Model 1450
Wheel Balancer

INDEX page

1- General

1.1 - General safety regulations

- The machine should only be used by authorized and suitably trained personnel.
- Do not use the machine for the purposes other than those specified in this manual.
- The machine should not be modified in any way except for those modifications explicitly carried out by the Manufacturer.
- Never remove the safety devices. Any work on the machine should only be carried out by specialist personnel.
- Avoid using strong jets of compressed air for cleaning.
- Use alcohol to clean the plastic panel or shelves (AVOID LIQUIDS CONTAINING SOLVENTS).
- Before starting the wheel balancing cycle, make sure that the wheel is securely locked on the adapter.
- The machine operator should avoid wearing loose clothing. Make sure that unauthorized personnel do not approach the machine during the spin cycle.
- Avoid placing objets inside the base as they could impair the correct operation of the machine.

1.1.1 - Standard safety devices

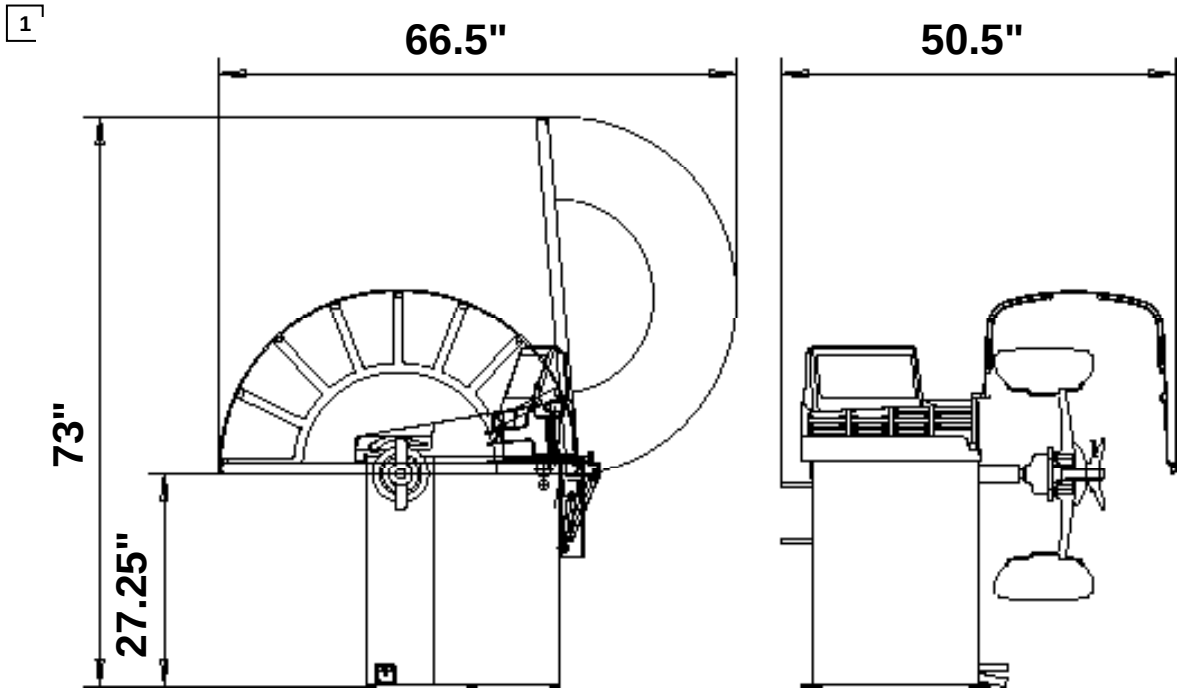
- Stop push button for stopping the wheel under emergency conditions.
- The plastic safety guard of high impact strength is with shape and size designed to avoid risk of counterweights from flying out in any direction except towards the floor.
- A microswitch prevents the machine from starting if the guard is not lowered and it stops the motor when the guard is raised.

1.2 - Field of application

The machine is designed for balancing wheels of cars, light commercial vehicles or motorcycles, weighing less than 165 lb. It can be operated in the temperature range of 32° to 110° F.
The following functions are provided: Two operator; ALU-M automatic; SPLIT; Unbalance optimization; Self diagnostics; Self calibration

1.3 - Overall dimensions

1

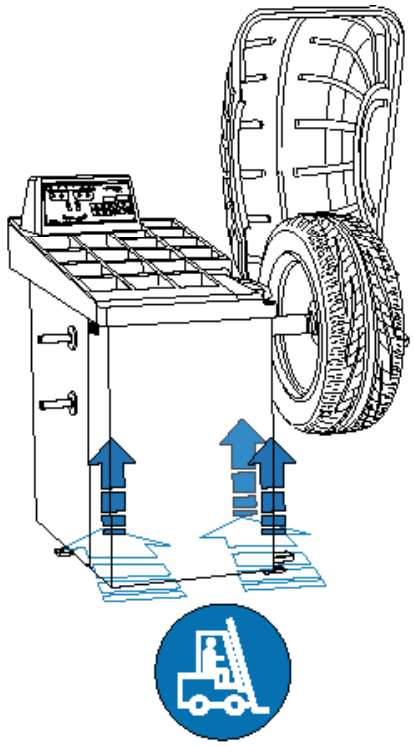


1.4 - TECHNICAL DATA

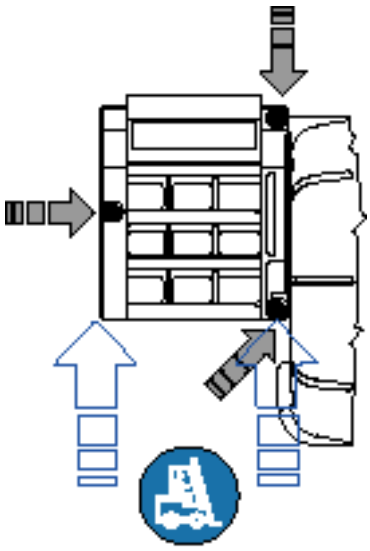
Weigth with guard (excluding adapter)	253 lb.
Single-phase power supply	115 V 60Hz
Protection class	IP 54
Max.power absorbed	1,1 Kw
Balancing speed	150 RPM
Cycle time for average wheel (30 lb.)	6 seconds
Max. resolution of measurement	1 gram
Position resolution	± 1.4 °
Average noise	< 70dB (A)
Rim-machine distance	0 - 267 mm
Rim width setting range	1.5” - 20”
Diameter setting range	10” - 30”
Total wheel diameter inside guard	42”
Total wheel width inside guard	19.5"

2 - Handling, lifting

2



2a



NOTE: NEVER USE OTHER POINTS TO LIFT THE MACHINE.

3 - Start-up

3.1 - Anchoring

The machine can operate on any flat non resilient floor. Make sure that the machine rests on the 3 mounting points provided (Fig. 2a). If possible, it is advisable to anchor to the floor using relative mounting feet (see fig. 2a) in the event of continual use with wheels weighing over 75 lb.

3.2 - Electrical connection

The machine is supplied with an electrical cable plus earth (ground).
The supply voltage is given on the machine nameplate. It cannot be changed.
Connection to mains should always be made by expert personnel.
The machine should not be started up without proper grounding.
Connection to the mains should be through a slow acting safety switch rated at 10 A (115 V).

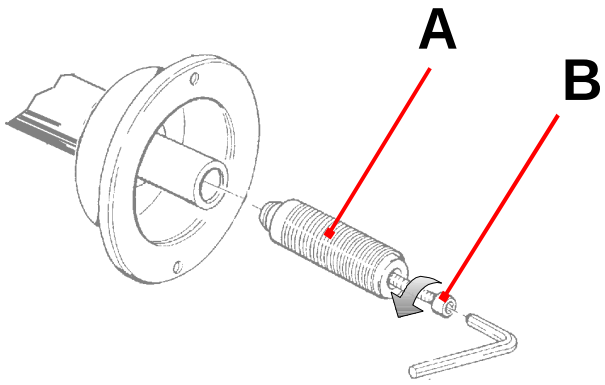
3.3 - Adapter mounting

The balancing machine is supplied complete with cone adapter for fastening wheels with central bore. Other optional flanges can be mounted once the terminal part is removed (also see enclosed brochures)

N.B**. **CAREFULLY CLEAN THE COUPLING SURFACES BEFORE PERFORMING ANY OPERATION.

a) DISMOUNTING THREADED END PIECE

3



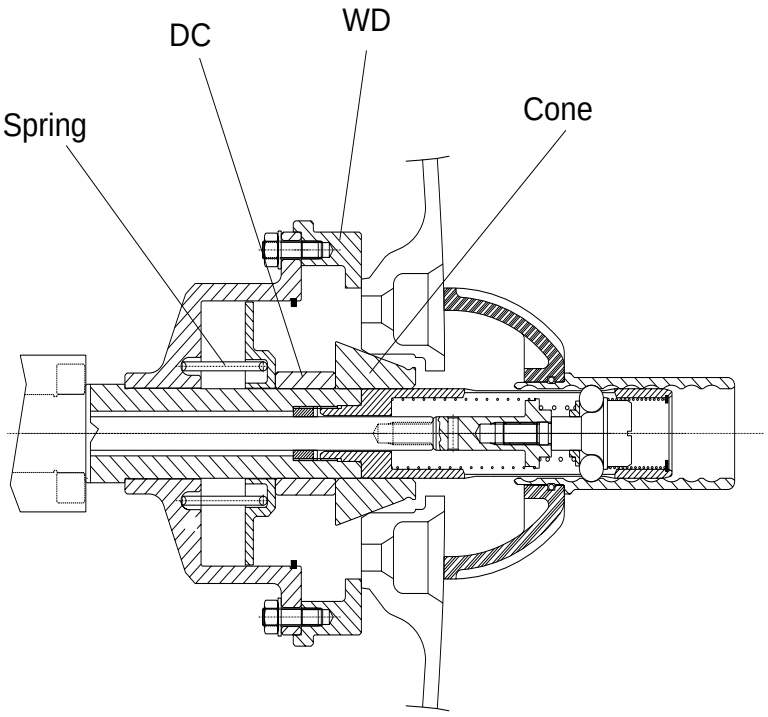
a) Back-off screw B and remove threaded end-piece A.
b) Fit the new adapter.

3.4 - Guard mounting and adjustment

a) Fasten the components to the base as illustrated in specific exploded view.
b) The position of the wheel guard when closed can be adjusted with relative screw accessible at the back. Correct position is the one which keeps the tube exactly horizontal with wheel guard closed.
c) With the guard closed check that the microswitch prod has slipped into place on the ring.
d) Appropriately adjust the angular position of the control ring.

3.5 - Spacer WD

When balancing very wide wheels (9”), there is not enough space to turn the distance gauge. To withdraw the wheel from the machine side, fit spacer WD on the adapter body and secure it with the standard issue nuts. When centring the wheel with the cone on the inside, fit the spacer DC to obtain spring thrust.



4 - Controls and components

4.1 - Brake pedal

It allows the operator to hold the wheel when mounting the counterweights.
It must not be used during the measurement cycle.

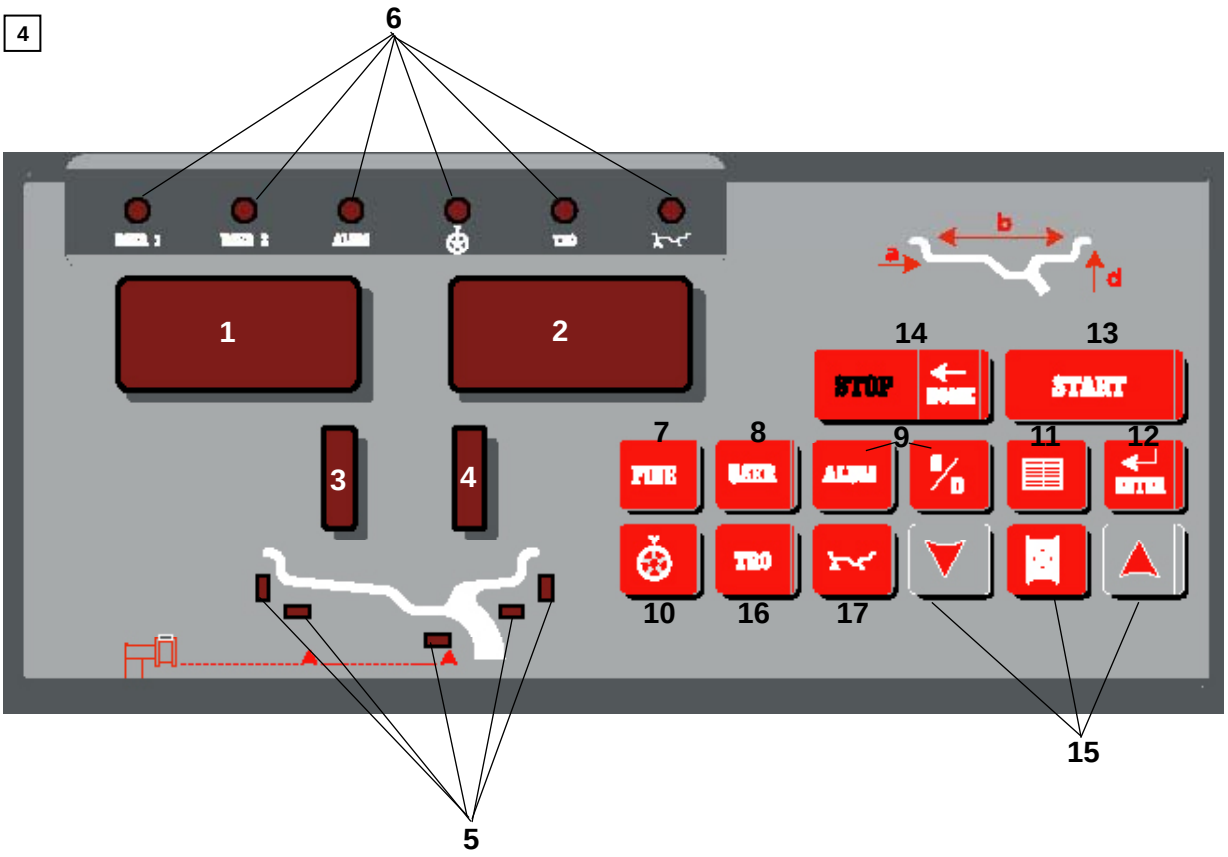
4.2 - Automatic rim distance and diameter gauge

This gauge allow measuring distance of the rim from the machine and the diameter at the point of application of the counterweight. This gauge also allow correct positioning of the counterweight inside the rim by using the specific function (see ***INDICATION OF EXACT CORRECTION POSITION IN ALU-M/ALU2/ALU3/STATI***), whereby the position can be read on the display; this function is used for the measurement (see ***WHEEL ALU-M***).

4.3 - Automatic wheel positioning

At the end of the spin, the wheel is positioned according to unbalance on the outside or static unbalance (when selected).
Accuracy is approx. ± 20 degrees for wheels weighing up to 55 lb.

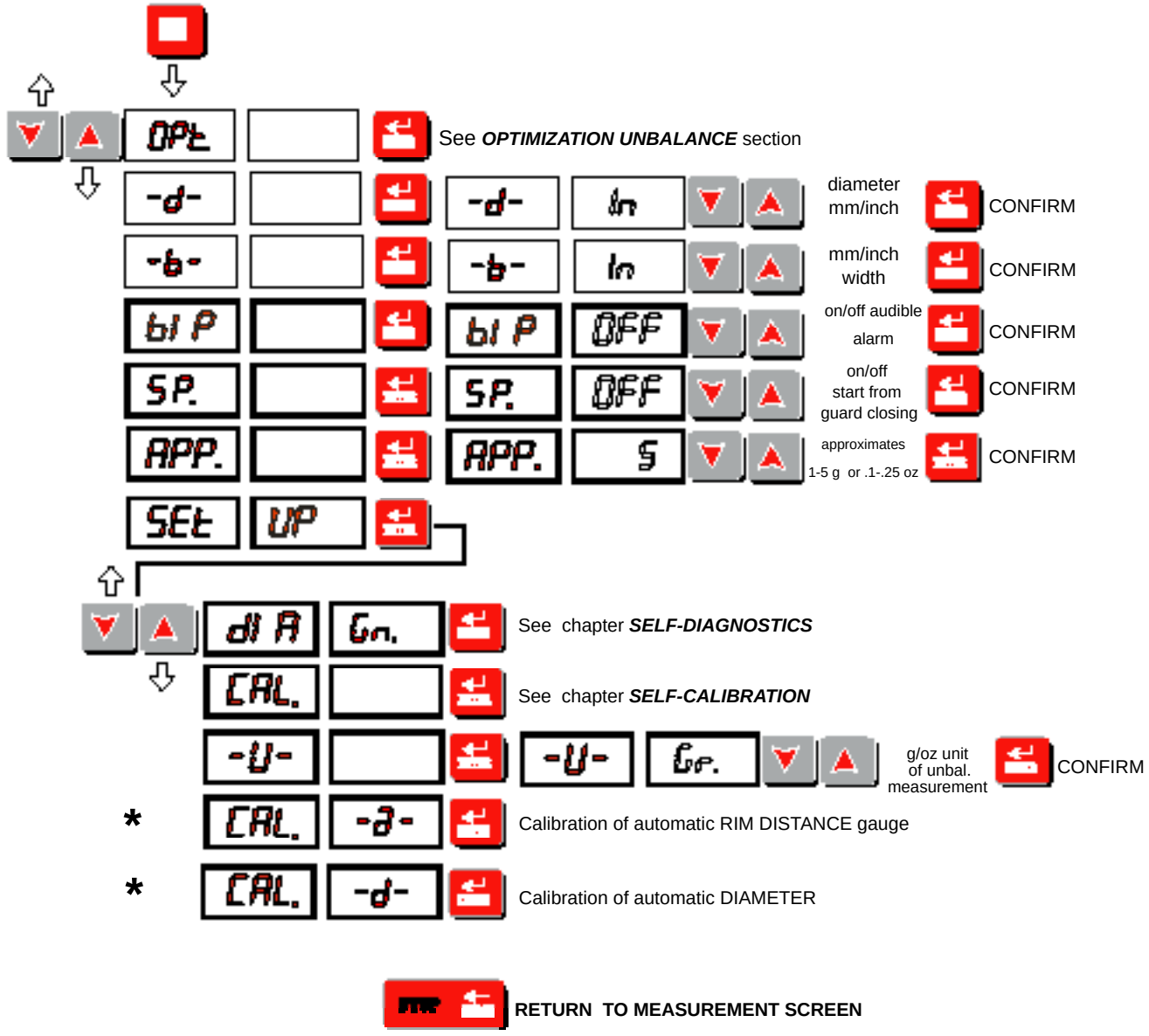
4.4 - Control panel and display



1-2 Digital readouts, AMOUNT OF UNBALANCE, inside/outside
3-4 Digital readouts, POSITION OF UNBALANCE, inside/outside
5 Indicators, correction mode select
6 Indicators, selection made
7 Push button, unbalance reading < 5 g (.25 oz)
8 Push button, operator selection
9 Push button, selection of mode of correction
10 Push button SPLIT (unbalance resolution)
11 Push button, FUNCTION MENU
12 Push button, menu selection confirmation
13 Push button, cycle start
14 Push button, emergency stop
15 Push button, manual DISTANCE / DIAMETER / WIDTH setting
16 Push button, Truck round off
17 Push button, Position Repeater

Note: - Only use the fingers to press the push buttons. Never use the weight pliers or other pointed objets.
- In case of audible alarm connected (see par. ***OPERATION FUNCTIONS MENU***), any push button operation sounds with a “beep” alarm.

