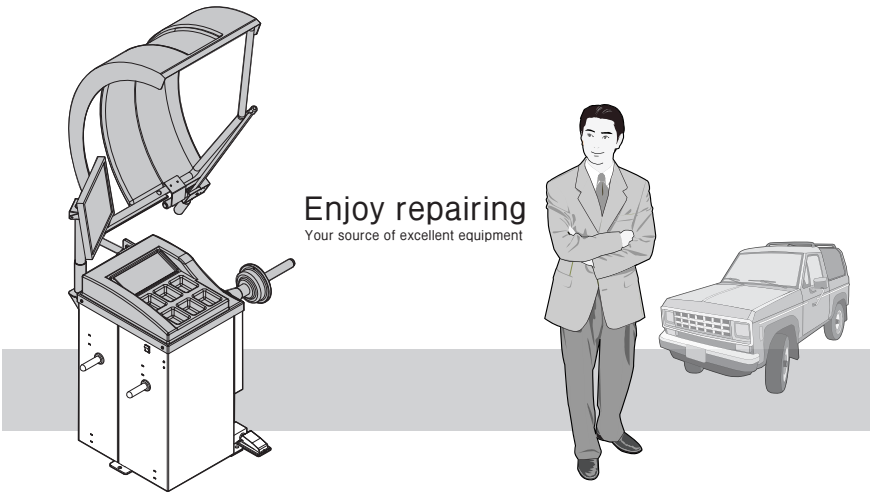
①Cut ②Cal ③Position ④Special ⑤Divide ⑥Menu
⑦Enter ⑧L ⑨W ⑩D ⑪Start ⑫Stop

■ Functions

①Cut – Button used to check the left weight amount
②Cal – Press if to run Self-Calibration
③Position – Automatically stop on an unbalanced position of the wheel measured(optional)
④Special – Measure a special aluminum wheel
⑤Divide – Split function.
⑥Menu – Press if to run Self-Calibration
⑦Enter – Enter/exit button
⑧L – Rim distance setting buttons
⑨W – Rim width setting buttons
⑩D – Rim diameter setting buttons
⑪Start – Button used to start measuring
⑫Stop – Emergency stop button

Specification

Model	HW-105
Measuring method	Both sides(In/Out) at the same time
Measuring unit	1g (both sides)
Measuring time	7 ~ 12sec
Measuring range	Distance 0~18cm
	Rim Width 1.5"~20"
	Rim diameter 10" ~24"
	Weight 65kg
Balancing speed	Approx 200rpm
Display	LCD Monitor
Rated voltage	AC220V(60Hz/50Hz)
Weight	90kg
Nut type	One-touch type



Danger/Warning/Caution

Illustrations throughout this manual
About illustrations used in this manual
It will help you understand this manual and please read it carefully.
The rules are limited to this manual.

Danger	A user may be injured or even dead unless the directions are kept.
Warning	Not keeping the directions may result in serious injuries or damages on properties.
Caution	Not keeping the directions may result in injuries or damages on properties.
Tip	Terms and descriptions to improve your understanding
Point	Tips for your efficient use
	See the related pages

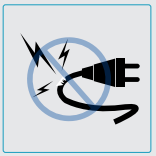
Danger

Do not expose this product directly to rain and moisture.
▶It may cause an injuries or even death

Do not work with this product close to heating source.
▶It may cause an injuries or even death.

Do not touch power cord with wet hands.
▶ It may cause injuries or even death.

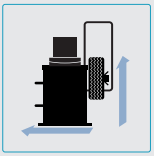
Do not use damaged power plug or loosened outlet.
▶ It may cause injuries or even death



Warning

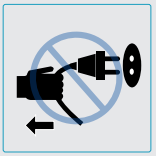
Do not attempt to operate this product unless you are skilled to do it.
(Operating incorrect buttons may cause problems in this product)

Work only on an even place for safety purpose.



Do not install this product on a place exposed to rain or water.
(this product is indoor use only)

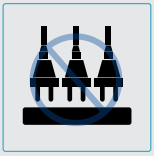
Do not apply excessive force to unplug power cord.
▶ It may case an electric shock or a fire.



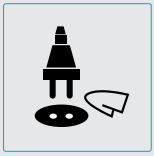
Warning

Be cautious that fingers may be hurt by the rotating shaft.
▶ It may cause serious injuries.

Do not insert multiple plugs on an outlet.
▶ It may cause an electric shock or a fire.



Make sure that electric contacts/ pins should be maintained clean.
▶ It may cause an electric shock or a fire.



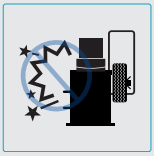
Caution

Read this manual carefully before use.

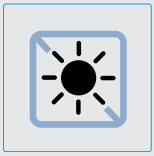
Caution

Do not attempt to push any incorrect button while it is working.
▶ It may cause unexpected malfunction.

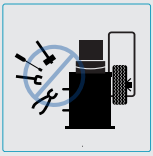
Do not apply any impact on the balance body frame[housing] or expose it to dust.
▶It may cause unexpected malfunction.



Do not expose this product to direct sunrays.
▶ It may cause unexpected malfunction.



Do not modify the control panel and structure voluntarily.
▶ It may cause unexpected malfunction.



Caution

Do not apply any impact on it nor expose it to dust or moisture.

Make sure to install it indoors only and protect it from rain or snow.

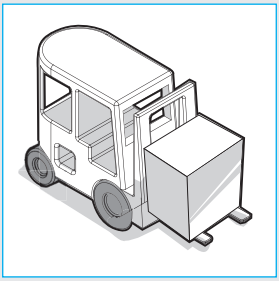
Read this manual carefully before use.
▶ Serious accidents may happen unless the danger/warning information is kept.

Do not bend the power cord or place any heavy article on it, probably cutting it off.

Transportation and installation

Transportation

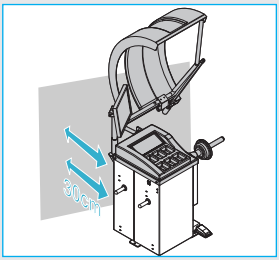
▶Upon arrival at an installation place, move this package to an installation location using a forklift or truck.



▶Unpack and check the components in the package. If any missing component is found, immediately contact your dealer or the company.

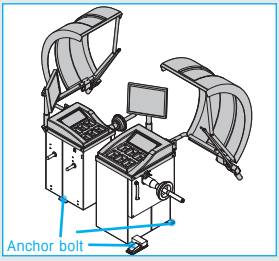
Installation

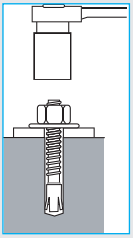
▶LOCATION
The wheel balancer must be located on a solid floor in concrete or similar material. An underlying cavity could cause imprecise imbalance readings.

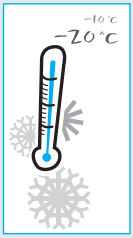


▶SAFE DISTANCE:
For the safe and ergonomic use of the machine it is advisable to locate it a minimum of 300 mm from the surrounding walls.

▶FIXING INSTRUCTIONS:
The machine base has 3 holes for fixing to the floor with anchor bolt. This is essential to ensure accurate and consistent readings.
Check that the supply voltage is the same as that indicated on the machine identification plate(220V±10%, 50/60㎐)







▶Connect the electrical power plug to an outlet that conforms with European standards or the standards of the country in which the machine is used.
The plug must have a ground/earth connection.

Transportation and installation

Installation

▶Check the effectiveness of the ground/earth connection.

