



# Headlamp Aligner HLAC2400UK/R/L2/CV HLAC2400UK/R/L2/HGV

2910002184300 / 2910002246700

Operators Manual

1323924 Issue 3



**IMPORTANT**

Every reasonable effort has been made to ensure that information within these Operating Instructions is correct at the time of release, but Continental Automotive cannot accept responsibility for any errors that may occur.

The information in these Operating Instructions is subject to change without notice, and does not represent a commitment on the part of Continental Automotive.

**SERVICE & WARRANTY**

The reliability of this equipment is fully supported by our service agents, with repair workshops and field service engineers to provide a full range of After-Sales Care, including installation, contract maintenance, factory overhaul and emergency repairs on site. Please refer to the page at the end of this manual for full details.

**NOTE:**

If a service engineer is called out under service warranty where, upon inspection and test the equipment is found to be in full working order and no fault found, the user is liable to be charged the cost incurred for this call out. Before calling out an engineer, ensure your equipment is faulty by checking its operation, particularly mains supply and fault codes/self test if applicable.

**WARNING!**

Do not attempt to operate this equipment unless you have read and understood these instructions.

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## 1. INTRODUCTION

This Headlamp aligner has been designed to check the settings of main and/or dipped beams of all cars, motorcycle and commercial vehicles. The range of height adjustment allows measurement on headlamps that have centre to ground distances between 240 and 1500 mm.

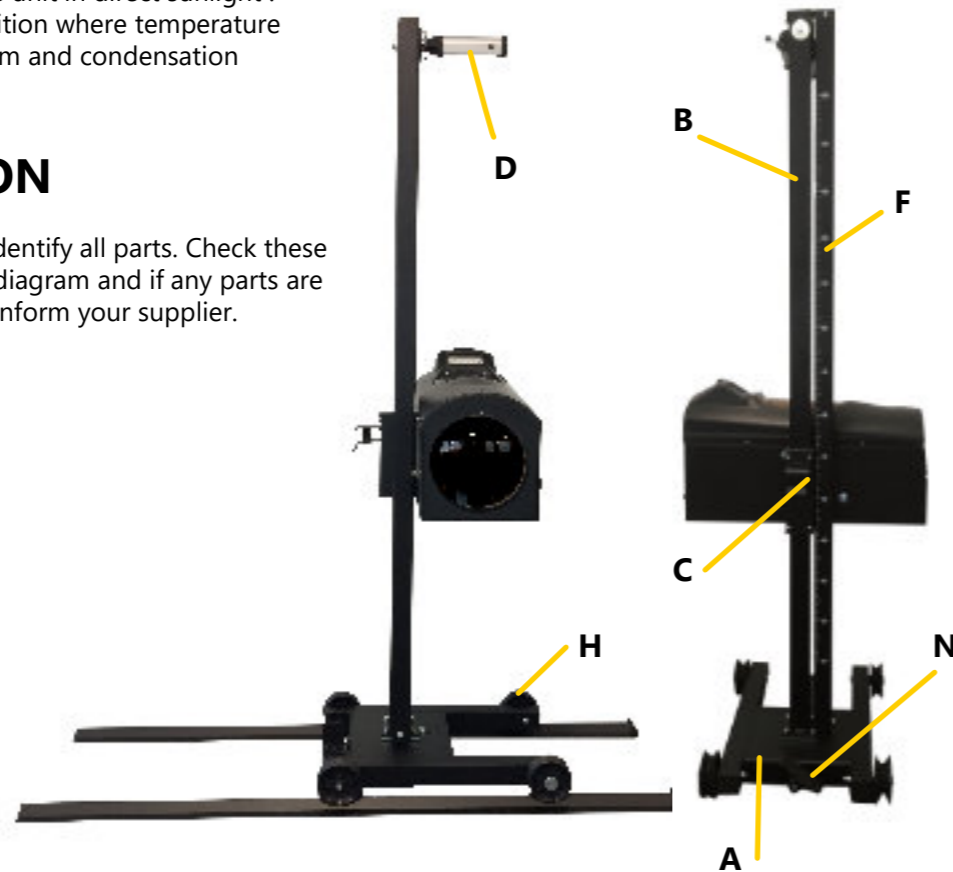
## 2. SAFETY

Read and fully understand these safety instructions before using the aligner.