4.4.1 - Operation functions menu



*** N.B. If such indications fail to appear, contact Technical Service.**

5 - Indications and use of the wheel balancer

5.1 - Multiple operator program

This program allows memorizing the dimensions of two types of wheels. Thus two operators can work simultaneously on two different cars using the same balancing machine. The system memorizes two programs with various preset dimensions.

1 - Press USER to select operator (1 or 2). Selection is confirmed by panel-mounted Led .

2 - Enter the dimensions (see ***PRESETTING OF WHEEL DIMENSIONS***).

3 - Press START to carry out the balancing as usual and to store the program.

With USER program 1 or 2 is called for subsequent balancing operations, without having to newly enter the dimensions.

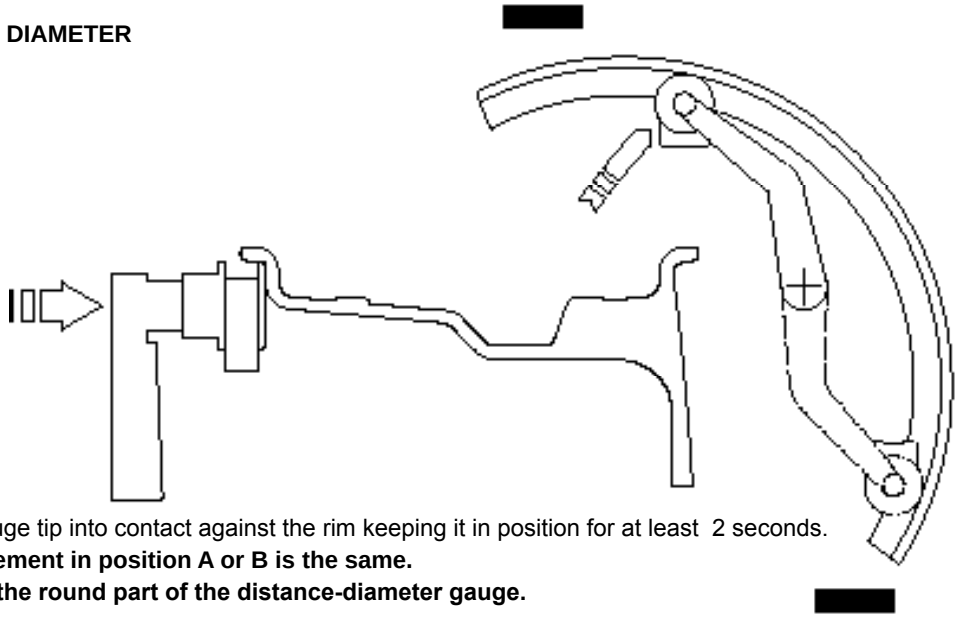
5.2 - Presetting of wheel dimensions

5.2.1 - Automatic presetting

- **Standard wheels** (calibration necessary also for modes ALU 1, 2, 3, 4, Static)

DISTANCE + DIAMETER

5



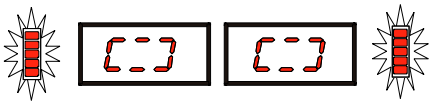
Move the gauge tip into contact against the rim keeping it in position for at least 2 seconds.
The measurement in position A or B is the same.
Always use the round part of the distance-diameter gauge.

Indication of gauge in movement

5a

Indication of dimensions acquired

5b

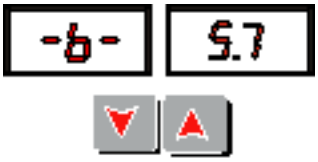


Note: In case of audible alarm connected (see par. ***OPERATION FUNCTIONS MENU***), the acquisition of the dimensions sounds with a “beep” alarm.

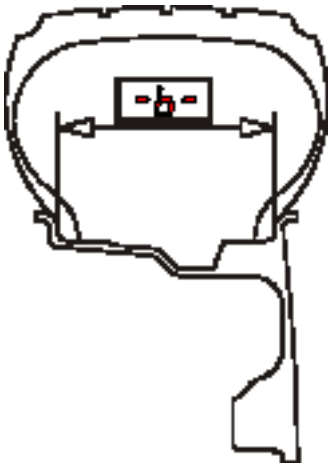
Return the gauge to position 0.

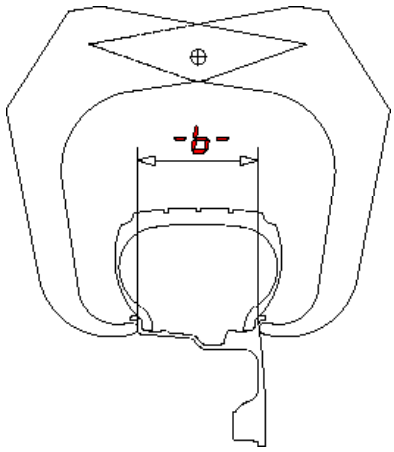
The system automatically switches to WIDTH position.

6



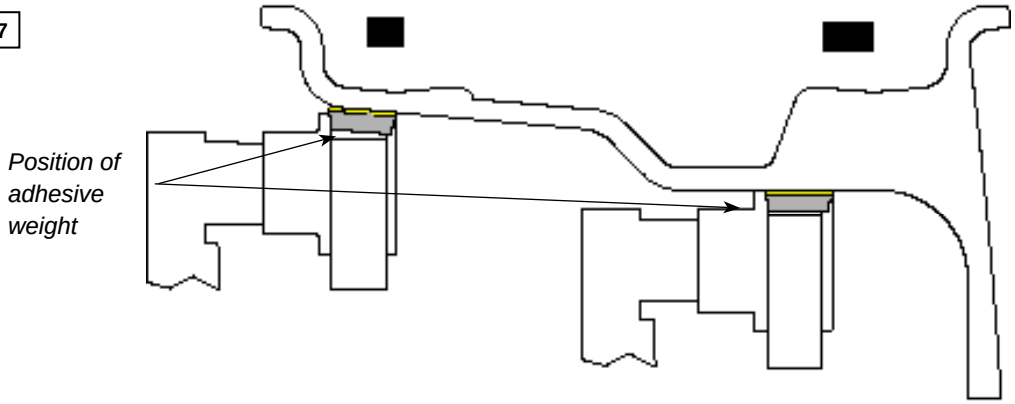
- The nominal width is normally stamped on the rim; if not, proceed to measure the nominal width with the caliper gauge (supplied as standard).





5.2.1.1 - Wheel ALUM
(correction from inside for two balancing planes with direct calibration):

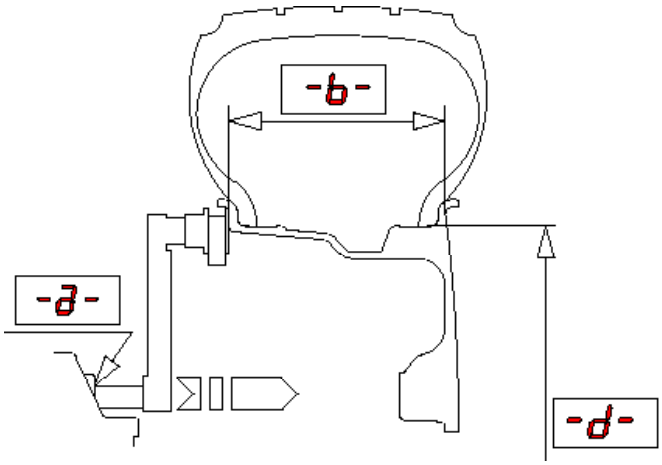
7

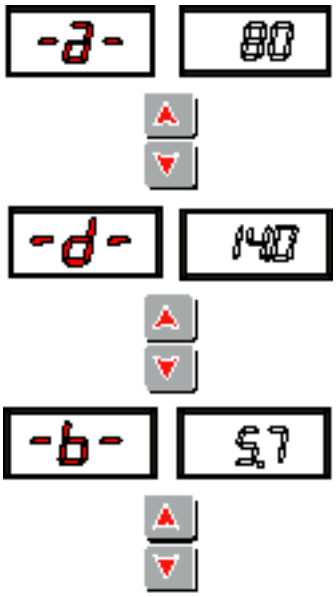


After measurement for inside FI as shown in fig. 7, again remove the gauge in order to memorize the data for the outside FE; keep the position for at least 2 seconds.
Choose position A or B at your choice.
Manual pressetting is possible by using the push buttons as for detailed hereunder.

5.2.2 - Manual presetting (Use only in particular cases or for test)
- Standard wheels

8





- Press  to read the symbol -a-
- Preset the distance of the wheel from the machine (in mm.)

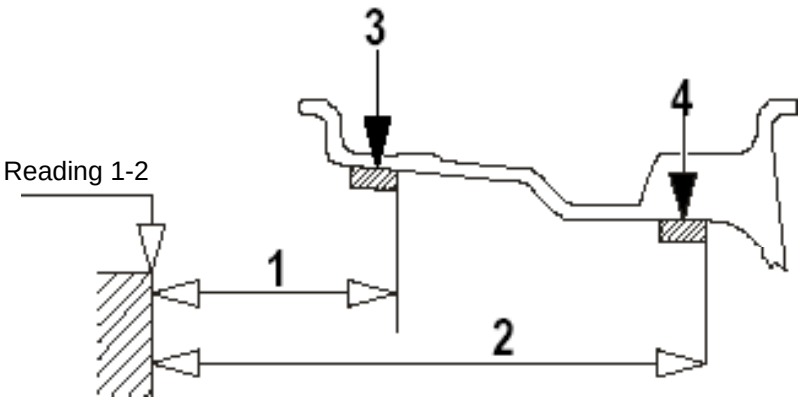
- Press  to select
- Preset the nominal diameter indicated on the tire

- Press  to select
- Preset the nominal width which is normally stamped on the rim; if not, measure width with the caliper gauge (supplied as standard)

- Wheel ALUM

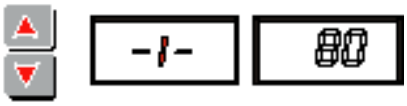
- Measure the dimensions as shown in the following diagram

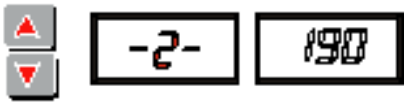
9

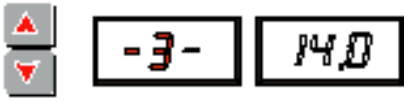


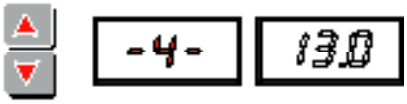
PRESETTING:

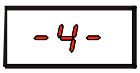
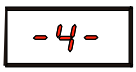
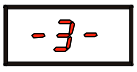
Press  to select the measurement to set









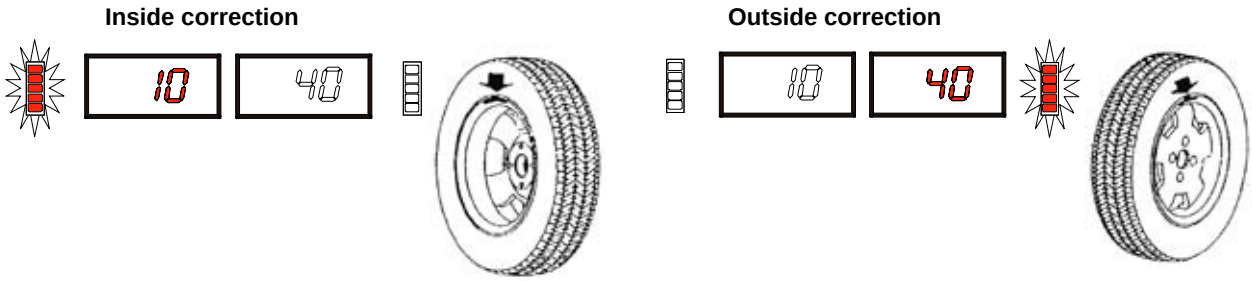
Note: if the outside diameter is not preset () the system automatically calculates the following: out side diameter () = inside diameter () - 1".

5.3 - Recalculation of the unbalance

Press  after new setting of the measurement.

5.4 - Result of measurement

10



After performing a balancing spin, the amounts of unbalance are shown on the digital readouts.
Digital readouts with Led's 3 - 4 lit-up indicate the correct angular wheel position to mount the counterweights (12 o'clock position). In case of audible alarm connected (see par. ***OPERATION FUNCTIONS MENU***), the acquisition of the correction position sounds with a "beep" alarm.
If the unbalance is less than the threshold selected, is displayed **0** instead of the unbalance. With FINE it is possible to read the values below threshold chosen 0.1 oz by 0.1 oz

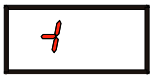
5.4.1 - Indication of exact correction position in ALU-M/ALU2/ALU3/STATIC

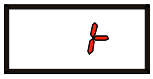
In correction mode ALUM/ALU2/ALU3 /STATIC it is possible to eliminate approximations in the mounting of the counterweights by proceeding as follows:

1) Press 

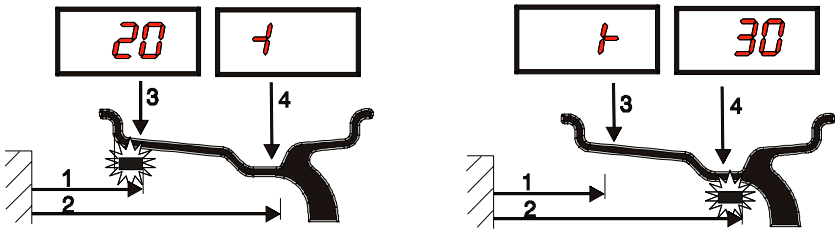
2) Fit the correction weight into the specific seat on the weight clip. Extract the gauge in pos. A as shown in Figure 5.

The display shows:


to indicate that the gauge should be pulled further out


to indicate that the gauge should be returned to rest position

11



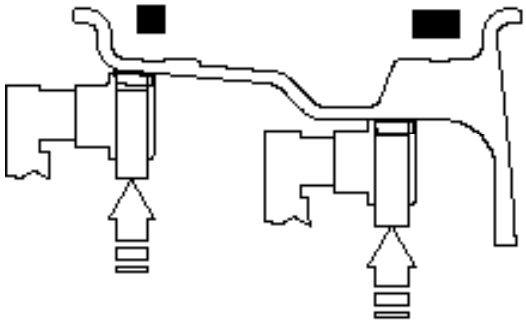
The left display gives the indications for reaching the position regarding the inside, while the right display that of the outside.

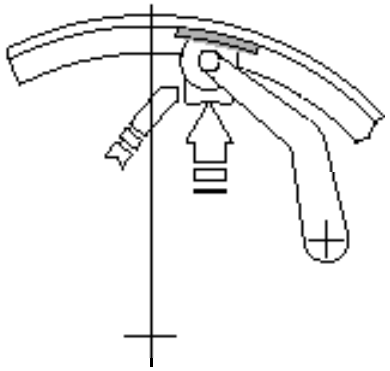
3) Bring the wheel into correct angular position as indicated in the setting for each side.

4) Insert the counterweight rotating the gauge tip outwards until the pincers touch the wheel in position A. The position of application of the weight is not at 12 o'clock position (Fig. 11A), but it is automatically compensated.

Note: the position repeater works only in Pos. A of Fig. 5.

11a





5.4.2 - SPLIT function (unbalance spread)

The SPLIT function is used to position the adhesive weights behind the wheel spokes so that they are not visible. This function should be used only in the case of static unbalance or where the hidden adhesive weight is to be applied on the outside. Input the wheel dimensions and do a spin.