▶The machine must be connected to the supply through a multi-pole cut-off switch in conformity with European standards and with contact opening gap of at least 3 mm.

▶When connected and switched on, mounted wheels must rotate in a clockwise direction as seen from the right-hand side of the machine. The correct direction of rotation is indicated with an arrow on the machine body.

▶If the machine functions abnormally immediately switch off the main switch and check the troubleshooting section of the Instructions Manual.

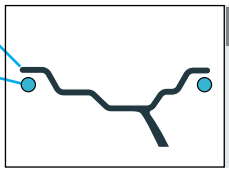
This product is limited to indoor use only. Therefore, do not install it at a place exposed to rain, snow or dust. In case it should be inevitably installed at an improper place, it is necessary to manage this product thoroughly at all times for performance maintenance. To store this product for a long time, turn it off first and cover it with packing material.

Modes according to Wheel Types

From the measurement screen, press button ALU to select the type required. The 5-LED displays show the position where to apply the weights. If a spin has already been performed, the processor automatically recalculates, for each change of mode, the amounts os unbalance according to the new calculation.

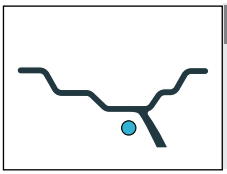
Wheel's cross section

Lead attachment location



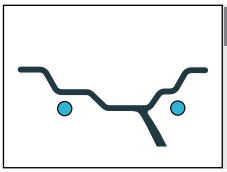
■DYNAMIC

Balancing of steel or light alloy rims with application of clip-on weights on the rim edges.



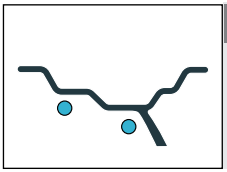
■STATIC

The static mode is necessary for motorcycle wheels or when it is not possible to place the counterweights on both sides of the rim.



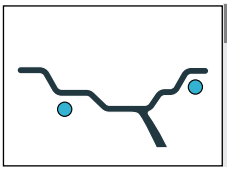
■ALU1

Balancing of light alloy rims with application of adhesive weights on the rim shoulders



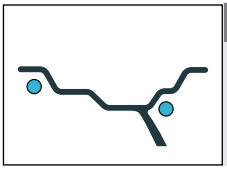
■ALU2

Balancing of light alloy rims with hidden application of the outer adhesive weights.



■ALU3

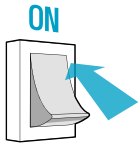
Combined application: adhesive weight inside and clip-on weight outside.

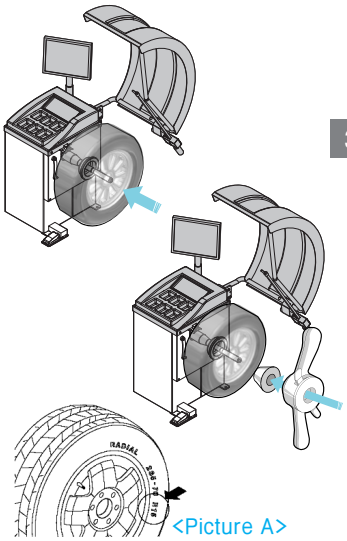


■ALU4

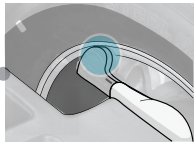
Combined application: clip-on weight inside and hidden adhesive weight on outside.

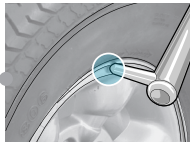
DYNAMIC
▶applicable to general wheels



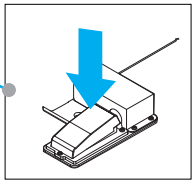


<Picture A>





Measuring them at the same time. (option)



1 Power supply

Switch on the machine with the main switch.

2 Tire wheel placement

Mount the wheel on the machine, centering it on the relevant cone or adaptor and tighten it carefully with the quick-nut.

3 Enter rim parameters

3.1 Automatic rim Distance (offset) and Diameter – Move the automatic gauge arm to the inside edge of the rim, touch the pointer to the rim edge, touch the tip of the width arm to the outside rim edge where weights will be placed as illustrated in left Figure. Press the pedal. Then the beeper will sound when the parameter values are calculated and entered automatically. Return the arms to its home rest position on the balancer. Do not allow the measurement arms to "dangle".

3.2 Manual Parameter Entry-In the event of automatic gauge failure, ANY parameter value can be input manually.

3.2.1 Manual Distance Entry - Move the distance gauge arm to touch the inner edge of the wheel where weights are to be placed and observe the reading on the scale of the distance gauge. Press manual Wheel Parameter button followed by pressing the + or - button(L) until value is displayed in the left display window.

3.2.2 Measure Rim Width Manually using rim width calipers. Measure wheel where corrective clip-on weight would be applied. Enter the measured width by pressing the Parameter button followed by the + or - button(W) until the desired value appears in the right display.

3.2.3 Manual Rim Diameter Entry-Read the rim diameter marked on the sidewall of the tire <picture A>. Enter the measured rim diameter by pressing the Parameter button followed by the + or - button(D) until the desired value appears in the right display.

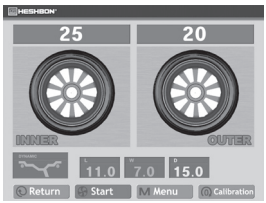
NOTE: For a more precise balancing of performance wheels, an "ALU-S" Mode is available for precision determination of wheel parameters. This feature allows exacting placement of corrective weights as well. See Page for detailed instructions.

NOTE: The parameter arms must be in the Home rest position when the balancer is powered up. This establishes the arm starting position.

DYNAMIC ▶CORRECTION OF THE UNBALANCE

5 Closing Wheel guard

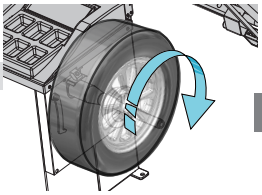
Spin the wheel by lowering the wheel guard or by pressing the Start button. When the balancing cycle is completed the wheel will stop automatically and the unbalance values will appear on the monitor.



6 Unbalance values

Read the unbalance value on the outer display. Values are displayed in grams but can be displayed in ounces if required and are automatically rounded to the nearest commercial wheel weight.

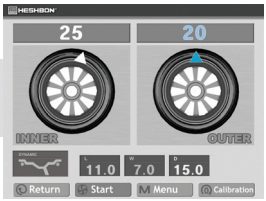
Tire rotation



7 Correcting OUTER values.

Raise the wheel guard and turn the wheel until the displays of the outer plane unbalance position arrow is illuminated red in the screen. A tone will sound indicating top dead center. Apply the wheel weight at twelve o 'clock position. Use the foot operated shaft lock to prevent shaft rotation while placing weights.

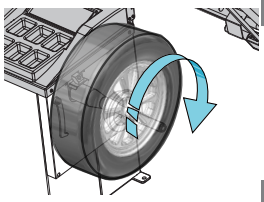
Correct balancing position



Weight attachment

Caution

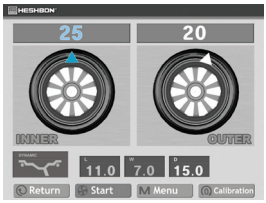
Before spinning the wheel make sure proper eye protection is worn by all personnel in the vicinity of the balancer.