Do not allow unauthorised operators to use this equipment. Tests may be performed with the engine running, in this case always use an exhaust extractor. Put the handbrake on and select neutral or park. Do not use the unit in direct sunlight. Keep the unit in a position where temperature changes are a minimum and condensation does not take place.

## 3. RECEPTION

Unpack the unit and identify all parts. Check these against the following diagram and if any parts are missing, immediately inform your supplier.



- A - Base
- B - Column
- C - Vertical clamping mechanism
- D - Laser Beam Visor
- E - Optical system
- F - Spring protection
- H - Wheels
- N - Brake

**Rails:** Standard unit is supplied with 4 main rail sections these should be fitted as described in the installation section.

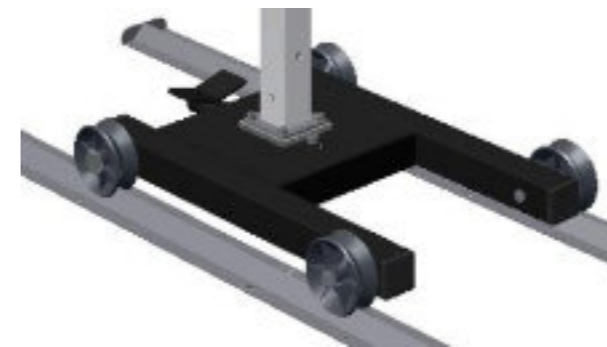
HGV versions are supplied with 6 rail sections to provide the longer running track required in this application.

## 4. DESCRIPTION OF THE MACHINE

The headlight tester is a device that serves to test headlights of all types, for motor vehicles, cars and trucks in general.

The machine can be installed as a mobile station on rails.

The column can rotate, by means of a pin installed on a glide bearing to align with the vehicle.



The optical box can be adjusted height-wise by sliding it along silent and precise plastic sliding blocks balanced by a spring mounted on the inside of metal sheeting cover containing a centimetre gauge for exact positioning in relation to the headlight.



The analogical instrument is equipped with three scales, two of which are graduated and one coloured.



The visor that facilitates alignment of the device to the vehicle is equipped with a laser beam





## 5. INSTALLATION

### IMPORTANT

Where this equipment is used for vehicle testing under the MOT scheme in the UK. It must be sited and installed in accordance with the DVSA requirements. This is the customer's responsibility.

### LOCATION

The working area where the aligner is to be used and the test vehicle parked must be as flat and level as possible. The maximum slope of the area should not exceed 0.5% and the area should all be at the same slope.

The Headlamp Aligner is an optical instrument that contains a lens. Avoid locations where sunlight can fall directly on the lens of the unit. If this cannot be achieved, then the lens must be covered with a dark cloth when not in use.

### INSTALLING RAILS

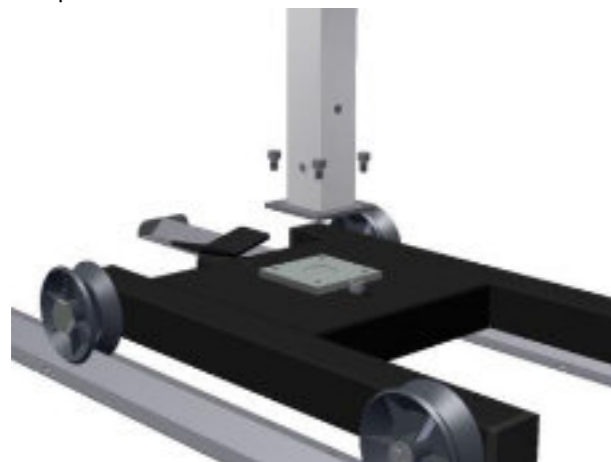
Four rails are supplied with the standard unit (six with HGV) and these must be fitted to create two parallel tracks at right angles to the vehicle axis. The peaks of the rails should be set precisely 394mm apart and in a position that will mean the lens of the unit will be between 200 and 500mm from the headlamp under test.