Start the SPLIT function as follows:

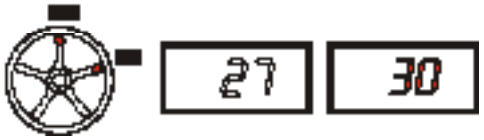
Example of display prior to SPLIT function

- Place the wheel in the outside unbalance correction position.
- Set one of the top spokes (preferably the one to the left of the unbalance) to 12 o'clock.
- Press the button 
- Follow the UP/DOWN indication of the positioning LEDs and set the second top spoke to 12 o'clock.
- Press button 

- Set the first split unbalance to correction position 1

- Correction position 1

- Set the second split unbalance to correction position 2



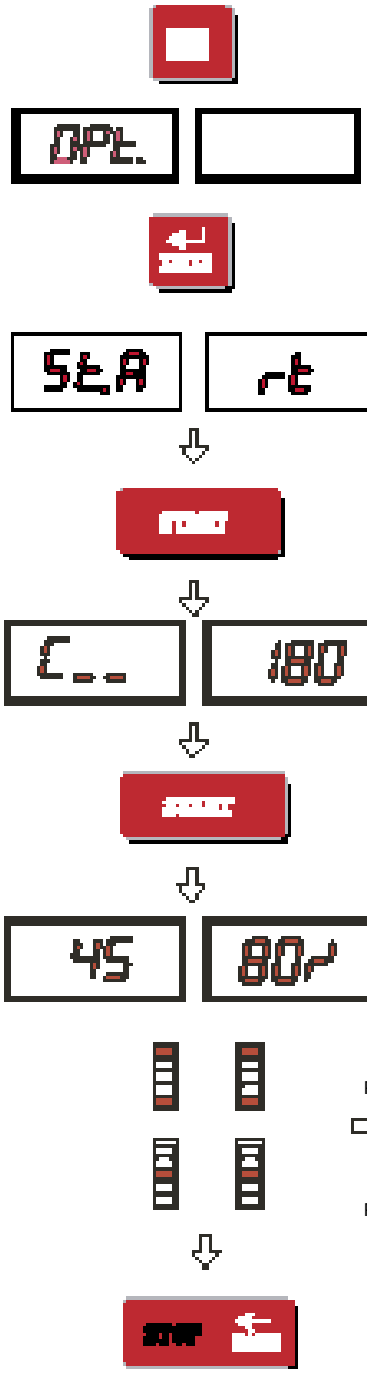
- Correction position 2

N.B.: *If error 24 is displayed, repeat the SPLIT function ensuring that the minimum distance between the spokes is greater than 18 degrees. If error 25 is displayed,repeat the split function ensuring that the maximum distance between the spikes is smaller than 120 degrees.*

To return to normal unbalance display, press any button.

To carry out a new spin, press the START button.

5.4.3 - Unbalance optimization



- This function serves to reduce the amount of weight to be added in order to balance the wheel
- It is suitable for static unbalance exceeding 30g. / 1 ounce
- It improves the residual eccentricity of the tire.

- Mark with chalk a reference point on the adapter and rim
- With the aid of a tire changer, turn the tire on the rim by 180°
- Refit the wheel with the reference mark coinciding between rim and adapter

- RH display: percentage reduction
- LH display: actual static unbalance which can be reduced by rotation

- Mark the two positions of the rim and tire, and turn the tire on the rim until the positions correspond in order to obtain the optimization on the display

RETURN TO MEASUREMENT SCREEN.

5.4.4 - ALU and STATIC modes

From the measurement screen, press button ALUM or S/D 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 of unbalance according to the new calculation.

Button S/D → DYNAMIC → STATIC → DYNAMIC

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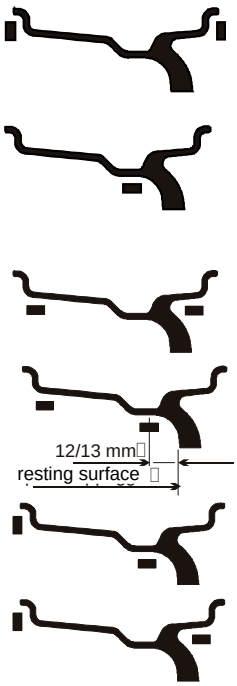


DYNAMIC Balancing steel or light alloy wheel rims by applying clamp weights on the edge of the wheel rim.

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.

Button ALUM → ALU M → ALU 1 → ALU 2 → ALU 3 → ALU 4 → ALU M

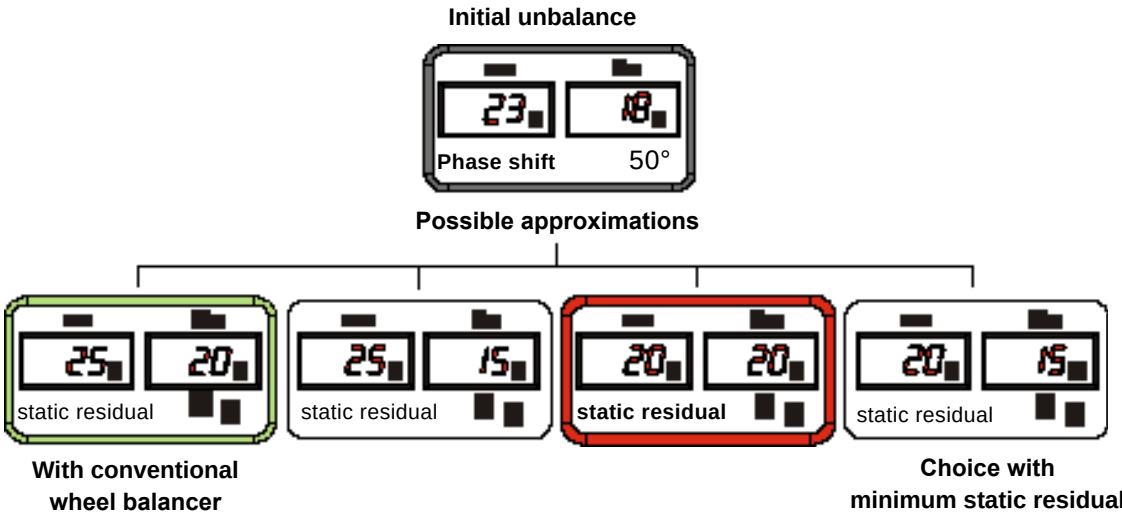
ALU 1 Balancing of light alloy rims with application of adhesive weights on the rim shoulders

ALU 2 Balancing of light alloy rims with hidden application of the other adhesive weight. Outer weight position is fixed.

ALU 3 Combined application: clip-on weight inside and hidden adhesive weight on outside (Mercedes). Outer weight position is the same as ALU 2.

ALU 4 Combined application: adhesive weight outside and clip-on weight inside.

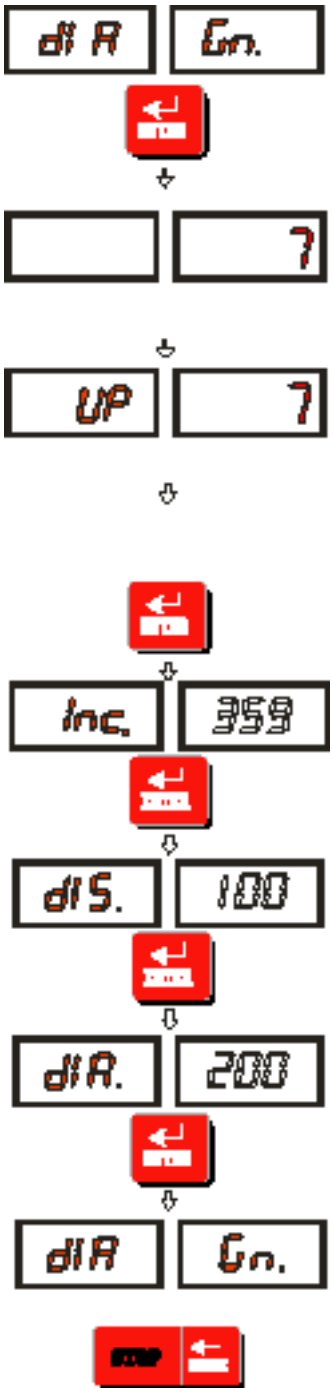
5.4.5 - Automatic minimization of static unbalance



This program is designed to improve the quality of balancing without any mental effort or loss of time by the operator. In fact by using the normal commercially available weights, with pitch of 5 in every 5 g, and by applying the two counterweights which a conventional wheel balancer rounds to the nearest value, there could be a residual static unbalance of up to 4 g. The damage of such approximation is emphasized by the fact that static unbalance is cause of most of disturbances on the vehicle. This new function, resident in the machine, automatically indicates the optimum entity of the weights to be applied by approximating them in an “intelligent” way according to their position in order to minimize residual static unbalance.

6 - Set up

6.1 - Self-diagnostics



DISPLAY TEST
All displays, readouts and Led's should light up in sequence

On the right-hand display the current position of the wheel is indicated with numbers from 0 to 127.

Turning the wheel in the direction of rotation for the unbalance measurement, the word UP must appear on the left-hand display. With one full turn of the wheel the number zero (0) should appear only once on the right-hand display.

- Test parameter

- Displays values of rim DISTANCE sensor

- Displays values of DIAMETER sensor

END OF SELF-DIAGNOSTICS

CANCEL SELF-DIAGNOSTICS IN ANY PHASE.

6.2 - Self-calibration

For machine self-calibration proceed as follows :

- Fit a medium-sized wheel with steel rim on the shaft. Example: 6” x 14” (± 1”)
- Preset the exact dimensions of the wheel mounted.

CAUTION !! Presetting of incorrect dimensions would mean that the machine is not correctly calibrated, therefore all subsequent measurements will be incorrect until a new self-calibration is performed with the correct dimensions!

- Perform a spin under normal conditions.

- Add a 100 g. calibration weight (3.5 oz) on the outside in any position.

- Shift the 3.5 oz weight from the outside to the inside keeping the same position.

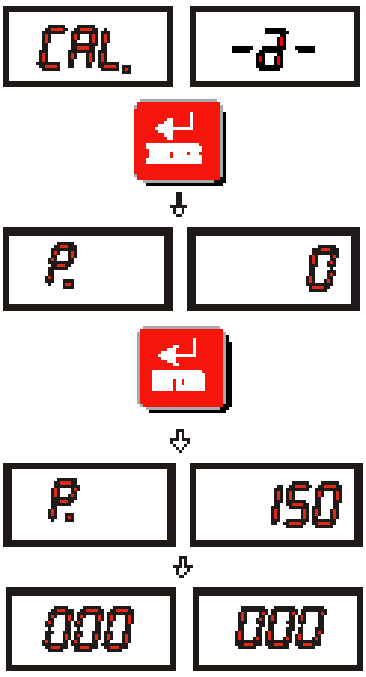
- Turn the wheel until shift the 3.5 oz weight to the 12 o’clock position

END OF SELF-CALIBRATION

CANCEL SELF-CALIBRATION IN ANY PHASE.

6.3 - Automatic gauges

6.3.1 - Rim distance gauge



- Shift the distance gauge to position 0 and keeping it quite still, press ENTER

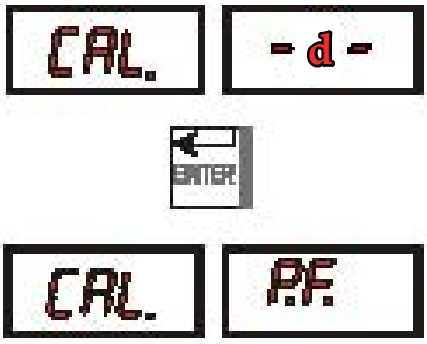
- Move the gauge to position 150, press ENTER

CORRECT CALIBRATION
- Return the gauge to rest position
- The wheel balancer is ready for operation

Note: In the event of errors or faulty operation, the writing P. 0 : appears on the display: shift the gauge to position 0 and repeat the calibration operation exactly as described above. If the error persists, contact the Technical Service Department. In the event of incorrect input in the rim distance gauge calibration function, press STOP HOME to cancel it.

6.3.2 - Diameter gauge

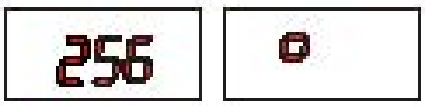
7 - Errors



Place the round part of the gauge terminal on the flange as shown in the figure.

- The number 353 ± 1° appears on the left display .
- Turn the gauge downward

Position the round part of the gauge terminal at 40 mm (radial distance) from the flange as indicated in the figure.



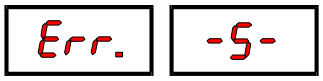
- The number 256 ± 3° should appear on the left display.

- If not, press the ENTER button holding the gauge still at 40 mm: The number 256 appears on the left display.

- Return the gauge to rest position.

In the event of incorrectly accessing the diameter gauge calibration function, press STOP HOME to cancel it.

During machine operation, various causes of faultly operation could occur. If detected by the microprocessor, they appear on the display as follows:



ERRORS	CAUSES	CONTROLS
Black	The wheel balancer does not switch on.	1. Verify correct connection to the electrical outlet. 2. Verify and eventually replace the fuses on the power supply. 3. Verify monitor function. 4. Replace the computer board
Err. 1	No rotation signal.	1. Verify belt tension. 2. Verify the function of the start-stop board and, in particular, the reset signal. 3. Replace the start-stop board. 4. Replace the computer board.
Err. 2	Speed too low during detection. During unbalance measurement rotation, wheel speed is less than 42 rpm.	1. Make sure that a vehicle wheel is mounted on the wheel balancer. 2. Verify belt tension. 3. Verify the function of the start-stop board and, in particular, the reset signal. 4. Replace the computer board.
Err. 3	Unbalance too high.	1. Verify wheel dimension settings. 2. Check piezo connections. 3. Perform machine calibration. 4. Mount a wheel with more or less known unbalance (less than 3.5oz) and verify the response of the machine. 5. Replace the computer board.
Err. 4	Rotation in opposite direction. After pressing [START], the wheel begins to rotate in the opposite direction (anticlockwise).	1. Verify the connection of the UP/DOWN – RESET signals on the start-stop board.
Err. 5	Guard open The [START] pushbutton was pressed without first closing the guard.	1. Reset the error. 2. Close the guard. 3. Verify the function of the hood switch. 4. Press the [START] pushbutton.
Err. 7 / Err. 8	NOVRAM parameter read error	1. Repeat machine calibration 2. Shut down the machine. 3. Wait for a minimum time of ~ 1 Min. 4. Re-start the machine and verify correct operation. 5. Replace the computer board.
Err. 9	NOVRAM parameter write error.	Replace the computer board.
Err. 11	Speed too high error. During unbalance measurement rotation, wheel speed is more than 270 rpm.	1. Check if there is any damage or dirt on the timing disc. 2. Verify the function of the start-stop board and, in particular, the reset signal. 3. Replace the computer board.
Err. 12	Unbalance measuring cycle error.	1. Verify start-stop board function. 2. Verify correct motor operation. 3. Verify belt tension. 4. Replace the computer board.
Err.13/ Err.14/ Err.15/ Err.16/ Err.17/ Err.18	Unbalance measurement error.	1. Verify start-stop board function. 2. Check piezo connections. 3. Verify machine ground connection. 4. Mount a wheel with more or less known unbalance (less than 3.5 oz) and verify the response of the machine. 5. Replace the computer board.
Err. 20	The wheel comes to a halt before completing positioning correctly.	1. Make sure that the wheel to be balanced is at least 10” in diameter. 2. Verify the correct setting of wheel dimensions on the display screen. 3. Check belt tension.
Err. 24	Distance between the spokes smaller than 18 degrees.	1. The minimum distance between the spokes where to split the unbalance must be greater than 18 degrees 2. Repeat the SPLIT function increasing the distance between the spokes.
Err. 25	Distance between the spokes greater than 120 degree	1. The minimum distance between the spokes where to split the unbalance must be smaller than 120 degrees 2. Repeat the SPLIT function increasing the distance between the spokes.

7.1 - Inconsistent unbalance readings

Sometimes after balancing a wheel and removing it from the balancing machine, it is found that, upon mounting it on the machine again, the wheel is not balanced.
This does not depend on incorrect indication of the machine, but only on fault mounting of the wheel on the adapter; i.e. in the two mountings, the wheel has assumed a different position with respect to the balancing machine. If the wheel has been mounted on the adapter with screws, it could be possible that the screws have not been correctly tightened, i.e. crosswise one by one, or else (as often occurs) holes have been drilled on the wheel with too wide tolerances.
Small errors, up to 10 grams (4 oz) are to be considered normal in wheels locked by a cone, the error is normally greater for wheels fastened with screws or studs.
If, after balancing, the wheel is found to be still out-of-balance when refitted on the vehicles, this could be due to the unbalance of the car brake drum or very often due to the holes for the screws on the rim and drum sometimes drilled with too wide tolerances. In such case a readjustment could be advisable using the balancing machine with the wheel mounted.

8 - Routine maintenance

Switch off the machine from the power supply before carrying out any operation.

8.1 - To replace the fuses

Remove the weights holder shelf to gain access to the power supply board where the fuses are located (see Exploded Drawings). If fuses require replacement, use ones of the same current rating.
If the fault persists, contact BUTLER Technical Service Department.

NONE OF THE OTHER MACHINE PARTS REQUIRE MAINTENANCE.