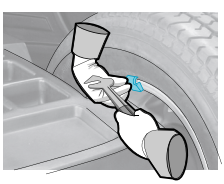


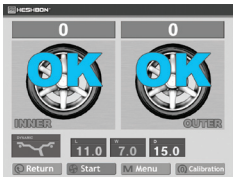
8 Correcting INNER values

Correct the inner plane in the same manner.

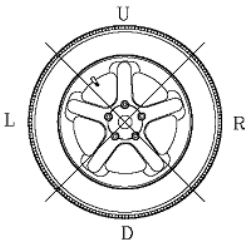
9 Verification of the results







Lower the wheel guard to spin the wheel again and check that the readout is “00” “00” (OK message will appear in the screen). If a residual imbalance is displayed:
A. Check the rim parameters, if entered value is incorrect, correct as needed. Imbalance values will be recomputed after re-spinning wheel.
B. Check if the balancing mode selected is the most appropriate. If not, choose the right mode and re-spin.
C. The wheel weight could have been placed at a wrong position. To check this, position the wheel at the correction position for the outer plane.
If the wheel weight previously attached is in sector ‘ L ’ or ‘ R ’ <Picture B>, move the wheel weight up about 1” (2.54cm).
If the wheel weight is in sector ‘ D ’ cut a piece of the wheel weight of an approximate value corresponding to the value shown on the right display, or replace the wheel weight with a lighter one. If the wheel weight is in sector ‘ U ’ add a weight of value indicated by the display or replace the wheel weight with a heavier one. Repeat the same operation for the inner plane.



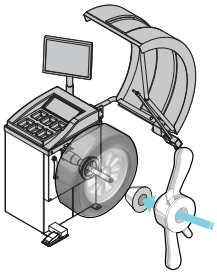
<Picture B>

NOTE: If this situation is repeated, your machine may be out of calibration and a calibration operation might be required as instructed on page __ .
D. If an ALU function was selected ensure that the wheel weights have been placed in accordance to the program chosen.
E. Check that the quick nut is tight and that the wheel is not slipping against the backing collar.
F. Check that the wheel and adaptors are clean.

If vibration is still present after balancing, check the following possible sources of vibration:
1. Stones caught in the tire tread.
2. Tire slippage on the wheel.
3. Incorrectly mounted wheel.
4. Imbalanced wheel covers.
5. Excessive radial or lateral runout in the tire or wheel.
6. Damaged wheel bolt holes.
7. Worn universal joints.
8. Imbalanced brake rotors or drums.
9. Worn or damaged balancer ccessories.

ALU -S Special ALU function

This is a mode similar to ALU mode 2. The difference is that the distance and width parameters are accurately defined for a more exacting weight placement,



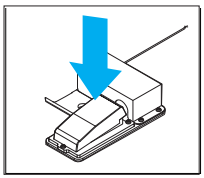
1 Follow the procedures below

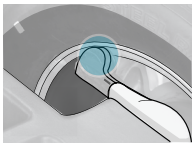
Switch on the machine with the main power.

ALU-S mode display

2 Mode change - ALU2

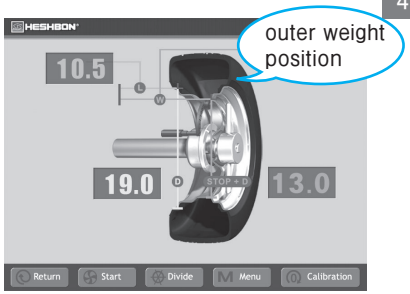
Press the ALU button three times to activate the Special ALU mode(ALU 2 mode), the display will read “ALU L - 2” when activated.

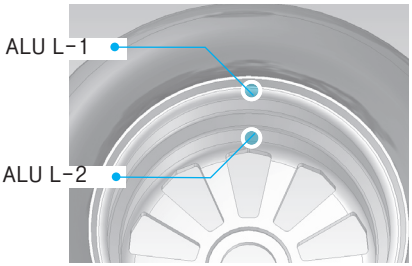




3 Measuring ALU L-1 values

Extend the automatic gauge arm and touch the position of the left weight position, then press the brake pedal.
The high tone will sound when dimension is entered. Return the gauge arm to the rest position.
The width arm is not used in this procedure.





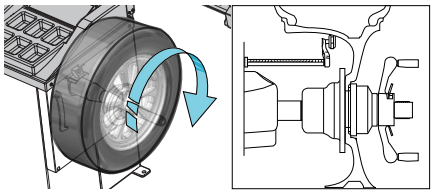
4 Measuring ALU L-2 values

Then the screen will indicate that gauge arm is in the outer weight position. Move the gauge arm to the outer weight position then press the brake pedal. The high tone will sound when dimensions are entered. Return the gauge arm to the rest position.
(The parameter can be enterd by pressing D+,D- button with the STOP button at the same time.

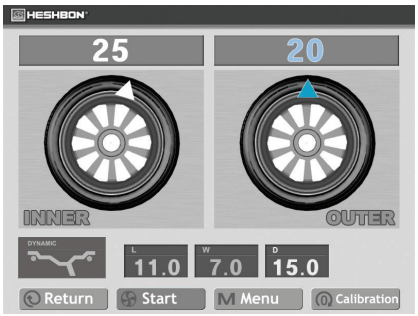
5 Measuring balance status

Lower the wheel guard or press "Start" to spin the wheel. After spinning, The wheel/tire assembly will stop.
The display reads both the left and right plane unbalance weight and position.

6 Modifying OUTER values

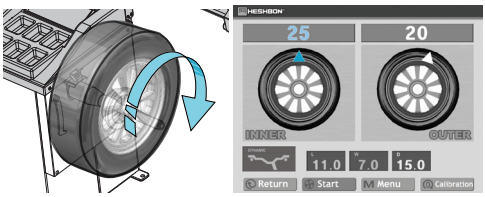


1.Turn the wheel as watching the screen.



Raise the wheel guard and turn the wheel until the displays of the outer plane unbalance position arrow is illuminated red.
Extend the gauge arm to locate the inner place unbalance.
The right display shows the weight amount to be applied, the scale indicater shows the distance the gauge arm has to travel to get to the correction plane.
A "beep" will accompany with the correct position. Apply the weight amount indicated using the tape weight applicator mounted on the tip extension.
Return the gauge arm to its home position.

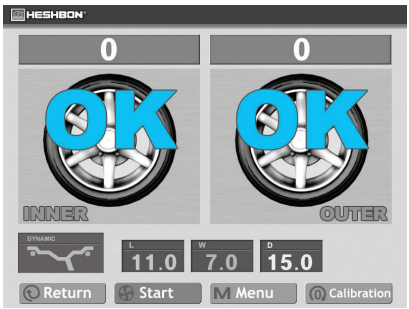
7 Modifying INNER values



1.Turn the wheel as watching the screen.

The inner plane correction weight will be applied next
as in step 6 above. The steps are:
- Extend the arm until the arm locks into position.
- Position the wheel in the weight application position
- Apply the displayed weight.

8 Verification of the result



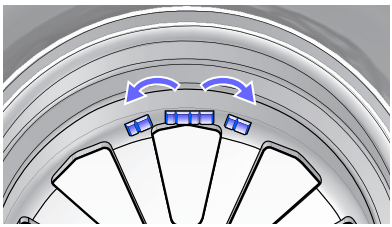
Lower the wheel guard to spin the wheel again and check that the read out is "0" "0" and OK message will appear inthe screen.