Fit the rails to the floor using screws and plugs in the normal way. Before fully tightening the screws, shim up so that the difference in level end to end and rail to rail does not exceed 2mm.

### ASSEMBLE COLUMN TO BASE

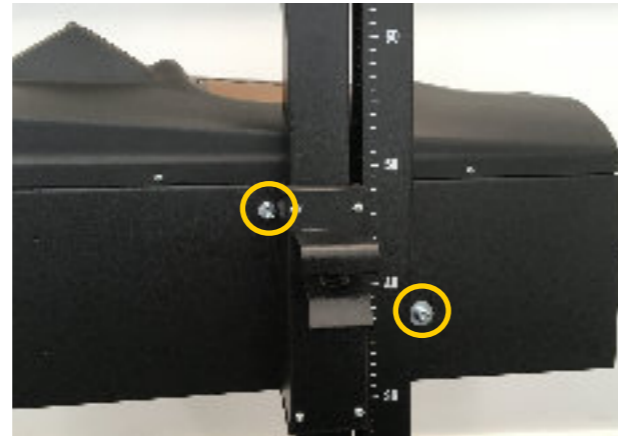
The bottom half of the column is already pre-assembled with the plate for fastening to the base.

Fasten the bottom half of the column on the base using the 4 screws supplied, as shown in the picture.



### ASSEMBLE OPTICAL BOX TO COLUMN

Fasten optical box to column using two hex bolts provided as highlighted in the image below.



### ASSEMBLE VISOR UNIT TO COLUMN

Place the screw with washer and spring in the upper hole of the column until the screw passes through. Place the adjusting plate as in the picture.



## 6. OPERATIONS ON A VEHICLE

Before testing the headlamp aim it is important that the vehicle is prepared so the accurate results can be obtained.

The vehicle should be positioned squarely in the test area with the front wheels pointing straight ahead and in a position such that the headlamp glasses are between 200-500mm from the aligner lens. Closer spacing is acceptable on complex headlights.

- Tyre pressures should be correct and the headlamp lenses clean and dry
- Ensure that the vehicle is not unevenly loaded
- Set the aligner in front of the first headlamp

### POSITIONING WITH THE AID OF THE LASER POINTER (optional)



- Switch the laser on by pressing the button on the side of the optical box. The laser beam will be projected from a point corresponding to the center of the lens, and will help you to align it with the center of the headlight

- After completing each test, to prevent rapid discharge of the batteries, switch off the laser

### REGULATION ON THE FLOOR

Put the headlight beam tester on the rails and correct any possible instability of the machine by adjusting the eccentric self-locking clamping device on two of the four wheels.



## ALIGNMENT WITH THE LASER VISOR



■ The operator and designer of the work island must be aware of the risks deriving from the laser. The island must not be located in a transit zone and must be well marked and outlined by a yellow line, and possibly enclosed with special barriers.

■ Make sure there are no people in the test zone, release the column using the pedal, turn the visor downward and switch it on.

■ Locate two details on the front of the vehicle, such as the headlights themselves, turn the optical chamber until the two reference points meet the line projected by the visor and block the column.