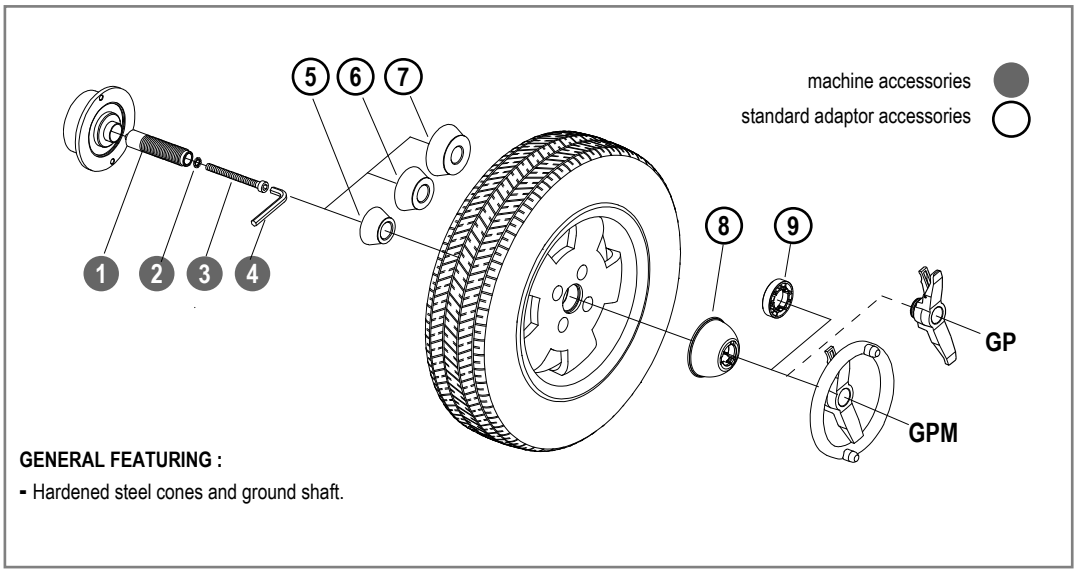
Accessories for car balancers Ø 40

	**Universal cone adaptors**	**UC20 UC20-SE2**
	**Options for universal cone adaptors**	**OPTIONS for UC20**
	**Universal quick adaptor**	**UH20/2**
	**Adaptor with centering studs**	**SR**
	**Adaptor with centering studs SR-USA**	**SR-USA**

Ø 40 Universal cone adaptor UC20/2

UC20/2
with lockring
GP
41FF52874

UC20/2
with lockring
GPM
41FF52875



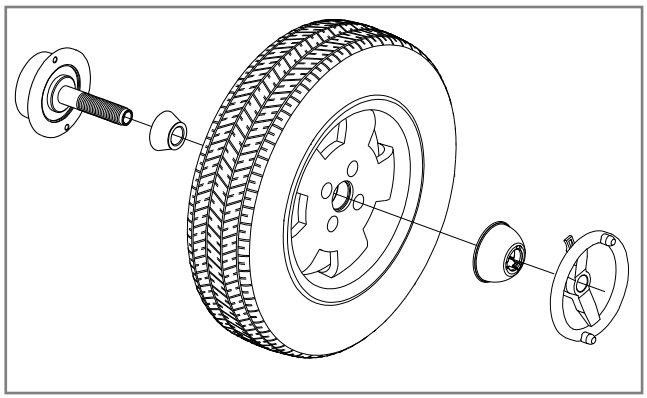
GENERAL FEATURING :

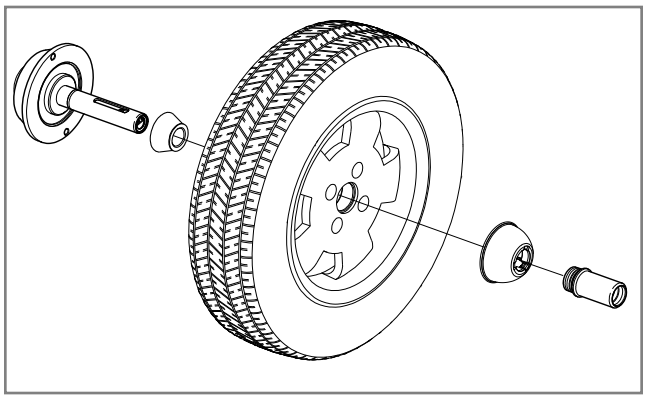
- Hardened steel cones and ground shaft.

ITEM	CODE	DESCRIPTION	DATA
1	42FM51744	threaded end	L = 205
2	325047011	knurled washer	Ø 10
3	312120137	screw	TCEI M10x160 UNI 5931
4	114008002	allen wrench	8 mm
5	40FF43714	cone A1	Range Ø 43 ÷ 69
6	40FF43715	cone A2	Range Ø 60 ÷ 81
7	40FF43716	cone A3	Range Ø 79 ÷110
8	40FF51315	hollow sleeve	Ø 130 esterno
9	40FF51334	nylon washer	Ø 80 esterno

FITTING

It is recommended that the adaptor is used in the "back-cone" method.

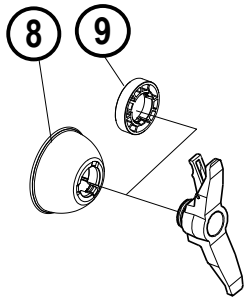




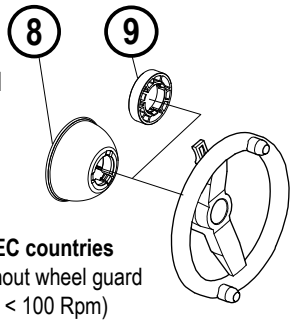
UC20/2:
- fit the suitable cone (conicity towards the outer side) and, in sequence, the wheel, the lockring complete with hollow sleeve **8**;
- the hollow sleeve is replaced by the nylon washer **9** for light alloy rims with protruding hub.

UC20-SE2:
- press the unlocking pedal
- fit the suitable cone (conicity towards the outer side) and, in sequence, the wheel, the lockring complete with hollow sleeve **8**;
- press the locking pedal
- the hollow sleeve is replaced by the nylon washer **9** for light alloy rims with protruding hub.

GP **41FF51338**
quick lockring

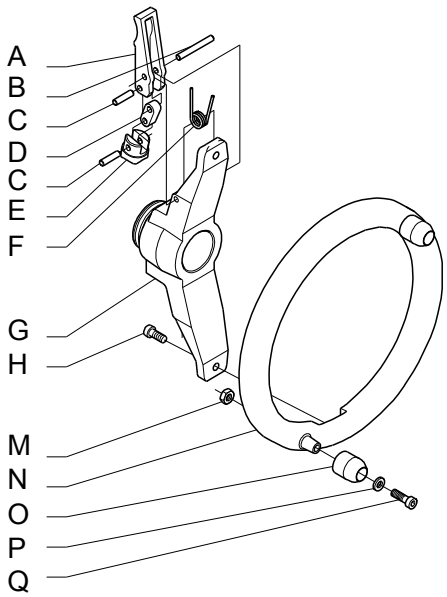


GPM **41FF51364**
quick lockring with handwheel

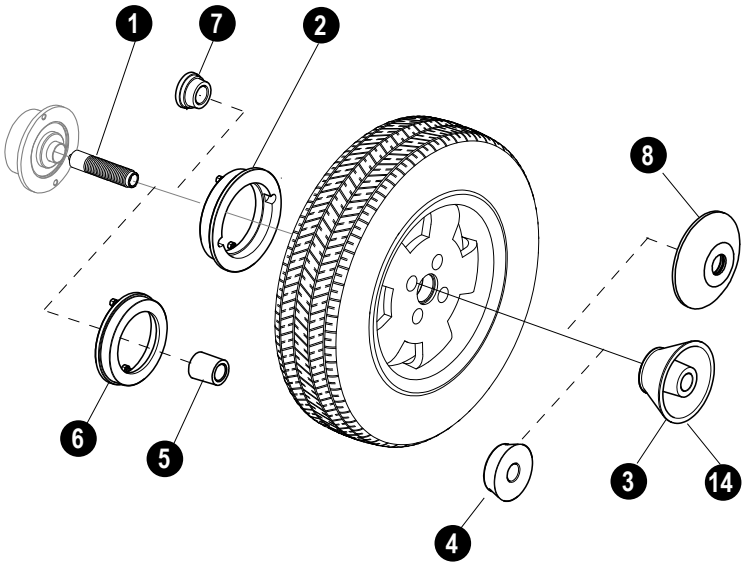


Compulsory in EC countries
for machines without wheel guard
(balancing speed < 100 Rpm)

ITEM	CODE
A	940012977
B	331220059
C	331220055
D	940012975
E	40FF51320
F	183237600
G	40FF51302
H	312120067
M	321232006
N	218295313
O	217295353
P	325035006
Q	312120073



Ø 40 OPTIONS - Universal cone adaptor UC20/2



ITEM	CODE	DESCRIPTION
1	46FM51743	Longer threaded end set **L = 205** Recommended for SR adaptors
2	940010537	**G/36** Spacer disc To be used with VL/2 cone for wheel with central hole Ø 170
3	40FF52417	**VL/2** Cone To be used with G/36 disc **range Ø 97÷170** *(to extend the range up to Ø 180 use Kit VL/2)*
4	40FF53534	**J** Cone To be used for cross-country and 4WD wheels **range Ø 101÷119** Recommended for WD spacer
5	40FF53531	**DC** Spring pusher spacer Recommended for WD spacer
6	940013325	**WD** Wheel support spacer
	41FF53532	**KIT WD + DC** Recommended for Wheels with large camber (cross-country and 4WD)

OPTIONS - Universal cone adaptor UC20/2 — Ø 40

ITEM	CODE	DESCRIPTION
7	40FF57321	**MT** Stepped cone for German wheels **Steps** — **Models** Ø 56,5 — OPEL Ø 57 — AUDI (all models) - BMW series 3 - Porsche 924 VW Polo, Golf, Derby, Scirocco, Vento, Passat, Santana Ø 66,5 — MERCEDES BENZ (all models) Ø 72,5 — BMW series 5-6-7-8 - Opel Admiral
8	41FF51339	**RL** Hollow sleeve for alloy rims Ø 206 external
	41FF53550	**VL/2 CONE KIT** Necessary to lock light trucks wheels with central hole Ø 170÷180 **Models** **Pick Up - FORD** F250 super cab XLT — F350 crew cab LARIAT — F450 F250 crew cab XLT — F350 crew cab DUALIE **Mercedes** Sprinter New series
9	940010105	**GG** Ring
10	40FF43745	**G40** Spacer disc
11	326035011	Flat washer — Ø 11 30x2,5 — UNI 6593
12	312120119	Screw — TCEI M10x20 — UNI 5931
	41FF60652	**SPECIAL 8.5" CONE IV KIT** Required to clamp van wheels - GM series 2500 (GMC, Chevrolet, Oldsmobile etc.)
13	40FF60653	Special Cone IV 8,5" — Ø 202/214/215,9
14	40FF61043	Special cone — Ø 89 / 132

Ø 40 OPTIONS - Universal cone adaptor UC20/2

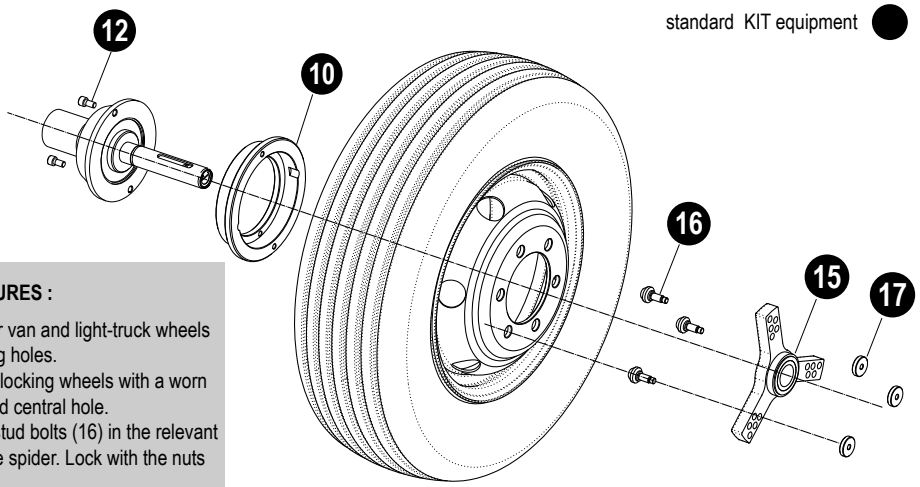
Centring

KIT

SR3

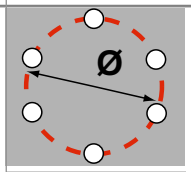
41FF66118

standard KIT equipment ●

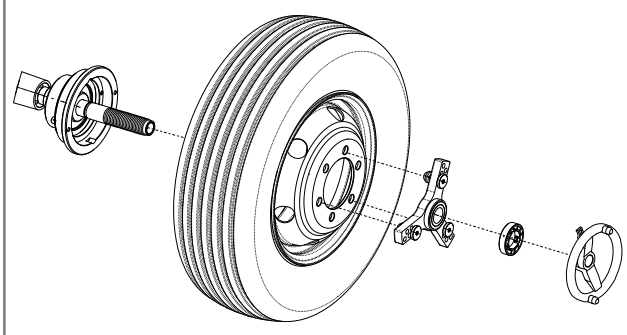
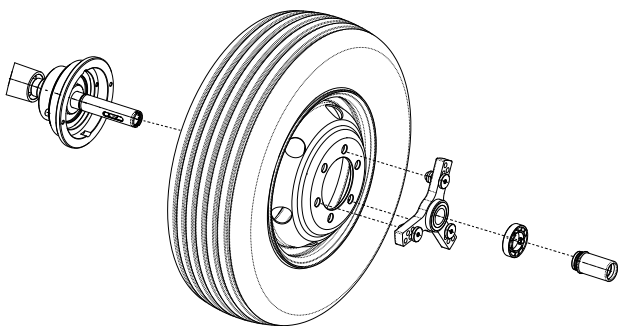


MAIN FEATURES :

- Suitable for van and light-truck wheels with 6 fixing holes.
- Perfect for locking wheels with a worn or deformed central hole.
- Insert the stud bolts (16) in the relevant holes in the spider. Lock with the nuts (17).
- Tighten the spider with the standard devices provided with the wheel balancer.

ITEM	CODE	DESCRIPTION	DATA
10	40FF43745	**G/40** Spacer disc	
12	312120119	Screw	TCEI M10 X 20 UNI 5931 (2 Pieces)
15	40FF66115	3-arm spider	 **Main car models** 6 holes over 170 Ø - FIAT DAILY - MITSUBISHI CANTER T35 - OPEL BEDFORD - FORD TRANSIT FT 130-190 100L 6 holes over 184,15 Ø - TOYOTA Dyna 150 6 holes over 205 Ø - MERCEDES LLKW series 400, 500, 600, 700, T1/T2 - VOLKSWAGEN LLKW LT 35-55 / L80 6 holes over 222,25 Ø - MITSUBISHI CANTER T75 6 holes over 245 Ø - Light trucks in general
16	40FF66117	Stud	(3 pieces)
17	40FF66116	Nut	(3 pieces)

FITTING

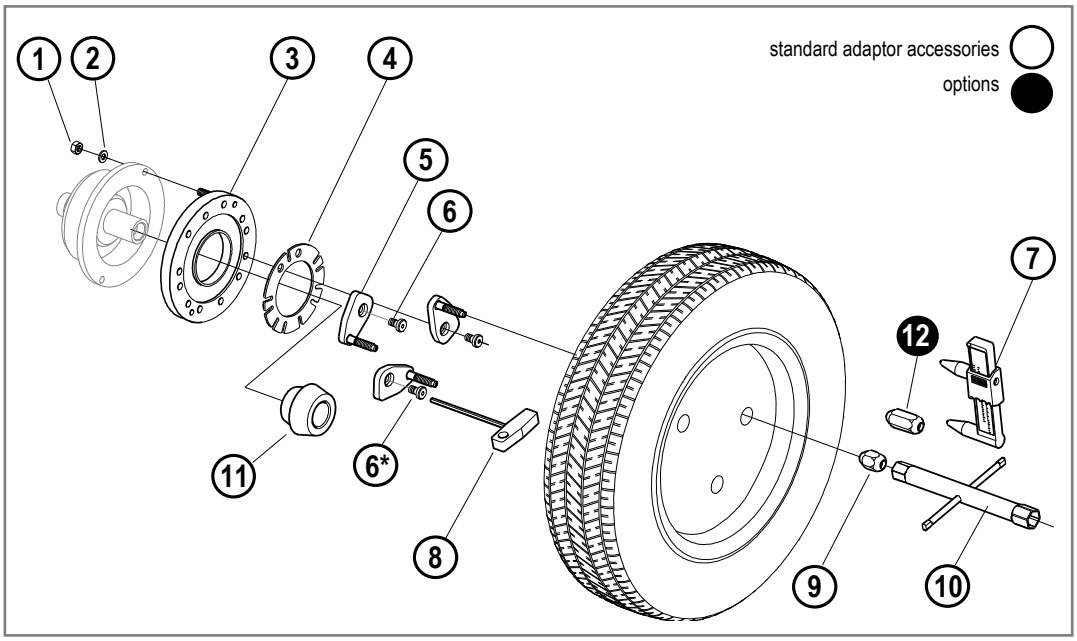
UC 20/2	UC20/2 - SE2
	

Ø 40  Universal quick adaptor UH20/2

UH20/2

complete adaptor
for wheel balancers with manual or pneumatic locking

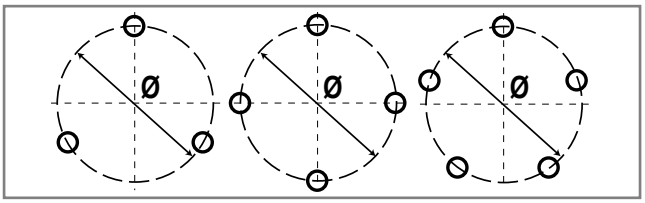
41FF42048

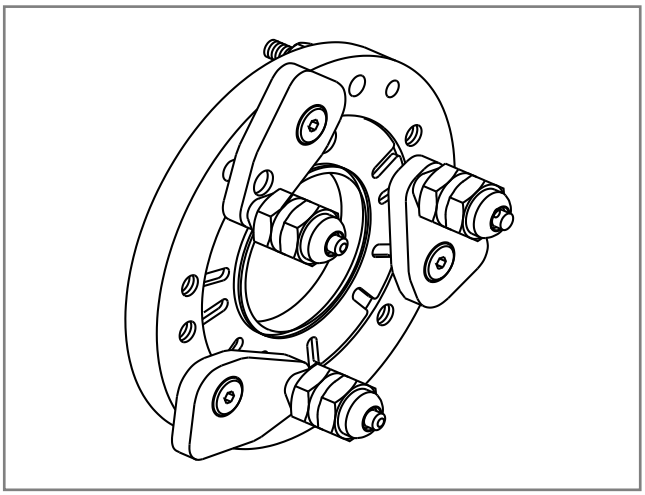


GENERAL FEATURING :

- for wheels with or without central hole.
- The additional cone 11 **(CEMB patent)**, in most cases, allows to center the wheel on the central hole, thus improving balancing accuracy.