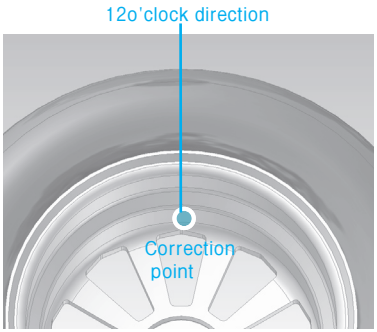
Note

INSPECT THE RIM AND AVAILABLE WEIGHTS AND USE GOOD JUDGEMENT IN YOUR SELECTION. WEIGHTS SHOULD NOT INTERFERE WITH ANY SUSPENSION PARTS OR MAKE CONTACT DURING ROTATION. IF A WEIGHT DOES MAKE CONTACT, USE AN ALTERNATE LOCATION AND SELECT AN APPROPRIATE MODE.

Split function

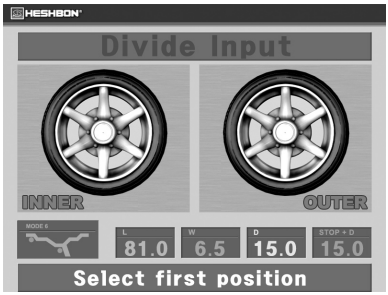
The purpose of the weight separation program is to allow the adhesive unbalance correction weights to be hidden behind the rim spokes. If after a balancing cycle the outside weight is in a visible position it is possible to subdivide it between the two adjacent spokes as follows:





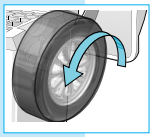
1 Basic operation

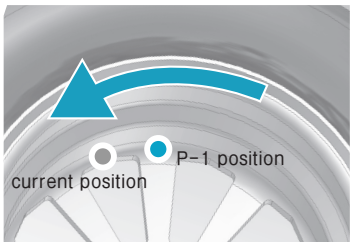
The function is closely related with ALU2 function. For the previous operations, refer to ALU2 function. (same with 1 ~ 6 described in page 17 ~ 18).



2 Converting to weight division mode

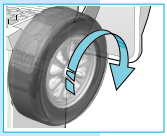
Rotate the wheel to the outer unbalance position indicated by arrow at 12 o'clock in the screen, press the "DIVIDE" button. Then the following message will appear:
"Select first position"

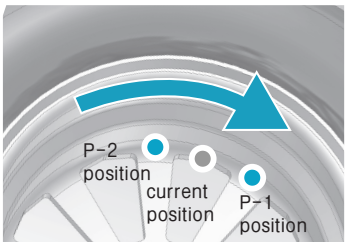




3 Entering P-1

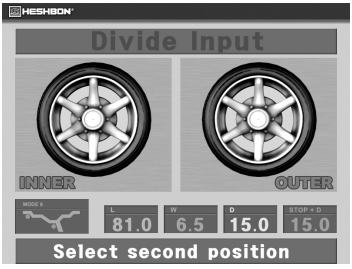
P - 1 means that the operator is needed to enter the first correction position to divide the weight from the current position.
Rotate the wheel until the first spoke is at 12 o 'clock, then press the DIVIDE button.





4 Entering P-2

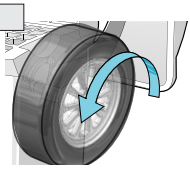
Then the other message will appear as following : "Select second position". P - 2 means that the operator is needed to enter the second correction position to divide the weight. Rotate the wheel until the second spoke is at 12 o 'clock, then press the DIVIDE button.

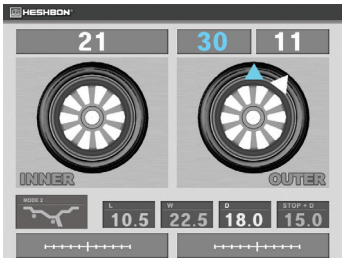


5 Weight attachment(P-1)

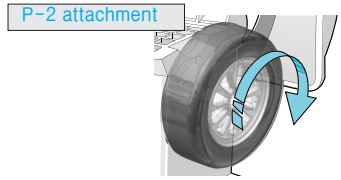
If the two arrow appear in the outer cycle, it means that all entering procedure is completed. You can see a correction position(when the mesurements and arrow will change into red colors) if turning a wheel counterclockwise while watching a arrow indicator in the screen. One of the two arrows means divided weight correction position. Apply the weight as much as the unbalance amount measured on this position.

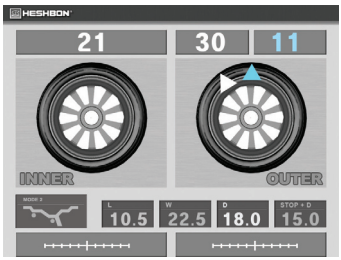
P-1 attachment





P-2 attachment



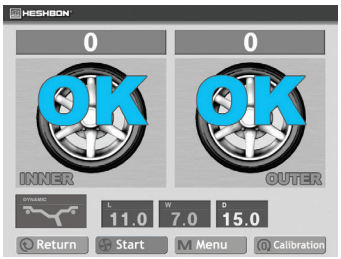


6 Weight attachment(P-2)

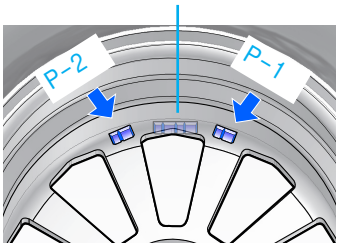
Now, apply the weight as much as the amount measured on the position when it reaches a second correction position(when the mesurerents and arrow will change into red colors) while turning it clockwise. The value is the second divided weight from the original weight.

7 Verification of the results

Lower the wheel guard to spin the wheel again and check that the readout is “OK” “OK”



Original attachment position.



Note

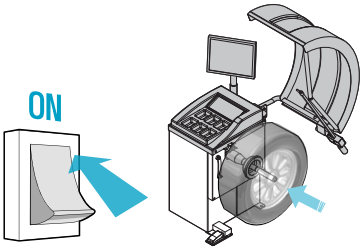
In case either IN or OUT in wire wheel measurements is 40g and higher, it often means that such a wheel is defective. Also, another value except “0” is displayed after modification, it asks an operator to modify them once again.

Self-Calibration

Self-calibration function(CAL) is used when the first and second measurements are fluctuated significantly or no normal measurements are displayed. The function is available only in DYNAMIC mode.

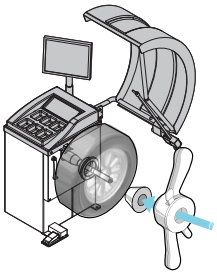
Warning

CAL is an important function in which standard values are entered and that should be completed executed once started. Since incorrect values are entered if it stops during execution, make sure to fully understand this function.



1 Mount a tire wheel on the shaft

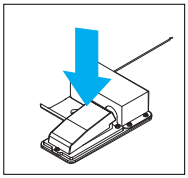
Switch on the machine with the main switch.



2 Tightening cone and lock nut

Mount the wheel on the machine, centering it on the relevant cone or adaptor and tighten it carefully with the quick-nut.

Measuring them at the same time.



3 Entering tire wheel spec(option)

Position the automatic length bar inside a wheel and the width gauge outside it. Then, press a brake pedal to store the wheel spec. such as distance width and diameter automatically. The measurements are displayed on monitor.

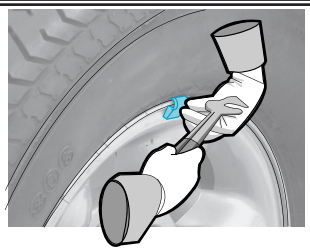
- In general, a tire wheel has a tag indicating its diameter and width. The values can be manually entered by using the keypad provided.