**CAUTION!**

■ **Switch off the laser immediately before proceeding with the other operations of control and possible adjustment of the headlight.**

■ The laser beam is in class 3R with a wave length of 650 nm (nanometers) and a power of 3 mW (milliwatts) which means that even only direct observation of the beam with the use of amplifying optical devices such as binoculars can be hazardous. Accidental exposure is not considered hazardous as, since it is in the visible range, the eyelid reflex does not permit an exposure of more than 0.25 sec. Check that a horizontal part of the car (the corners of the windscreen or bonnet) are parallel to the line drawn on the visor. If not unlock the column by using the foot pedal and rotate the column until the image is parallel, then lock in position.

■ Look into the top of the unit and observe the spirit level which should show absolutely level.

■ Follow the beam checking procedure defined under the MOT procedure.

## 7. MOT PROCEDURE

■ Drive the test vehicle squarely up to the aligner and bring the car to rest with the headlamp lens between 200 and 500mm from the lens of the aligner. Closer spacing is acceptable with complex headlights.

■ **Azimuth setting:**

Using the laser process as described, check that a horizontal part of the car (the corners of the windscreen or bonnet) are parallel to the line drawn by the visor laser.

If not, unlock the column by using the foot pedal and rotate the column until the image is parallel then lock in position.

Alternatively, select two points on the vehicle, parallel with the front to back axis. For motorcycles, two points on the centre line, one at the front and one at the back, can normally be located.

For private cars, a suitable method is to determine the centre of the front and rear windows and fix a strip of tape to each. On commercial vehicles use the straight line of the side of the vehicle.

Raise or lower the aligner until the selected points can be viewed over the back sight on top of the aligner box. If the front sight does not also line up then operate the foot pedal to unlock the column and rotate it until all four points are in line.

Then re-lock column using other foot pedal.

■ **Set the aligner height:**

Measure the distance from the floor to the centre of the headlamp to be tested and set the aligner box to this height using the scale on the column.

■ **Set the aligner left/right position:**

Start with the right hand headlamp and move the aligner along the track until the front and rear sights on the aligner box line up with the centre of the lamp to be tested.

Switch on the lamp and verify the spirit level reads correctly, adjust if not level.

■ **Alignment check**

The screen inside the equipment is viewed through the tinted top window and is a scaled down reproduction of a test screen placed at a distance of 10m from the vehicle and at least 3m wide.

The Tester's manual appropriate to the vehicle being tested should be consulted to determine whether the headlamp should be set to main or dip beam.

Switch on the headlamps and select dipped or main beam as appropriate.

Observe the light pattern displayed on the screen. This should be checked for the headlamp type under test by reference to the Tester's manual.

## 8. INTENSITY METER

To produce maximum light output the engine should be running while taking readings on the luxmeter. It is advisable to rev the engine to about 2000rpm after starting to ensure the alternator is cut-in and producing its full output.

■ Switch headlamps on and select high beam.

■ When testing slow speed vehicles or motorcycle the meter should indicate near the GOOD/BAD position on the top scale.

■ Normal tungsten lamps should indicate in the centre of the GOOD area.

■ Halogen or iodine lamps should give a deflection above GOOD into the HALOGEN area.

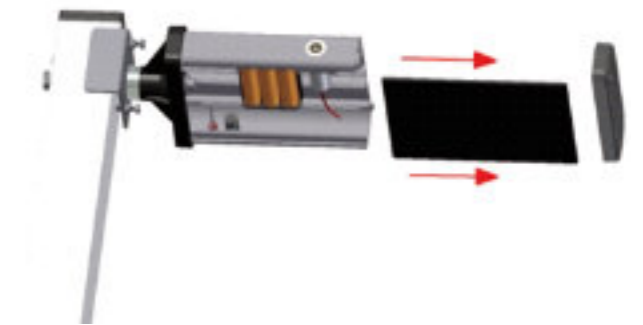
■ Select low beam and check deflection on the lower scale.

■ Switch off lights and stop engine after test.

## 9. MAINTENANCE

**Replacement of Laser Visor Batteries**

Unscrew the two screws on the cover of the laser visor and replace the 3 penlight batteries size AA 1.5V, respecting the correct polarity, close the visor and fasten the cover with the screws provided.