Fit for any motor-vehicle wheels with 3, 4 or 5 holes on **Ø** 95 up to 210 mm.

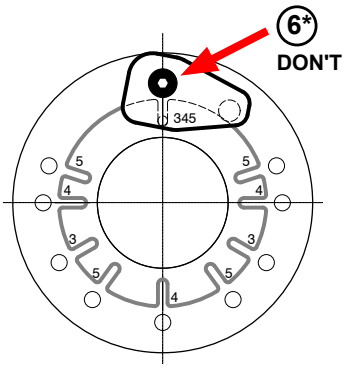




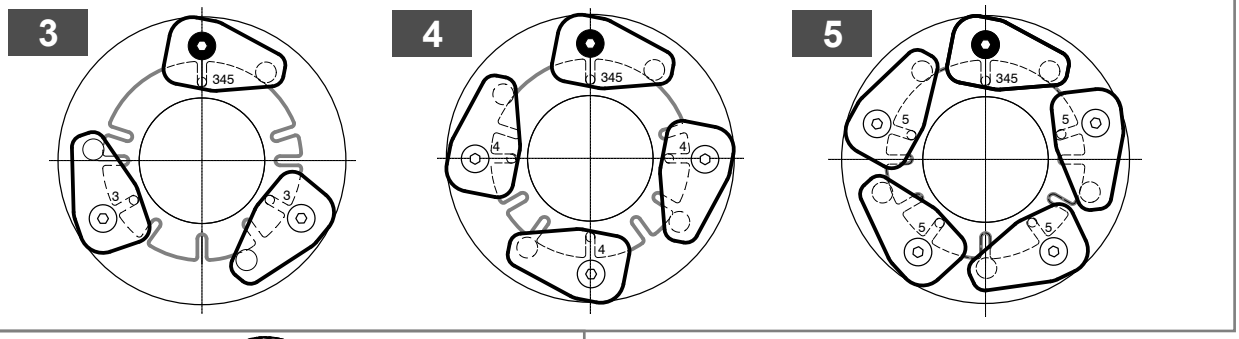
ITEM	CODE	Q.ty	DESCRIPTION	DATA
1	321232008	2	nut	M8 UNI 5588
2	325035008	2	flat washer	Ø 8,4 x 17
3	40FF33438	1	adaptor body	
4	40FF33439	1	guide disc	
5	40FF33440	5	complete stud bracket	
6	40FF33441	4	gauged screw	burnished
6*	40FF33443	1	gauged screw	tropicalized
7	940052253	1	gauge	
8	115006002	1	t-wrench	hexagon 6
9	40FF33442	5	special nut	conic 60° / spherical radius 10
10	112019220	1	socket spanner	hexagon 19/22
11	40FF42165	1	pre-centering cone	Ø 52 ÷ 72,5
12	41FF38501	1	kit of 5 special long nuts	conic 60° / spherical radius 8 (for Peugeot 406)

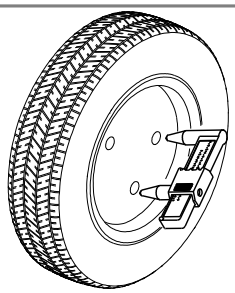
FITTING

BASIC SETTING FOR PATTERN MODIFICATION

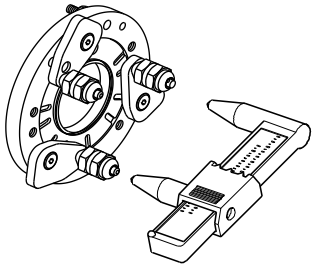


1) Change the adaptor pattern (3;4;5) according to any requirements.
N.B. :
do not lock studs (5) leaving screws (6) and (6*) loosen, to enable the operation at point 3).

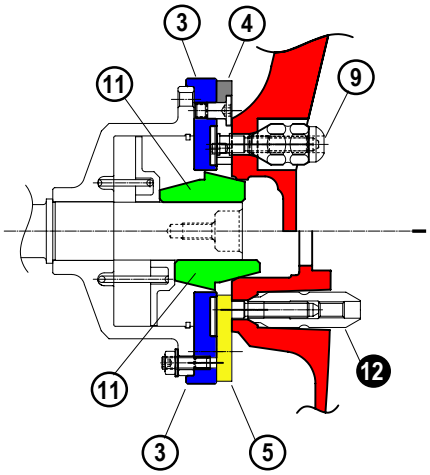




2) Measure the distance between two of wheel holes with the gauge (7).



3) Line the axles of two studs to the gauge prod.



4) Lock the screws(6) and(6*).

5) Fit the wheel.
N.B.:
The use of cone (11) generally improves the wheel centering accuracy.

6) Lock the nuts by hand (9).

7) Lock the nuts with the socket spanner (10), not too tigh.

Ø 40 — Adaptor with centering studs SR

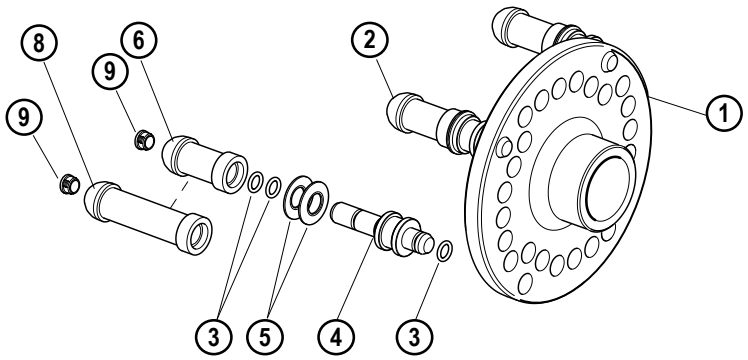
STANDARD LOCKING

SR4
41FF53853

SR5
41FF53854

SR5/2
41FF53855

standard adaptor accessories ○



GENERAL FEATURES :

- For a quick and accurate locking of wheels having central hole on cone adaptors, using fixing holes of the vehicle.
  Centering studs can quickly be inserted in the adaptor disc by simply pressing them by the hand (no need to screw them on) and allow to obtain high accuracy thanks to the elastic system for recovering clearances caused by rim inaccuracies.

NB: eliminates scratching problems with alloy rims caused by the clamping sleeves. The anti-scratch clamps (9) also avoid damage to the rims.

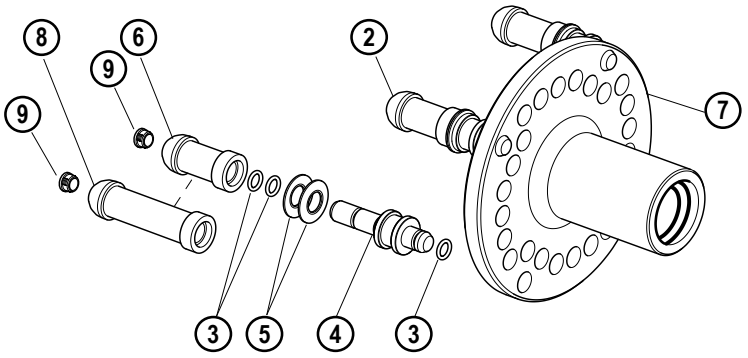
PNEUMATIC LOCKING

SR4-SE2
41FF55890

SR5-SE2
41FF55891

SR5/2-SE2
41FF55892

standard adaptor accessories ○

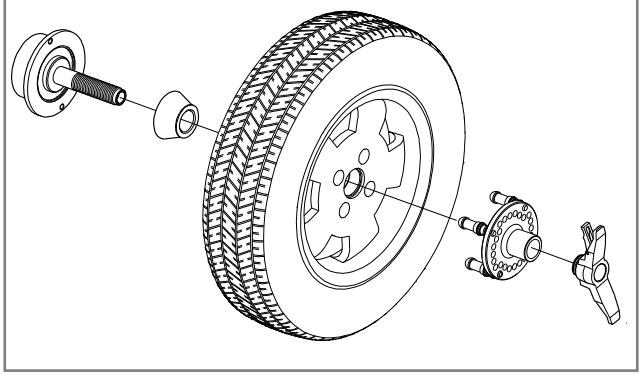
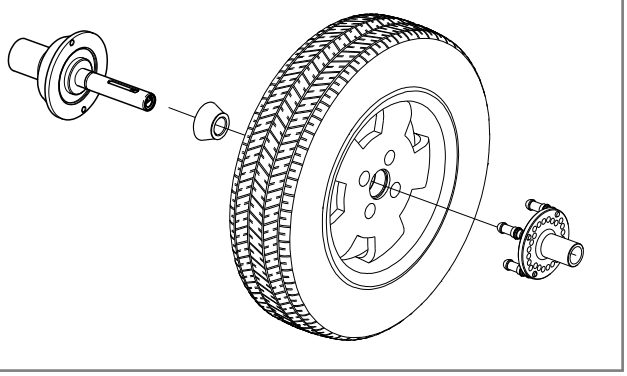


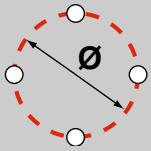
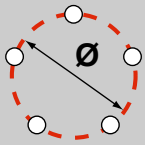
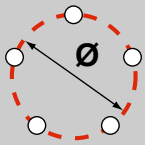
ITEM	CODE	DESCRIPTION	DATA
STANDARD LOCKING ①	40FF53856	**SR4** adaptor body -	
	40FF53857	**SR5** adaptor body	
	40FF53858	**SR5/2** adaptor body	
②	41FF32952	complete centering stud	
③	211001081	rubber gasket	OR 108
④	40FF32949	stud	
⑤	355122509	belleville washer	Ø 12,2 x 25 x 0,9
⑥	40FF32951	bush	L = 48 mm
PNEUMATIC LOCKING ⑦	40FF55943	**SR4-SE2** adaptor body	
	40FF55941	**SR5-SE2** adaptor body	
	40FF55942	**SR5/2-SE2** adaptor body	
⑧	40FF32950	long bush	(Special light alloy rims)
⑨	213003753	Non-scratch cap	

Adaptor with centering studs SR

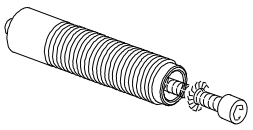
Ø 40

FITTING

STANDARD LOCKING	PNEUMATIC LOCKING
	

	Ø	Main car makes
 **SR4** **SR4-SE2**	98	Fiat - Lancia - Alfa Romeo - Autobianchi - Talbot - Lada - Skoda
	100	Bmw - Opel - Audi - Volvo - Volkswagen - Toyota - Honda - Nissan
	108	Ford - Audi - Alfa Romeo - Citroën BX - Maserati
	110	Mazda 323 - Mazda 626
	114.3	Mitsubishi - Daihatsu - Mazda - Saab - Toyota - Suzuki - Nissan - Ford USA - Honda - Hyundai
	120	Honda - Mazda
	130	Volkswagen - Ford Transit - Mecedes
 **SR5** **SR5-SE2**	100	Toyota - Seat - Audi - Skoda
	108	Volvo - Lancia Gamma - Citroën MX
	112	Ford - Audi - Mercedes - Bmw
	114.3	Mitsubishi - Mazda - Toyota - Nissan - Honda
	120	Bmw - Opel
	139.7	Volkswagen - Ford Transit - Mercedes
	160	Ford Transit - Mercedes
 **SR5/2** **SR5/2-SE2**	98	Alfa 164 - Citroën CX - Thema 8.32
	110	Opel - Saab
	118	Ducato - Peugeot - Citroën
	120.65	Jaguar - G.M.C. - Maserati - Chevrolet
	127	G.M.C. - Rover - USA cars - Jaguar
	130	Mercedes - Audi - Porsche
	140	Mercedes

OPTION recommended for wheel balancers with standard locking

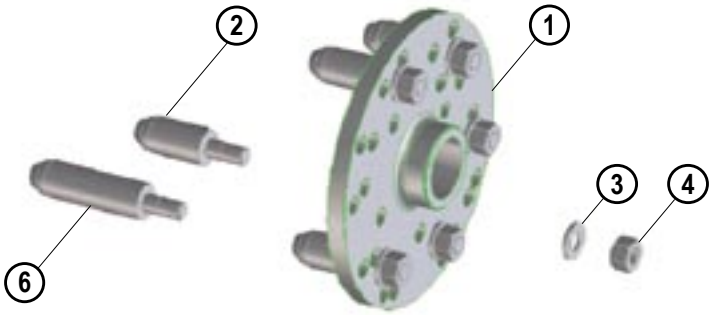
46FM51743	Longer threaded end set	**L = 205**	

Ø 40 Adaptor with rigid centering studs SR-USA

STANDARD LOCKING

SR-USA
41FF56189

standard adaptor accessories ◯



CARATTERISTICHE GENERALI :

- It makes use of stiff metal studs (no elastic). It must be used without cone on central hole. For light trucks, pick-up, off-road vehicles.

PNEUMATIC LOCKING

SR-USA-SE2
41FF56193

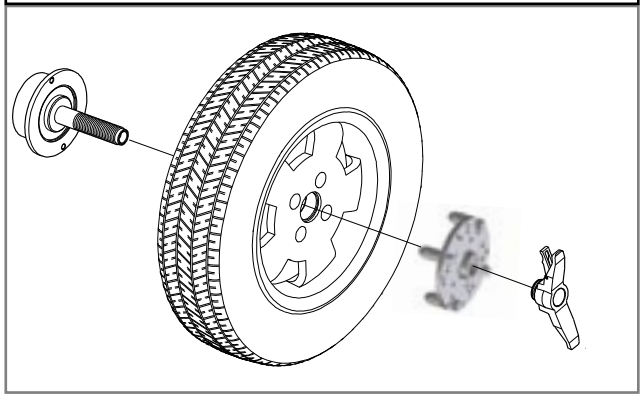
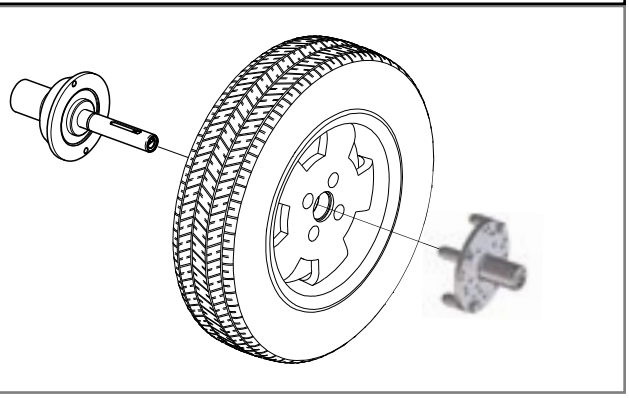
standard adaptor accessories ◯

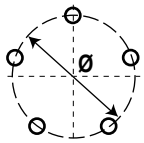
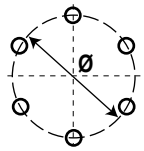
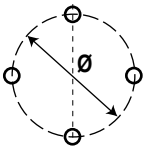
ITEM	CODE	Q.ty	DESCRIPTION	DATA
STANDARD LOCKING				
1	40FF56188	1	Adaptor body	
2	940013701	6	Fixed stud	L = 50
3	325035012	6	Flat washer	13 x 24 UNI 6592
4	321232012	6	Nut	
PNEUMATIC LOCKING				
5	40FF56192	1	adaptor body	
6	42FF46928	6	Long stud	L = 80 (Nissan Patrol)

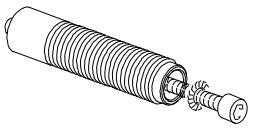
Adaptor with rigid centering studs SR-USA

Ø 40

FITTING

STANDARD LOCKING	PNEUMATIC LOCKING
	

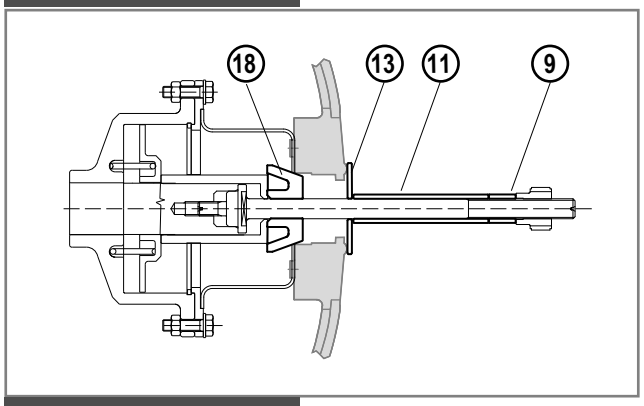
	N.holes	Ø"	Ø mm	Main car makes
	5	4.0	101.6	US-Cars, plymouth, chevrolet, Dodge
	5	5.5	139.7	Daihatsu, Ford, Lada, Suzuki
	5	6.5	165.1	Rover
	6	5.5	139.7	Ford, G.B., Isuzu, Mazda, Mitsubishi, Nissan, Opel, Toyota, Wolksvagen
	3		114.3	Nissan Pathfinder (6 holes)
	4	6.5	165.1	Doge, Ford International (8 holes)
	4		170	Ford

	OPTION recommended for wheel balancers with standard locking		
46FM51743	Longer threaded end set	**L = 205**	

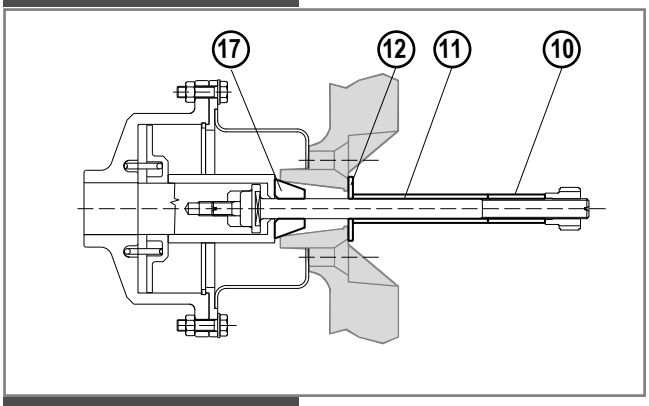
FITTING

Some example for flanged wheels.