4 Mode change(zero-setting)

Press ' CAL ' button. The display will read "calibration" and the mode is changed.
After the change, lower the Wheel guard and rotate the wheel.

5 Adding a 100g weight

When the wheel stops after rotating, it will displays "Add 100g outer/ Press Start" in the screen, which means that an operator is needed to add a 100g weight on the outside of the wheel. Then, lower the cover and rotate the wheel.



6 Zero-setting

When the wheel rotates and stops, the display will read "Push Return" in the monitor, it means that zero-setting is finished.

Note

▶In case an operator moves this machine to install or moves the current installation place to another, CAL should be executed again.
▶In general, CAL uses a wheel of which dimensions are 6.7(W) x 15(D); unit: Inch.

Accessing Menus

HW-105 provides you with additional functions as well as functions for settings. To access them, you should start from the menu access screen as seen in the below figures.

HESHBON

1	AMOUNT OF CUT	7.0	13	-	
2	CALCULATION UNIT	5	14	-	
3	CALCULATION FOR DIAMETER(D)	10.0	15	-	
4	RESET POSITION	19.0	16	-	
5	UNIT (Weight)	9	17	-	
6	UNIT(Distance)	inch	18	-	
7	CALIBRATION FOR LENGTH(L)	0.0	19	-	
8	CALIBRATION FOR WIDTH(W)	0.0	20	-	
9	INNER VALUE	100.0	21	-	
10	OUTER VALUE	69.0	22	-	
11	PULSE COUNT	128	23	-	
12	-		24	-	

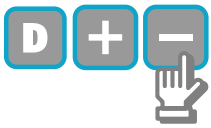
Return Start Menu Calibration

1. AMOUNT OF CUT
2. CALCULATION UNIT
3. CALCULATION FOR DIAMETER (D)
4. RESET POSITION
5. UNIT (Weight)
6. UNIT(Distance)
7. CALIBRATION FOR LENGTH (L)
8. CALIBRATION FOR WIDTH (W)
9. INNER VALUE
10. OUTER VALUE
11. PULSE COUNT

- MODE1 - AMOUNT OF CUT
- MODE2 - CALCULATION UNIT
- MODE4 - RESET POSITION
- MODE3 - CALCULATION FOR DIAMETER(D)
- MODE5 - UNIT (Weight)
- MODE6 - UNIT(Distance)
- MODE7 - CALIBRATION FOR LENGTH(L)
- MODE8 - CALIBRATION FOR WIDTH(W)

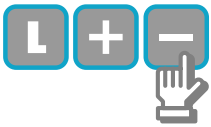
MODE1 - AMOUNT OF CUT

HW-105 has a function to adjust CUT amount of which a minute lead amount remaining in a wheel after balance calibration is hidden on the display. Also, it contains a function that a user can set the value voluntarily.



Convert the mode to amount of cut using D button.

Convert it to Adjust CUT amount mode. The screen shows the remaining CUT amount(CUT amount = 0 ~ 255).

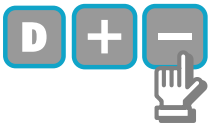


Enter a desirable CUT amount between 0 ~ 255 using L button.

Exit mode by pressing ENTER button.

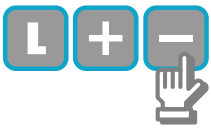
MODE2 - CALCULATION UNIT

HW-105 has a function to set the unbalance weight unit between 1g and 5g.
The display will read 0g between 0g and 2.5g, or read 5g between 2.6g and 5g.



Convert the mode to CALCULATION UNIT using D button.

Convert it to Adjust CALCULATION UNIT mode. The screen shows the remaining unit.



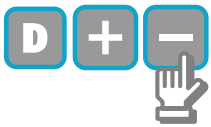
Change the CALCULATION UNIT using L button.

Exit mode by pressing ENTER button.

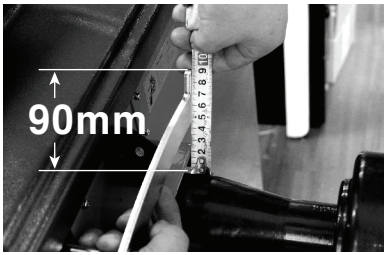
MODE3 - CALIBRATION FOR DIAMETER(D)

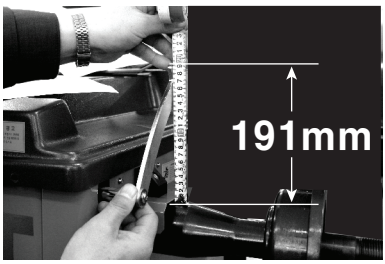
HESHBON

1	AMOUNT OF CUT	7.0	13	-	
2	CALCULATION UNIT	5	14	-	
3	CALCULATION FOR DIAMETER(D)	10.0	15	-	
4	RESET POSITION	19.0	16	-	
5	UNIT (Weight)	9	17	-	
6	UNIT(Distance)	inch	18	-	
7	CALIBRATION FOR LENGTH(L)	0.0	19	-	



Convert the mode to CALCULATION FOR DIAMETER using D button.





Place the bar on the position 90mm. If pressing L+ button, the data(10inch) at the position 90mm will be stored. Place the bar on the position 191mm.
If pressing L- button, the data(18inch) at the position will be stored and it shows a sign in the segment that it is normally entered.

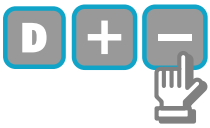
OK

If the calibration is completed correctly, it shows OK message.

Exit mode by pressing ENTER button.

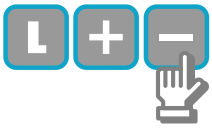
MODE4 - RESET POSITION

If a Lead Calibration Position is incorrect after balance, it can adjust it minutely.



Convert the mode to RESET POSITION using D button.

The screen shows re-maining position value.

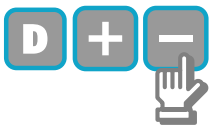


Change the position value using L button.(0~127)

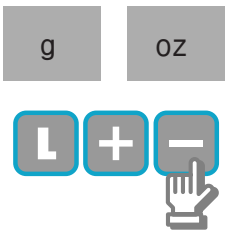
Exit mode by pressing ENTER button.

MODE5 - UNIT (Weight)

HW-105 model is available with ounce or gram for its weight unit(1 ounce = 28.35g)



Convert the mode to Weight Unit Setting mode using D button.

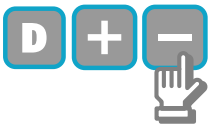


Select a weight unit using L button(g or oz)

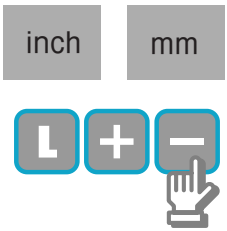
Exit mode by pressing ENTER button.

MODE6 - UNIT(Distance)

HW-105 model is available with inch or gram for its distance unit (1inch = 2.54cm)



Convert the mode to UNIT(Distance) mode using D button.



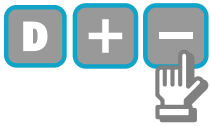
Select a distance unit using L button(mm or inch)

Exit mode by pressing ENTER button.