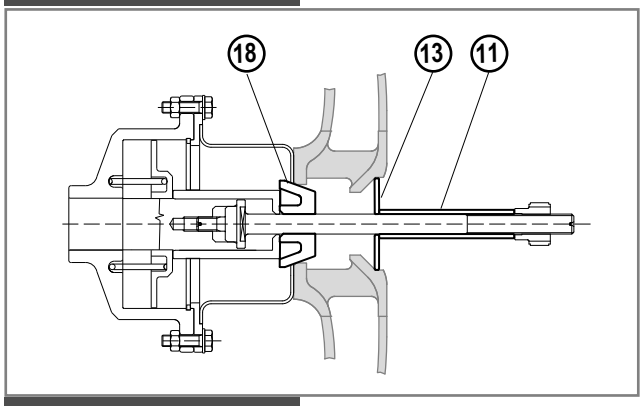
APRILIA AF1



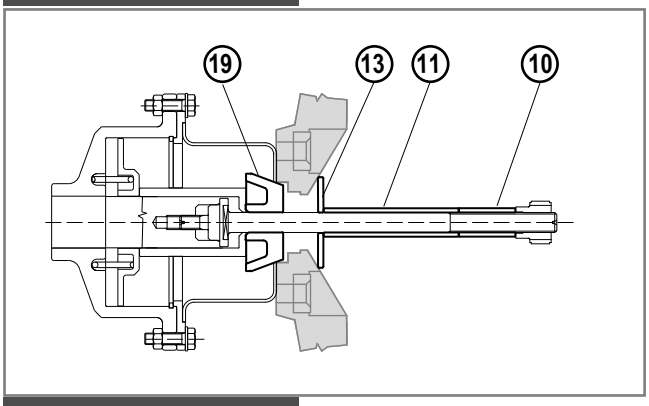
BMW K-R



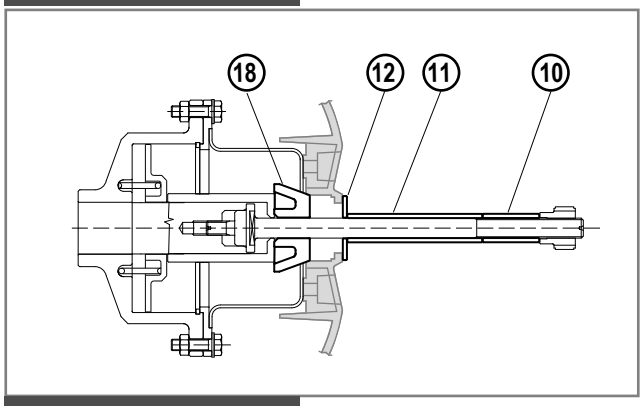
DUCATI 916



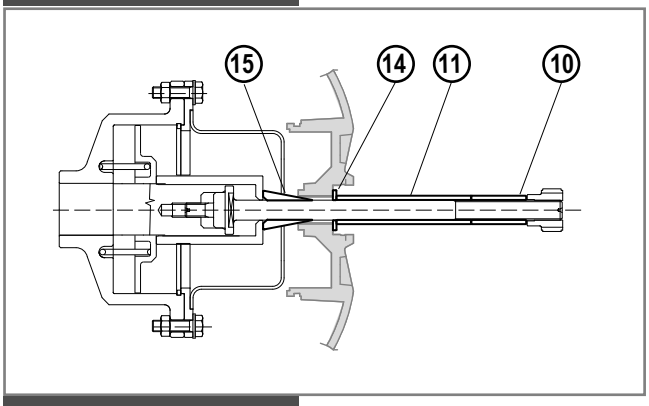
YAMAHA GTS 1000



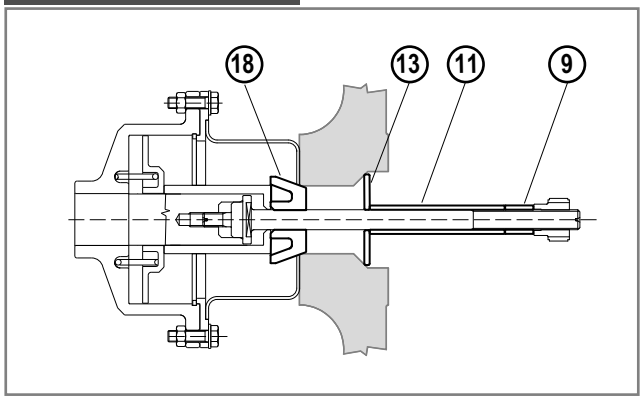
EXAGON front wheel



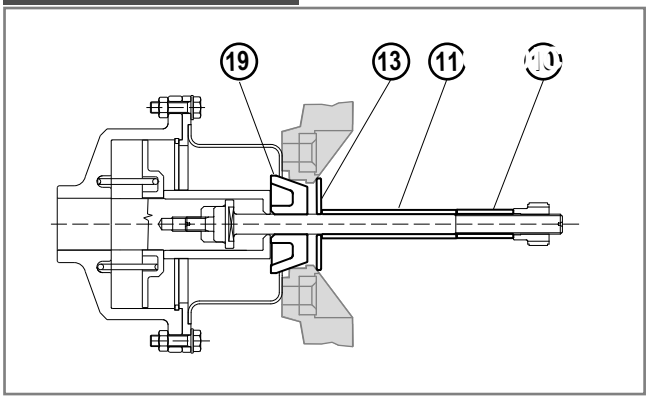
EXAGON rear wheel



HONDA NTV



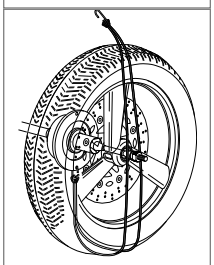
HONDA VFR



Ø 40

Universal adaptor RMC20/man

Wheels with own bearing

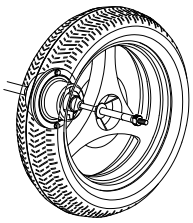


RMC20/man

for manual balancers

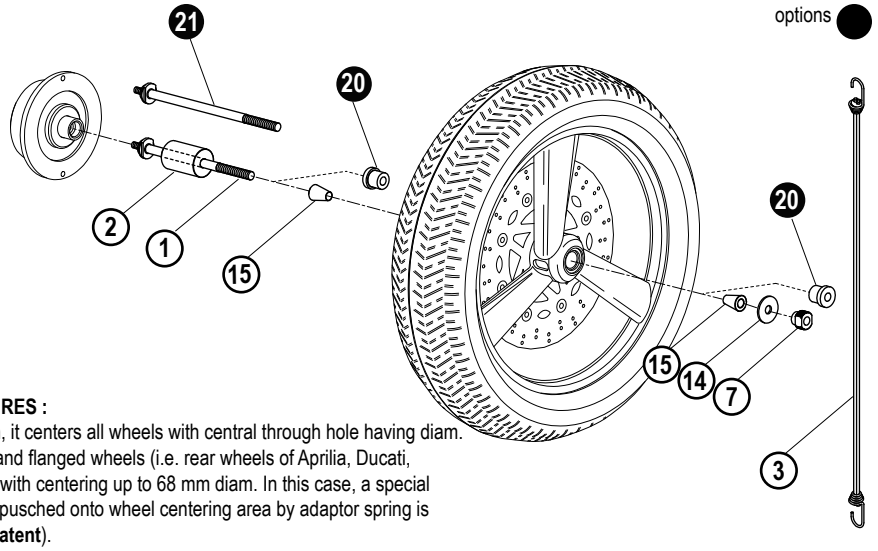
41FF48071

Flanged wheels

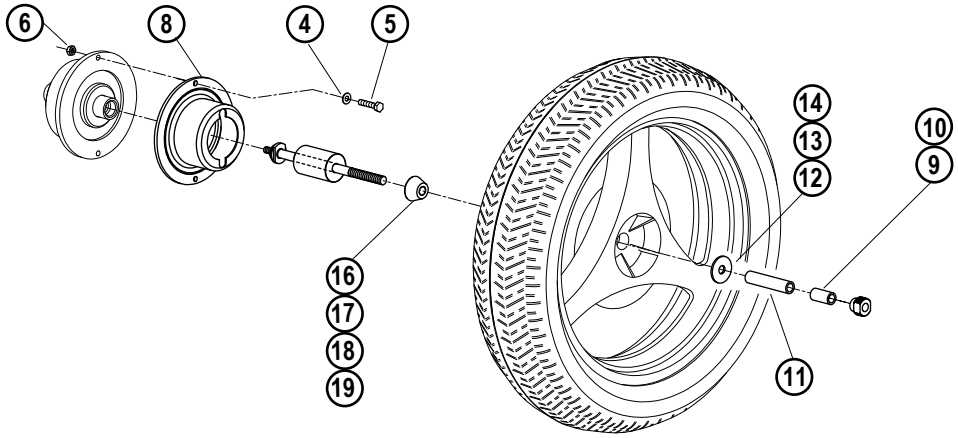


standard adaptor accessories ○

options ●



GENERAL FEATURES :
In standard version, it centers all wheels with central through hole having diam. from 15 to 35 mm and flanged wheels (i.e. rear wheels of Aprilia, Ducati, Bmw, Honda, etc.) with centering up to 68 mm diam. In this case, a special cone(16,17,18,19) pusched onto wheel centering area by adaptor spring is available (**CEMB patent**).



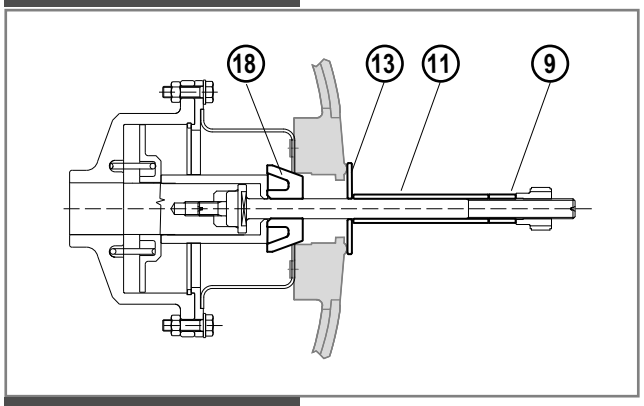
ITEM	CODE	Q.ty	DESCRIPTION	
1	40FF29925	1	shaft	Ø 15 L=231
2	40FF48244	1	spring pusher	Ø 15
3	21FF31640	1	elastic	L=800
4	325035008	2	flat washer	8,4x17 UNI 6592
5	311120096	2	screw	TE M8x30 EN 24014
6	321232008	2	nut	M8 EN 24032
7	40FF29950	1	lockring	Ø 15
8	40FF29943	1	counterflange	
9	40FF29931	1	spacer	Ø 15 L=20
10	40FF29932	1	spacer	Ø 15 L=40
11	40FF31377	1	spacer	Ø 15 L=95
12	40FF31376	1	disc	Ø 15 x 45
13	40FF31649	1	disc	Ø 15 x 64
14	325035014	1	washer	Ø 15 x 28

ITEM	CODE	Q.tY	DESCRIPTION		
15	40FF29927	2	cone **C1**	Ø 15-25	
16	40FF51119	1	cone **C2**	Ø 25-30	Yamaha R1-R6
17	40FF29929	1	cone **C3**	Ø 30-40	BMW
18	40FF31650	1	cone **C4**	Ø 40-60	Aprilia AF1, Honda NTV, Ducati 916
19	40FF29944	1	cone **C5**	Ø 54-68	Honda VFR, Yamaha GTS 1000
20	41FF51299	1	**COMPLETE KIT OF CENTERING BUSHES**		
	40FF31651	2	**B1** L=30	Ø 28	Yamaha
	40FF38838	2	**B2** L=30	Ø 25	Kawasaki
	40FF38837	2	**B3** L=30	Ø 22	Yamaha, Honda, Aprilia, Gilera, Kawasaki, Suzuki
	40FF38836	2	**B4** L=30	Ø 20	Yamaha, Honda, Aprilia, BMW, Triumph, Kawasaki, Suzuki, Laverda, Moto Guzzi, KTM
	40FF38835	2	**B5** L=25	Ø 17	Yamaha, Suzuki, KTM
	40FF38834	2	**B6** L=20	Ø 16	Moto Guzzi
	40FF38833	2	**B7** L=20	Ø 15	Yamaha, Honda, Aprilia, Gilera, Kawasaki, Suzuki
	40FF49378	2	**B8** L=25	Ø 19,05	Harley Davidson
21	40FF46706	1	shaft	Ø 15 L=270	(only for 42"wheel guard) Harley Davidson

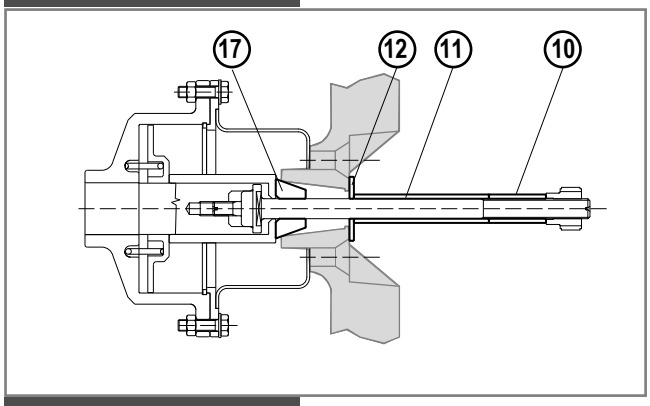
FITTING

Some example for flanged wheels.