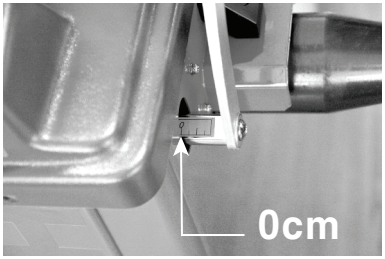
MODE7 - CALIBRATION FOR LENGTH(L)

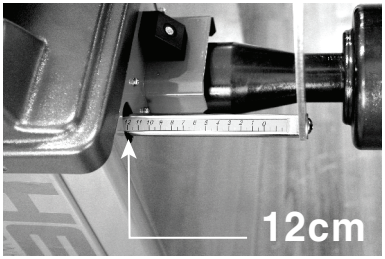
HESHBON

1	AMOUNT OF CUT	7.0	13	-	
2	CALCULATION UNIT	5	14	-	
3	CALCULATION FOR DIAMETER(D)	10.0	15	-	
4	RESET POSITION	19.0	16	-	
5	UNIT (Weight)	9	17	-	
6	UNIT(Distance)	inch	18	-	
7	CALIBRATION FOR LENGTH(L)	0.0	19	-	
8	CALIBRATION FOR WIDTH(W)	0.0	20	-	
9	INNER VALUE	100.0	21	-	



Convert the mode to calibration for length mode using D button.





If pressing L+ button, the data(0cm) at the position 0cm will be stored. Place the bar on the position 12cm. If pressing L- button, the data(12cm) at the position 12cm will be stored.

OK

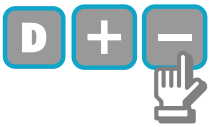
If the calibration is completed correctly, it shows OK message.

Exit mode by pressing ENTER button.

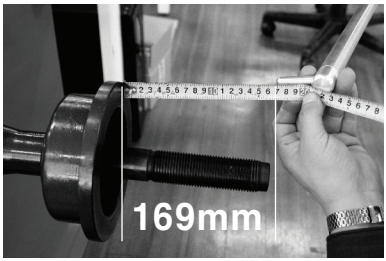
MODE8 - CALIBRATION FOR WIDTH(W)

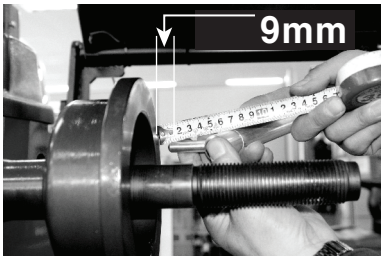
HESHBON

1	AMOUNT OF CUT	7.0	13	-	
2	CALCULATION UNIT	5	14	-	
3	CALCULATION FOR DIAMETER(D)	10.0	15	-	
4	RESET POSITION	19.0	16	-	
5	UNIT (Weight)	9	17	-	
6	UNIT(Distance)	inch	18	-	
7	CALIBRATION FOR LENGTH(L)	0.0	19	-	
8	CALIBRATION FOR WIDTH(W)	0.0	20	-	
9	INNER VALUE	100.0	21	-	



Convert the mode to calibration for width mode using D button.





Pressing L+ button, the data(0cm) at the position 169mm will be stored. Place the bar on the position 9mm. If pressing L- button, the data(16cm) at the position 9mm will be stored. and it shows a sign in the segment that it is normally entered.

OK

If the calibration is completed correctly, it shows OK message.

Exit mode by pressing ENTER button.

Maintenance Instructions

Caution

To check any trouble, turn it off first and then, turn it on again after the proper maintenance is completely finished.

■Belt Tension Adjustment

▶Adjust belt tension when a belt slides in start or stop.

1 Power off

Turn off the main power and remove the cover.

2 Tension adjustment

Loose 4 bolts to lock the motor and move the motor so that the belt tension is to be 40kg.

3 Reassembly & Check

Tighten 4 bolts carefully and close the cover again. Check the status while rotating it.

■Belt Replacement

1 Replacement interval

5 years if it is used 20 times a day.

2 Purchase order

Customer Support Team

3 . Belt Spec

Name: 360J3: Dimensions
▶ 2.34(pitch) x 3N(thread) x 914mm(length)

■Fuse Replacement

▶Check fuses if this product does not work although it is powered on.

1 Cover removal

Remove the cover.

2 Fuse check

Check 2 fuses attached on the board inside the product.

3 Fuse Spec.

The positions are indicated on the board.
Specifications: GLASS FUSE 250V 3A - 1 ea, 250V 10A - 1ea

4 Reassembly & Check

After replacing or checking fuses, reassemble it in the reverse order and check the status.

Note

A different value can be displayed when re-measuring it after measuring it before, separate a wheel from this product and insert it again.

That is not because of this product but because a wheel is not tightly attached to an adaptor after insertion or it is inserted incorrectly. In addition, a 10g unbalance is so minute that it may happen in a wheel using a cone adaptor. If it has serious tremble after a wheel is re-built since it is finely calibrated(balanced), it may be due to a too large groove for rim and/or screw or due to unbalance of brake drum.

Health Check & Expendables List

Caution

This function detects any breakdown in it and diagnoses it to be repairable.

Type	Potential causes	Description
Err-1-	When a wheel 's position pulse is not detected	A motor may not rotate or a belt is broken ▶ Photo sensor does not generate signals because the shaft does not rotate
		Power board may be broken ▶A motor does not work due to a broken power board
		Position signal is not detected ▶ Defective photo sensor ▶ Too distant or close(1mm) between pulse board and photo sensor ▶ Bad wiring
Err-2-	When rotation speed is decelerated too fast in measurement	Start without a tire mounted. ▶ rpm is rapidly reduced due to little moment of inertia
		Too strong belt tension ▶ It may decelerate rotation speed in measurement.
		Too distant or close(1mm) between pulse board and photo sensor ▶ It generates unstable pulse signals.
Err-3-	When calculation is not possible in measurement	It happens when the present status of piezo sensor is significantly different with zero-setting data stored in a PC. ▶Execute self-calibration again. ※It may show 0g: 0g continuously regardless of unbalance of a tire in case it is measured due to similar troubles.
Err-4-	When the shaft rotation direction is detected in reverse rotation signal	Defective photo sensor ▶'A' sensor of two photo sensors is defective
		Too distant or close(1mm) between pulse board and photo sensor ▶It generates unstable pulse signals.

Type	Potential causes	Description
Err-5-	When starting it with wheel guard open	If it happens even though the cover is lowered, check the connections or main board.
		Use B contact that is open upon operation as the contact of limit S/W.
Err-7-	When the self-calibration data stored in the main board is lost	If it reiterates every time turning it on, replace the main board
		It may happen when the main board is used first or just after repair.
Err-8-	Incorrect self-calibration	piezo sensor wiring may be down.
		All two piezo sensors may be defective, not generating any signals.
		Started without a 100g attached when self-calibration was executed.
		Power board did not generate -5V
		Main board circuit is in trouble.

■Expendables List

Item	Qty	Spec.	Replacement interval
BELT	1	360J	Once per 5 years(if it is used 20 times a day) or the belt is down.
FUSE	2	3A250V-1 10A250V-1	In case of cut-off due to overload, replace a broken fuse with reserve fuse(after replacement, another fuse should be also reserved)

Troubleshooting Guide

Symptom	Check	Measure
Quick nut is too compact to tighten	1. Shaft screw was damaged by external impact.	1. Remove damages using a file.
	2. Shaft screw is bent and shakes by external impact.	2. Replace the shaft
The motor does not work.	1. A fuse is burnt out 2. Defective main switch 3. Bad connector contact 4. Defective motor 5. Power failure	1. Replace a fuse after eliminating causes. 2. Replace the main switch. 3. Reconnect it after checking the connector contact 4. Replace the motor 5. Retry after the power is recovered.
The motor works but the shaft rotates weakly.	1. Motor lock bolt is loosened. 2. V-BELT is worn and damaged.	1. Tighten the lock bolt again 2. Replace the V-BELT.
Powered on but keyboard does not work	1. Defective keyboard	1. Replacement
Display numbers or LED lamp is irregular	1. Defective display board	1. Replacement
Power PCB output harness(7Pin) voltage is not normal.	-5V → 7905 IC +5V → 7805 IC +7.5V → LM317	Replace the Power PCB.
Incorrect position	Check the weight position on the display and the actual position.	mount the position if incorrect.
Remaining amount is continuously displayed after calibration.	Check whether MODE9, 10 are between 17 ~ 22(in general, it was set to 19).	1. Mount a good tire wheel 2. Execute CAL(self-calibration). 3. Execute CAL as much as close to zero 4. Check whether the position is on the 12 o' clock direction after a 100g is attached on OUT. 5. Adjust MODE9, 10 if the position is not correct .
Regardless of unbalance, it displays CUT amount as 0:0g.		1. Execute CAL(self-calibration). 2. If Err-8- occurs after self-calibration, check piezo sensor, power board and main board in good order.