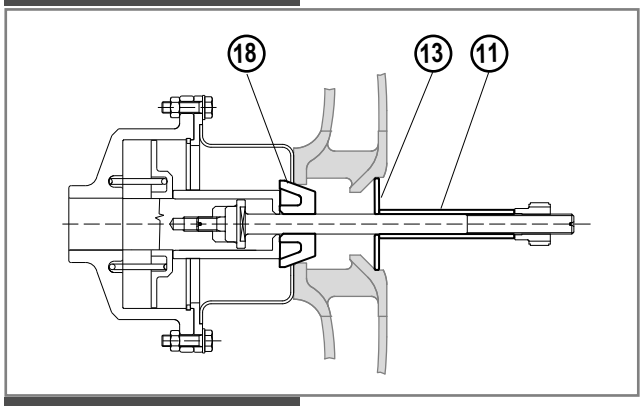
APRILIA AF1



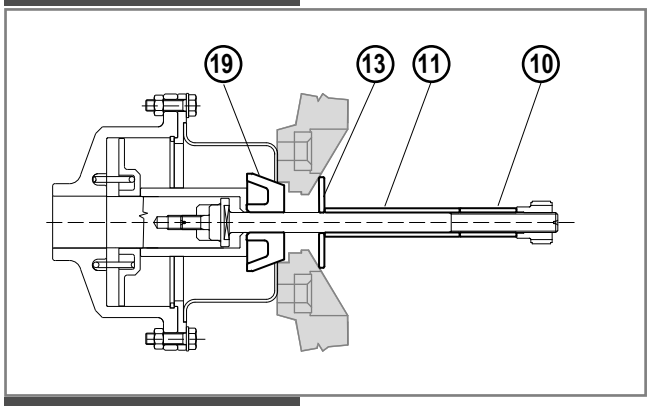
BMW K-R



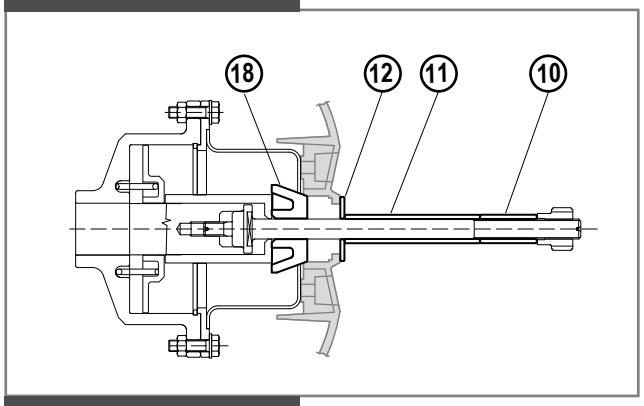
DUCATI 916



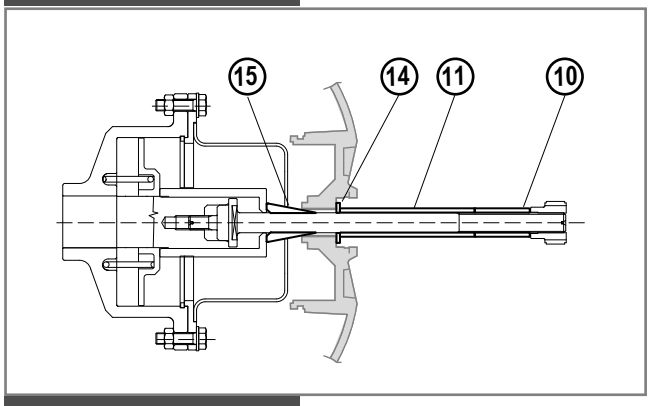
YAMAHA GTS 1000



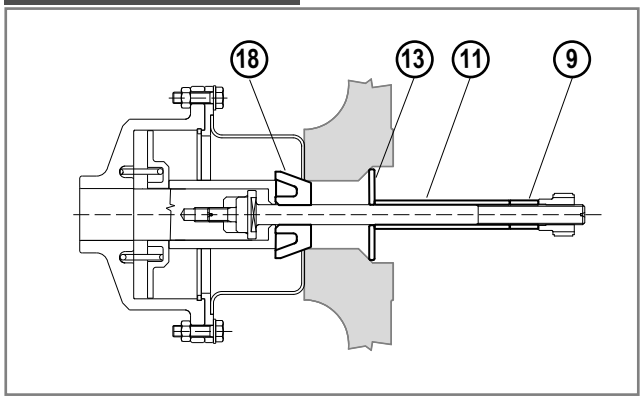
EXAGON front wheel



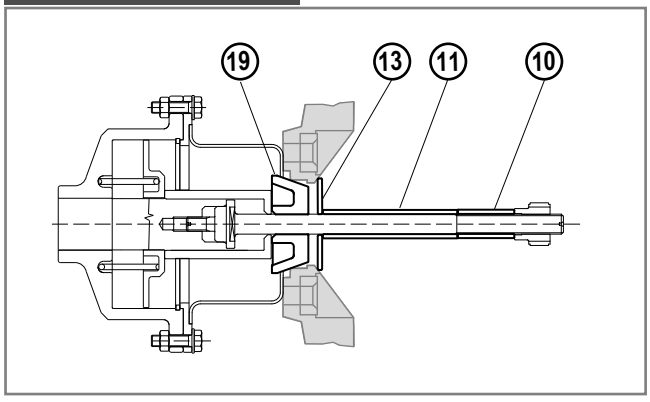
EXAGON rear wheel



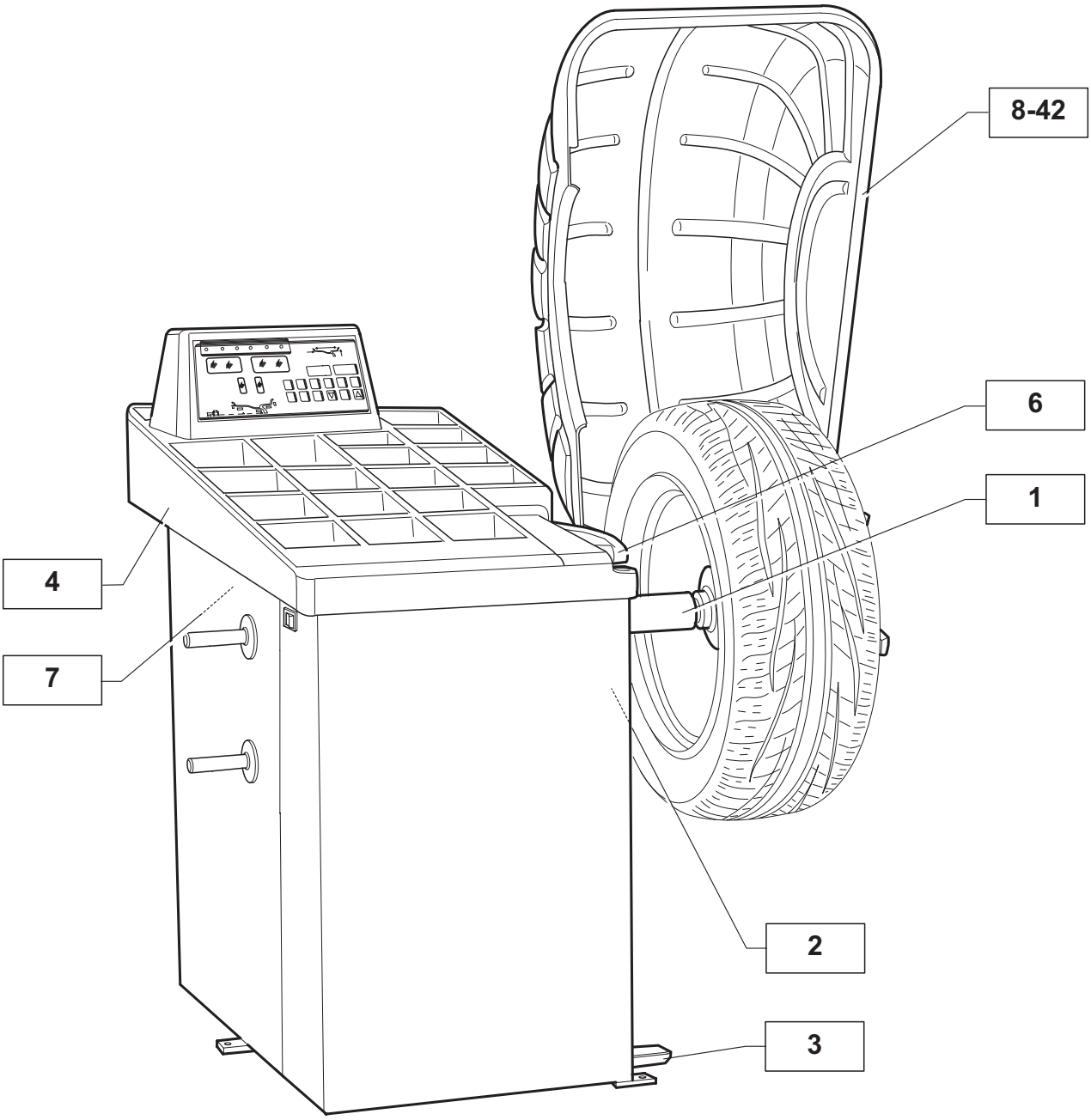
HONDA NTV



HONDA VFR



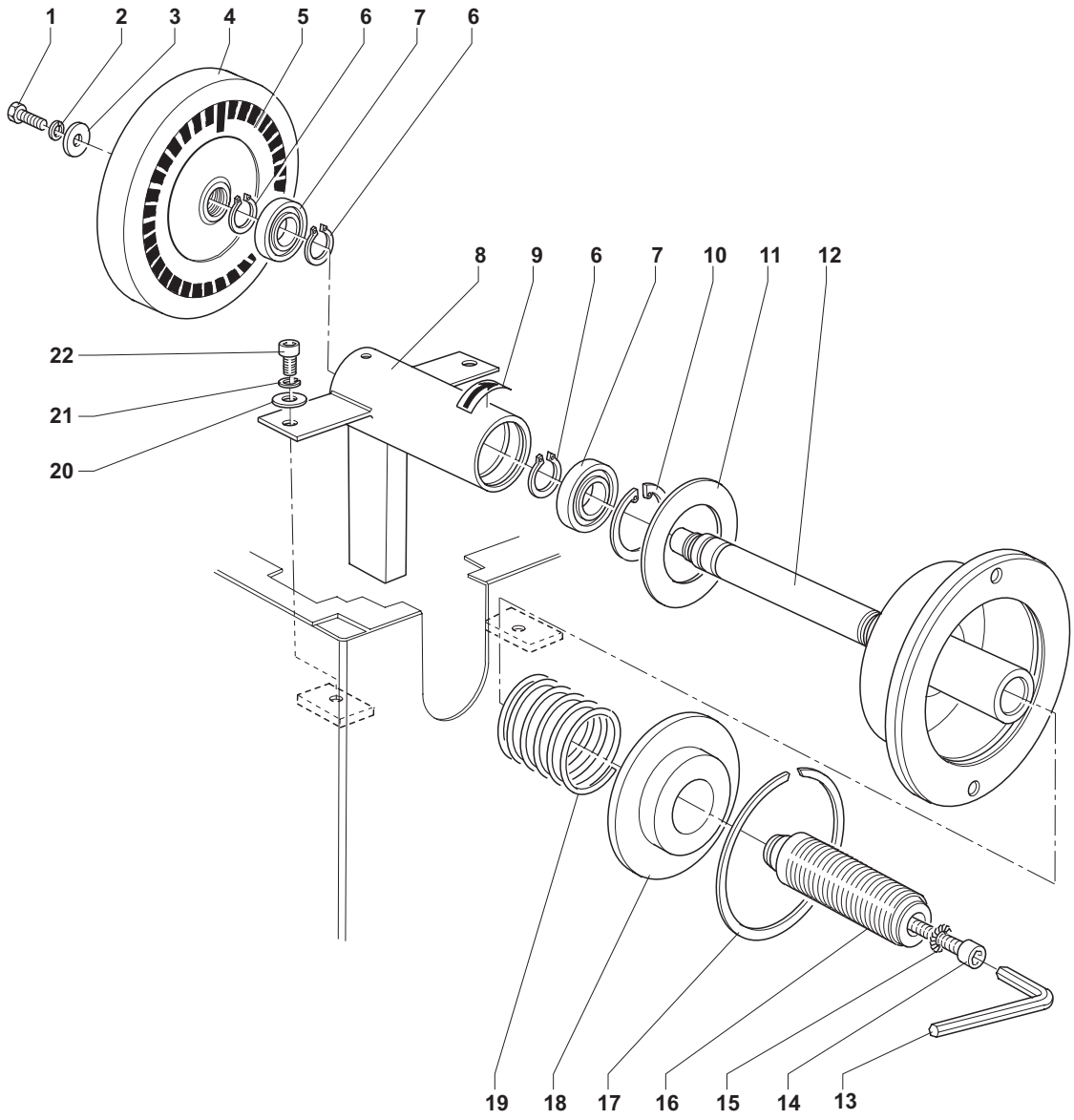
1450 (A)



D0348-1	0374-1	**1**	**MANDRINO**	**SHAFT ASSEMBLY**
D0287-2	492-2	**2**	**MOTORE+DATORE DI FASE+ TRASDUTTORI PIEZO**	**MOTOR+POSITION PICK-UP+ PIEZO TRANSDUCER**
D0112-3	0112-3	**3**	**FRENO**	**BRAKE**
D492-4	492-4	**4**	**BASAMENTO (1)**	**CASING (1)**
D0364-6	492-6	**6**	**CALIBRO AUTOMATICO: "DISTANZA + DIAMETRO 22"**	**"DISTANCE + 22" DIAMETER" AUTOMATIC GAUGE**
D0332-7	492-7	**7**	**POTENZA**	**POWER UNIT**
D0118-8-42	0184-8-42	**8-42**	**PROTEZIONE RUOTA 42" opzione**	**Option 42" WHEEL GUARD**

*** Particolari reperibili in commercio** ***Standard hardware part**

1



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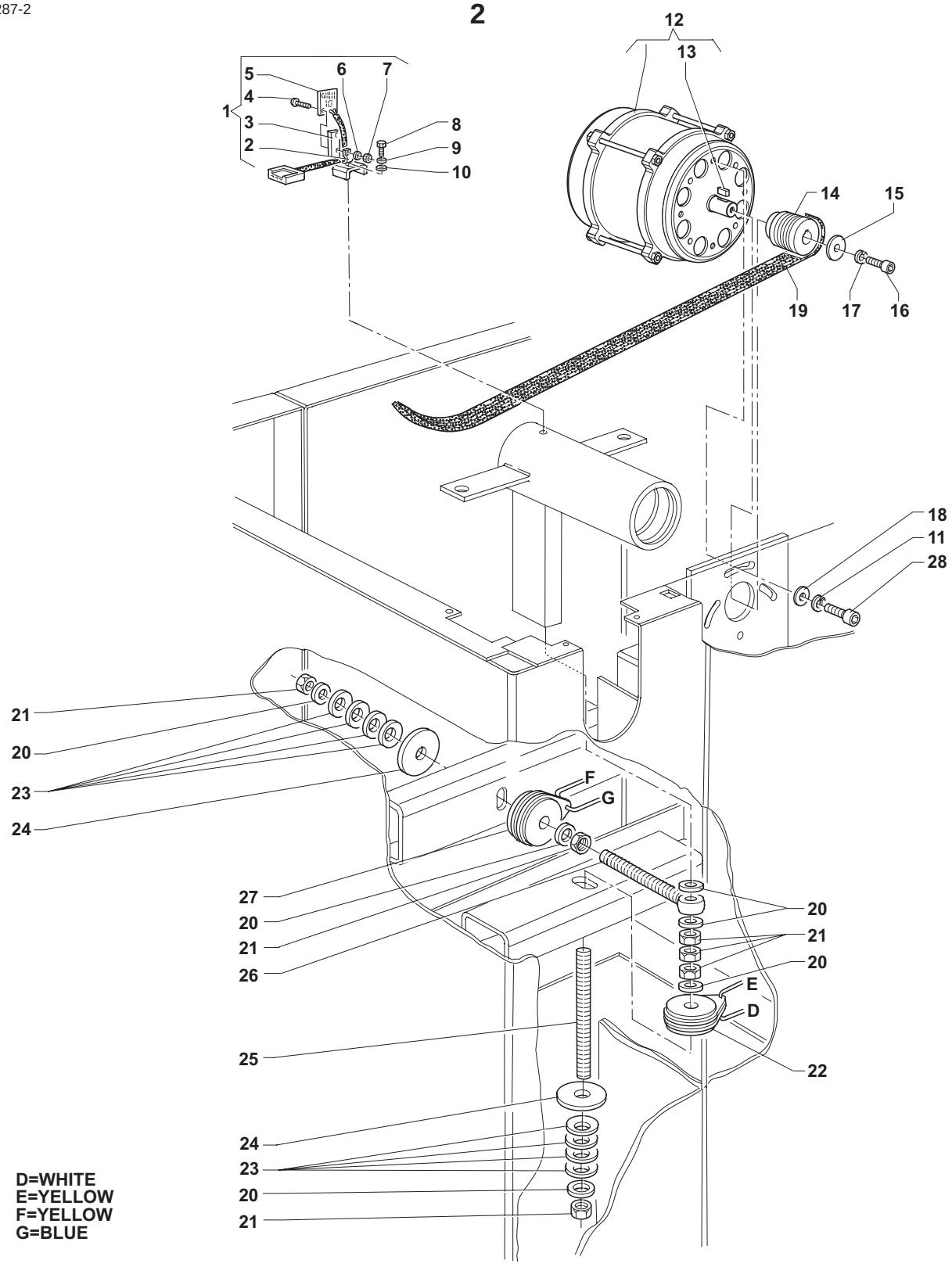
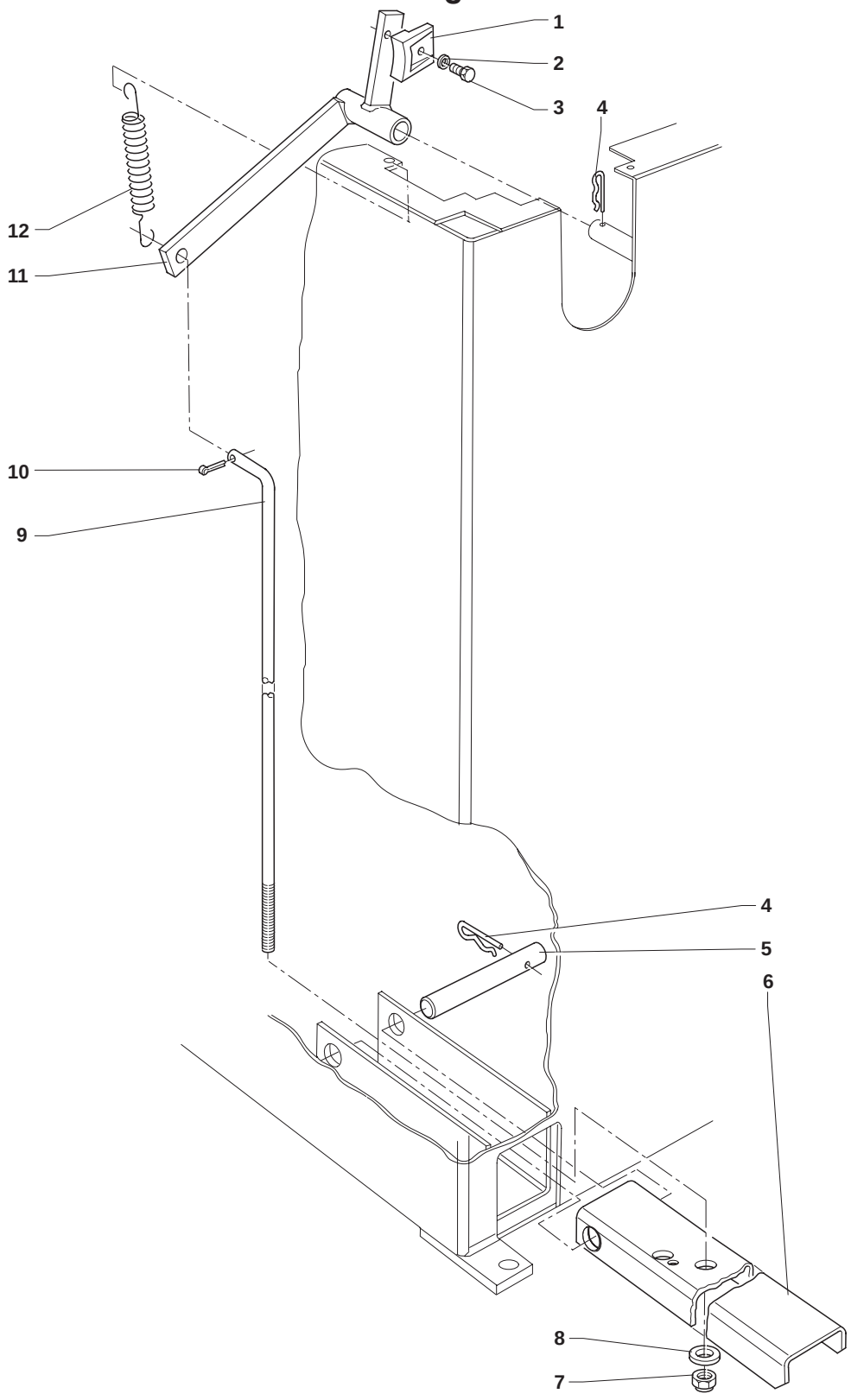
2	325046010	*	12	42FM41391	**Ø 40**	22	312120093	*
3	326035011	*	13	114008002	*			
4	42FM49794		14	312120137	*			
5	04FM38621		15	325047011	*			
6	341000025	*	16	42FM51744	**Ø 40 L = 205**			
7	020600503	*	17	344200118	*			
8	42FM60997		18	42FP41056				
9	040010101		19	181198630				
10	342000047	*	20	326035009	*			