PARTS LIST

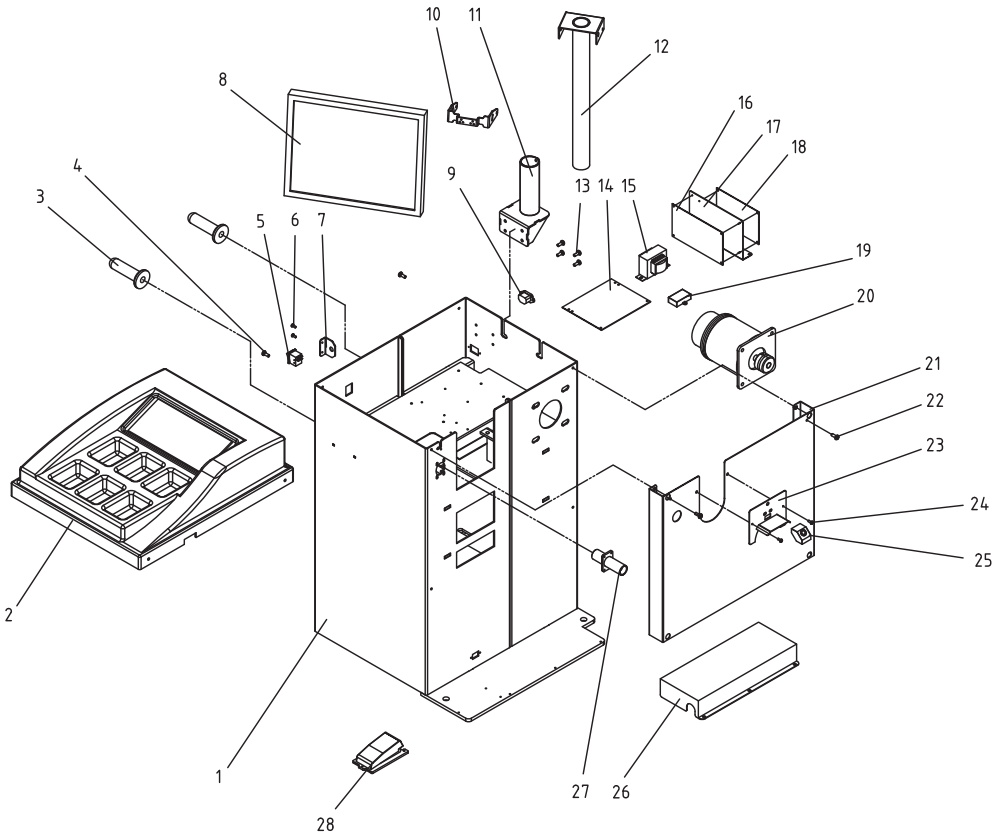
MODEL

HW-105

Version 2 - 05.2008

HESHBON®

This parts list may be changed without any prior notice once product specifications are changed. The list is based on the version as of November, 2006 in HESHBON Research Institute.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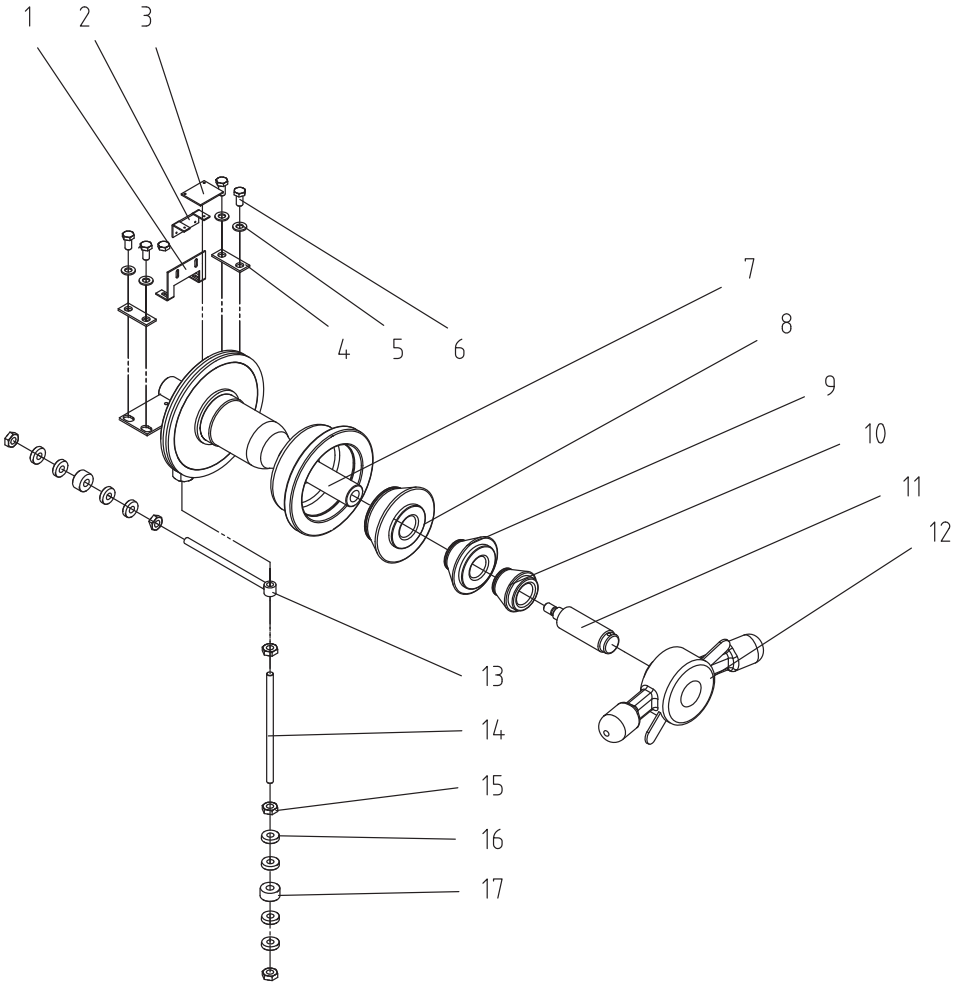
MARK	DESCRIPTION	Q'TY	WEIGHT OR SIZE	ITEM NO.
28	Foot switch	1	1/3HPx1200RPM	10500737
27	Scale fixing braket	1	4.5x50x35	11200340
26	Foot switch cover	1	1.6tx140x44x64.6	10500137
25	Laser pointer block	1	23x32x47.8	11300510
24	Socket set screw	2	M4x10L	MWBM0410
23	Shaft assistance cover	1	UF6STS	12300467
22	Round head +bolt.	4	M6x20L	-
21	Side cover	1	1.6tx50x540x450	10500100
20	Motor	1	1/3HPx1200RPM	10500900
19	Noise filter	1	-	10500747
18	Arm board PCB	1	-	12300128
17	Main PCB fixing braket	1	1.6tx190x120x15	10500125
16	Main PCB	1	-	11300127
15	Transformer	1	220V / 8,0,8V	11000225
14	Power PCB	1	220V 10ohm	11300901
13	Round head +bolt.	4	M6x20L	-
12	Monitor pipe weld.	1	100x70x440	10500170
11	Monitor base weld.	1	-	10500150
10	Monitor fixing braket	1	3.2tx108.4x30x99.8	10500157
9	Power plug	1	-	-
8	LCD monitor	1	17"	LCD17INCH
7	Scale roller braket	1	2.3tx20x36x60	10500121
6	Socket set screw	1	M5x15L	MWBM0515
5	Seasaw switch	1	-	DJR602-4215(LF)
4	Socket set screw	1	M6x15L	MWBM0615
3	Cone hanger	2	^50x113L	11000119
2	Main cover	1	5tx480x550x145	10500200
1	Frame	1	-	10500010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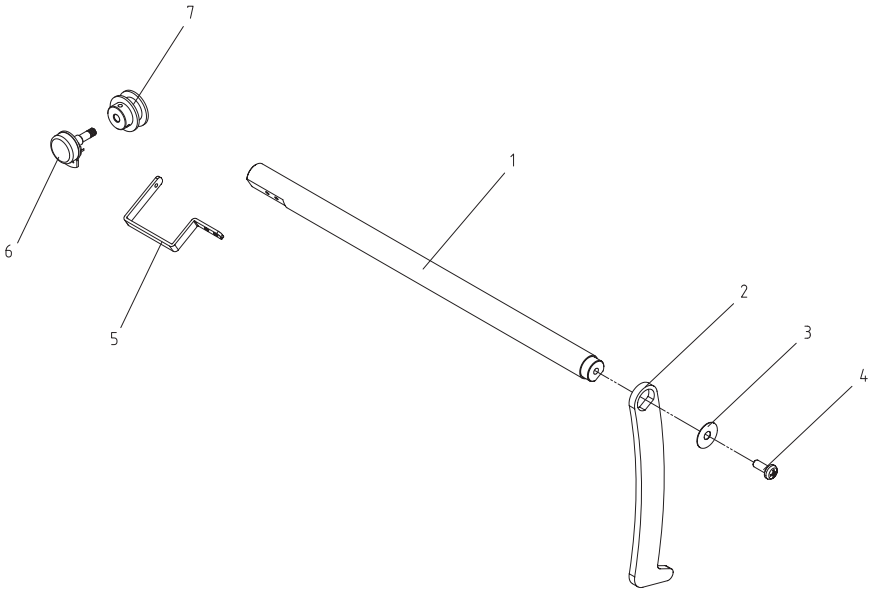
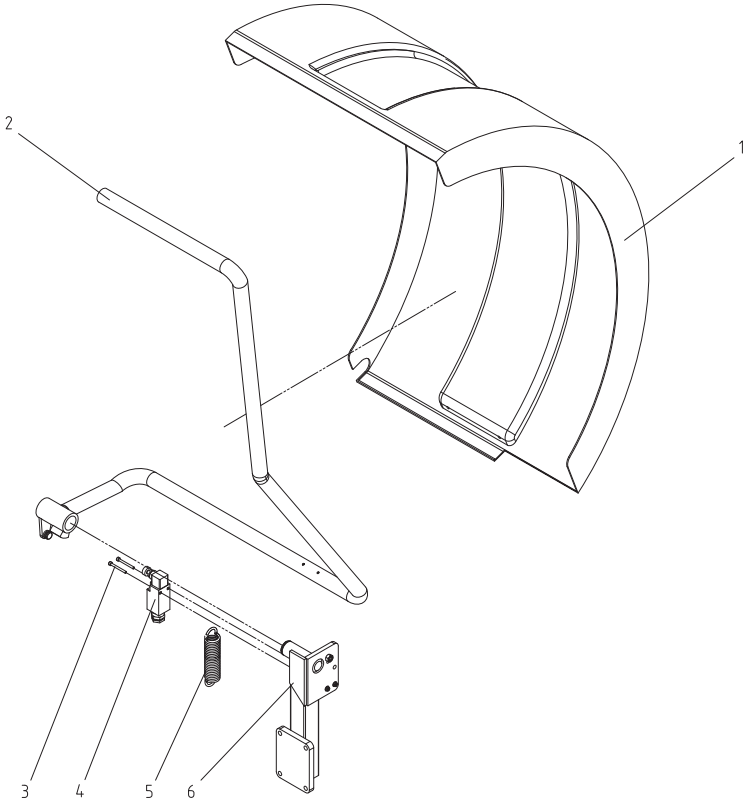
17	Piezoelectric sensor	2	^12x2P/3P (1700L)	11000213~4
16	Plane washer	8	M10	WPM10
15	Hexagonal nut	5	M10	HNM10
14	Full thread bolt	1	M10x150L	11000035
13	Sensor retainer rod	1	^18x16L	11000031
12	Quick nut	1	322x110x^36	11100110
11	Shaft thread	1	-	11000710
10	Small cone	1	^64x41L	11000140
9	Middle cone	1	^98x50L	11000130
8	Large cone	1	^128x50L	11000140
7	Shaft housing	1	-	11000710
6	Hexagonal bolt(H)	4	M10x25L	HEXM1025
5	Plane washer	4	M10	WPM10
4	Square washer	2	3.2tx21x60	11000240
3	Photo sensor	1	1.6tx40x79	10300137
2	Photo sensor bracket 1	1	2tx55x62	11000260
1	Photo sensor bracket 2	1	2tx80x81	11000265
MARK	DESCRIPTION	Q'TY	WEIGHT OR SIZE	ITEM NO.



MARK	DESCRIPTION	Q'TY	WEIGHT OR SIZE	ITEM NO.
7	Scale Roller	1	^30x20L	10500190
6	Potentiometer	1	RV24VN 20S B203	90000350
5	Scale bar wire braket	1	2.3tx30x55x30	10500121
4	Round Head +bolt	1	M6x15L	-
3	Scale bar washer	1	3.2tx^28	11100435
2	Scale Arm	1	6tx56x190	11300160
1	Scale bar	1	^30x375L	10500300

HW-105 Hood Cover Ass'y



6	Hood cover fixing frame	1	-	C1010100
5	Return spring	1	^28.5x^21.5x30turn	C1010215
4	Limit switch	1	D4D-1120N	C1010220
3	Wrench bolt	2	M4x40L	WBM0440
2	Hood cover pipe frame	1	^30x380x655x1040	C1010320
1	Wheel hood cover	1	2.3tx390x575x1050	C1010310
MARK	DESCRIPTION	Q'TY	WEIGHT OR SIZE	ITEM NO.

HESHBON®

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