2



N.	CODE	DATA	N.	CODE	DATA	N.	CODE	DATA
1	86SD40731		11	325046005	*	21	321212010	*
2	420610639		12	50FG55643	**115V/50-60 Hz**	22	940701232	
3	42SD36228		13	348016018	*	23	345122515	
4	314231018	*	14	07FG56429		24	326035011	*
5	67M38954C		15	326035004	*	25	105110165	
6	325035003	*	16	312120035	*	26	105114744	
7	321232003	*	17	325046004	*	27	940701233	
8	311220072	*	18	325035005	*	28	312120054	*
9	325046006	*	19	080077007				
10	325035006	*	20	325035010	*			

3



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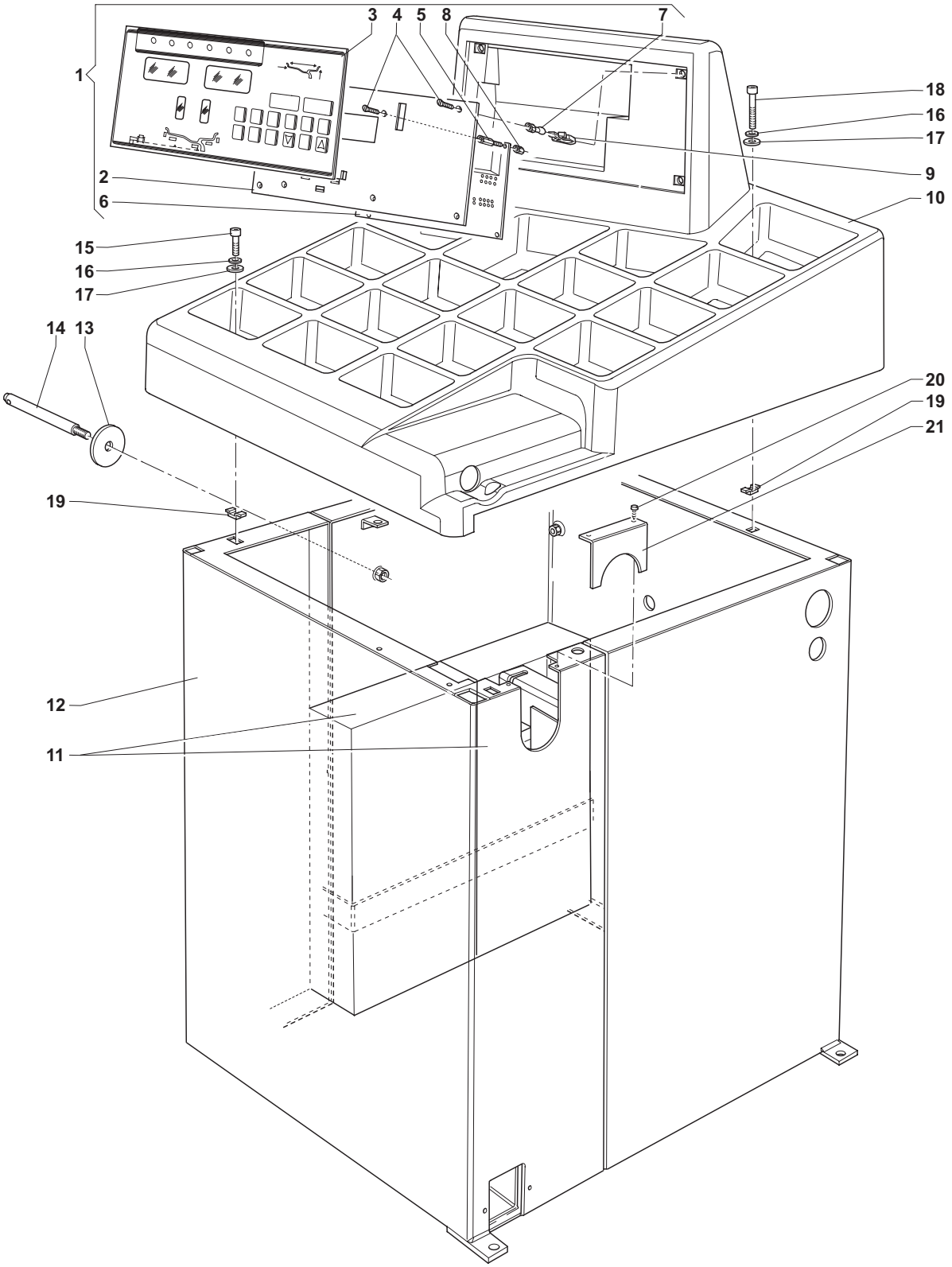
2	325035004	*	12	182245870				
3	311220034	*						
4	337110015	*						
5	42FB31958							
6	420923093							
7	321233008	*						
8	325035010	*						
9	420929392							
10	337110010	*						

4



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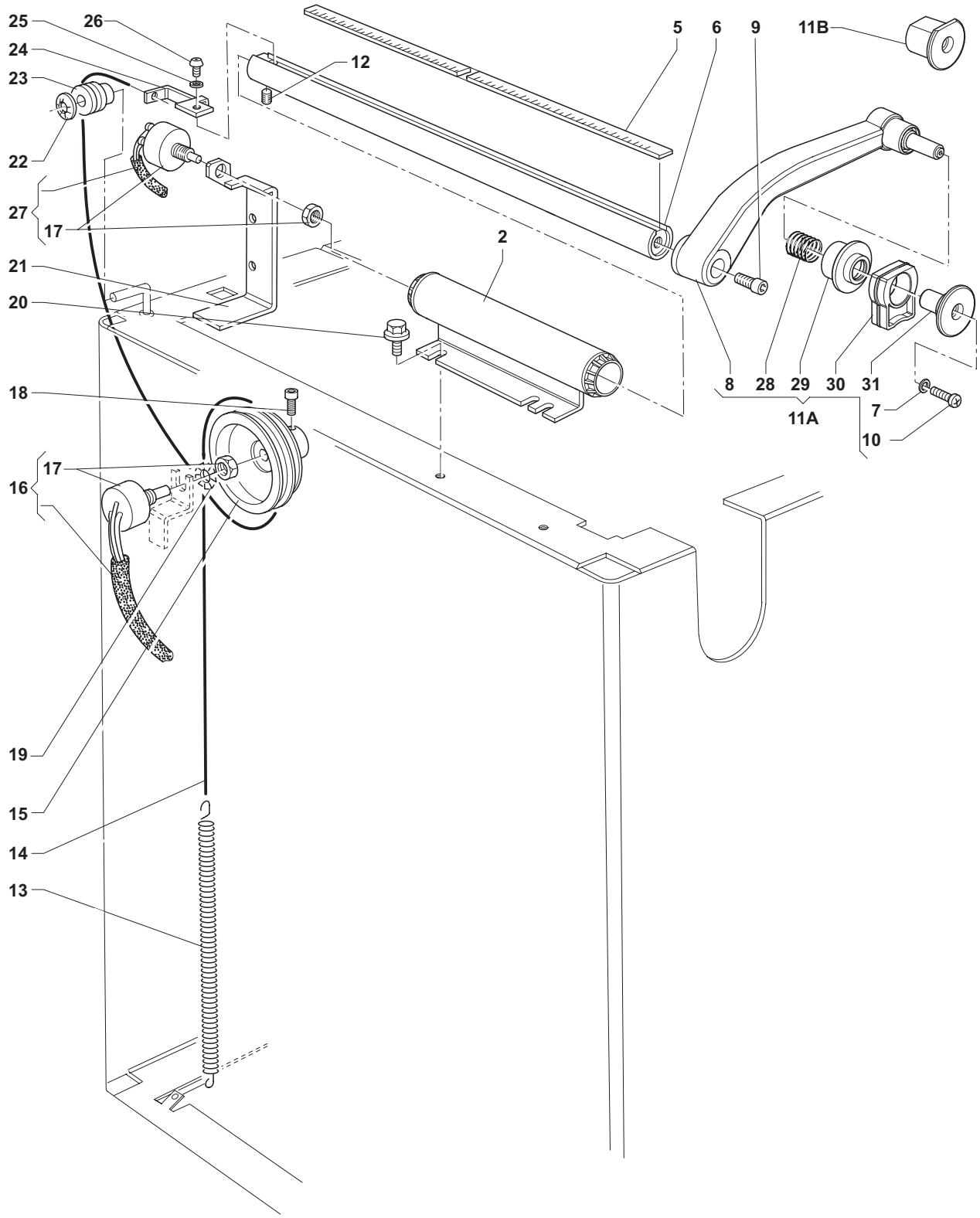
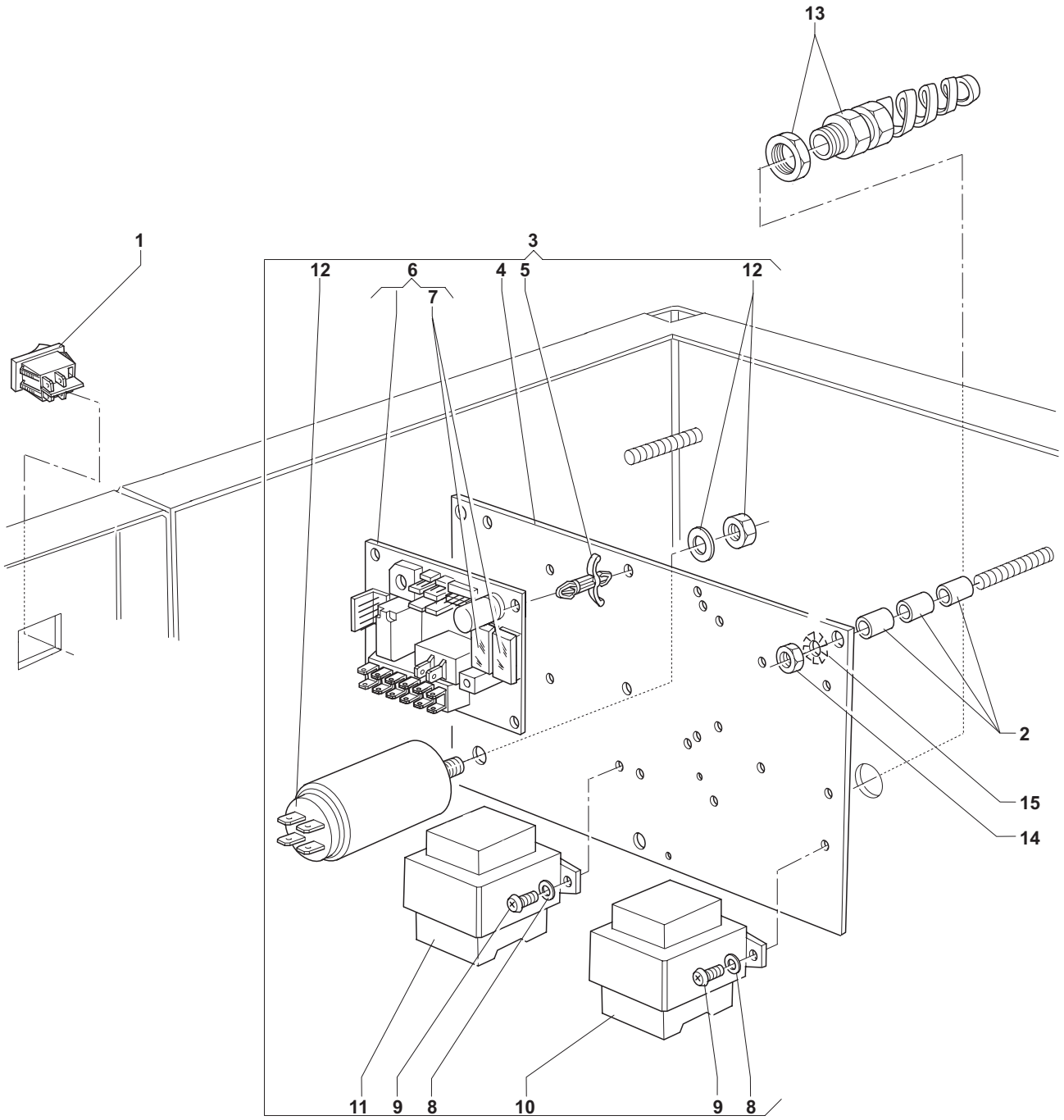
2	42PR53377		12	42BV59776				
3	05PR68222		13	140212960				
4	315231015	*	14	105132900				
5	527034980	*	15	312120071	*			
6	86SC69341		16	325046006	*			
7	329007663	*	17	325035007	*			
8	321232003	*	18	312120081	*			
9	329004434	*	19	200000016	*			
10	14FB53330		20	314931069	*			



N.	CODE	DATA	N.	CODE	DATA	N.	CODE	DATA
2	42FB49858		13	182185750		23	217021283	
5	040142902		14	523000018		24	42FC40278	
6	42FC33189		15	217025965		25	325035003	*
7	325035004	*	16	86SB65025		26	314231018	*
8	21FC61932		17	588020312		27	86SB65024	
9	312120071	*	18	312120052	*	28	18FC61936	
10	314931051	*	19	325047010	*	29	21FC61934	
11A	46FC61931		20	310230616	*	30	21FC61935	
11B	46FC63713		21	42FC40276	*	31	21FC61933	
12	319216065	*	22	344200060	*			



N.	CODE	DATA	N.	CODE	DATA	N.	CODE	DATA
1	511242101		11	611000313	**40VA**			
2	420419574		12	568003057	**30MF**			
3	86SZ40542	**115V**	13	526003246	*			
4	42SZ44933		14	321232006	*			
5	527006175	*	15	325047006	*			
6	67M36950A							
7	681002000	*						
8	325035004	*						
9	317232034	*						
10	611000307	**40VA**						

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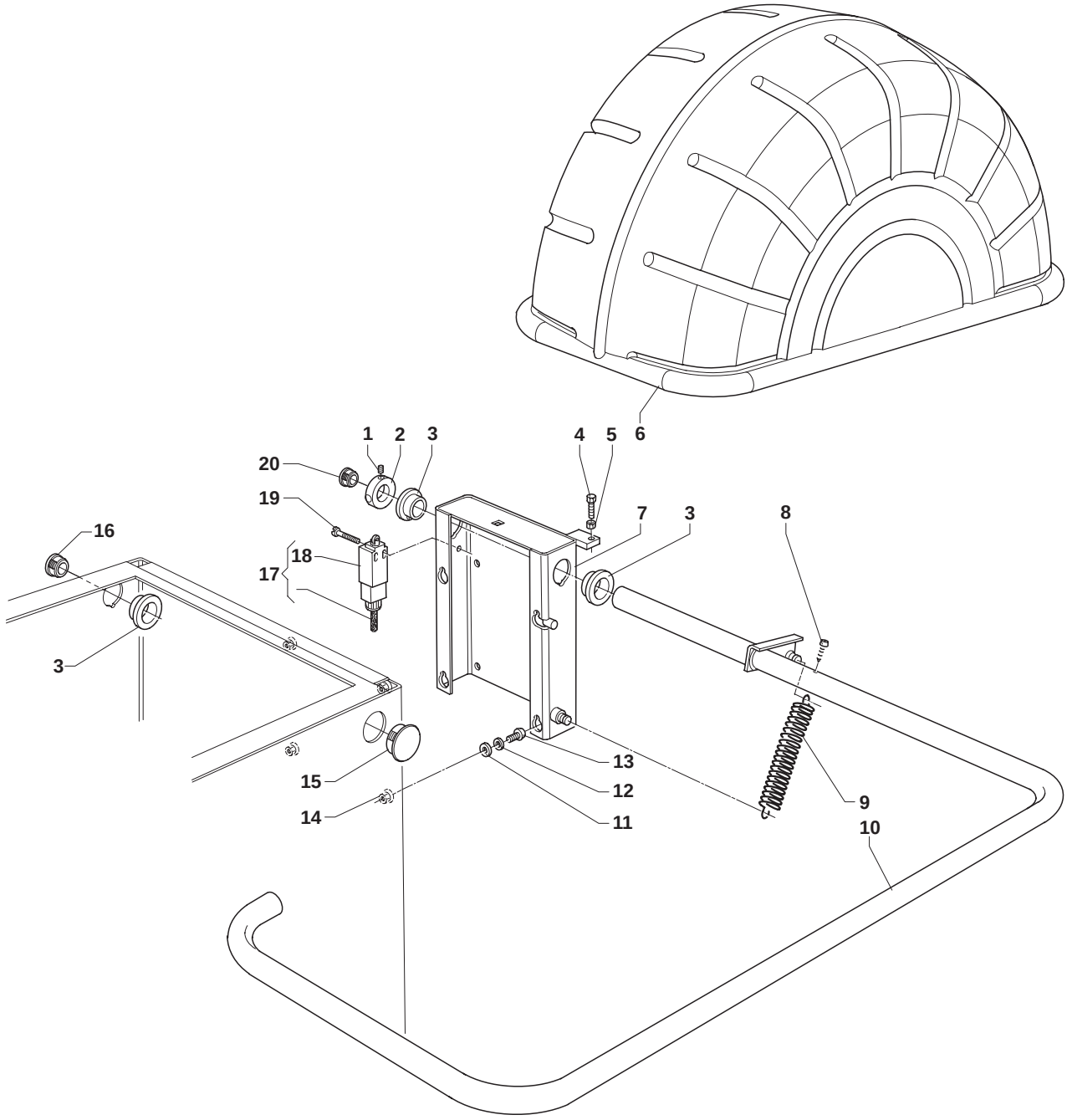

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1	319216068	*	11	325035008	*			
2	42FW32989		12	325046008	*			
3	217019275		13	314231085	*			
4	311220096	*	14	200000018	*			
5	321232008	*	15	213017503	*			
6	14FW41214		16	213000351	*			
7	42FW38965		17	86SB40113				
8	314931069	*	18	517140515				
9	18FW44391		19	314231042	*			
10	42FW44500		20	213011873	*			