## 9.1 CLEANING

When not in use, the unit should be covered to stop dust accumulation, a cover is available.

Use only non-abrasive detergents and water when cleaning the equipment, do not use alcohol.

Do not oil the column as the clamping device relies on friction.

**CAUTION!**

**Do not use nitro solvents**

## 9.2 CALIBRATION

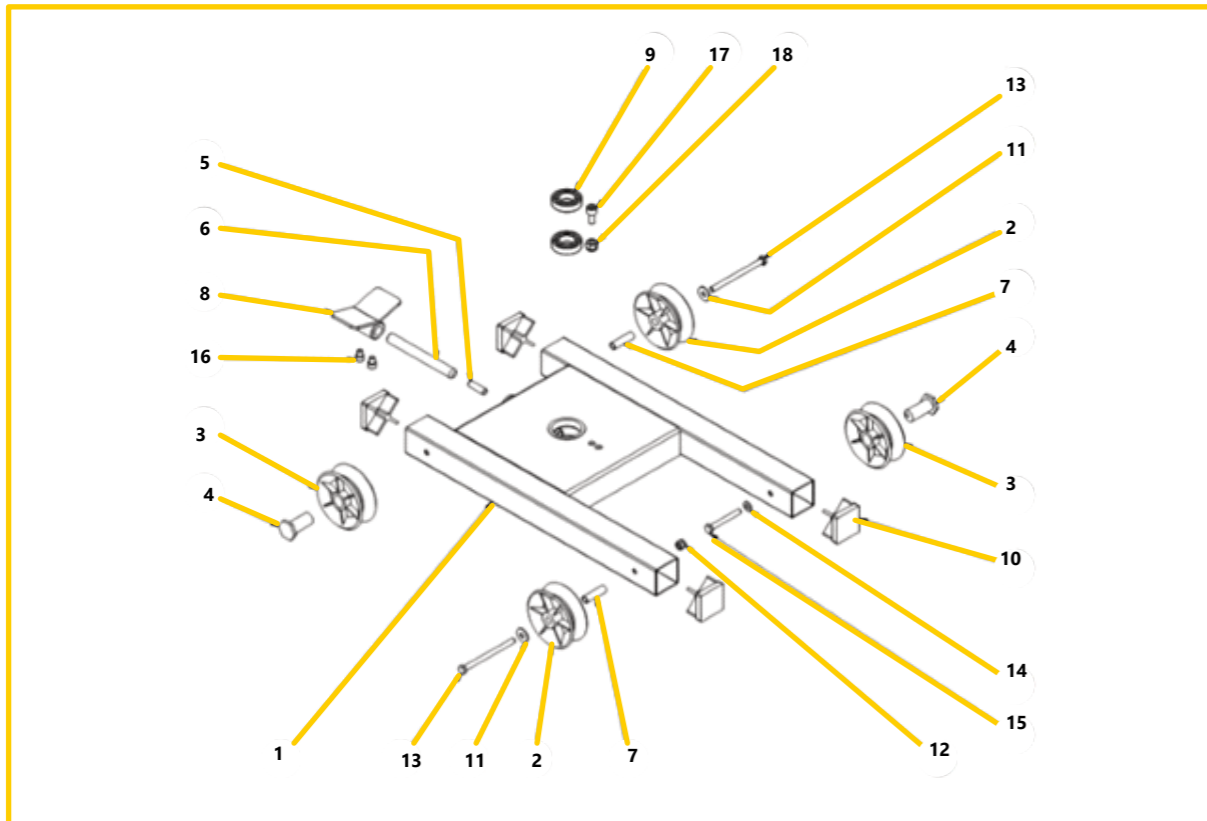
The unit should provide trouble free operation for a long period provided the level is checked and the unit is aligned correctly with the vehicle.

For DVSA use, the unit should be calibrated every 6 months.

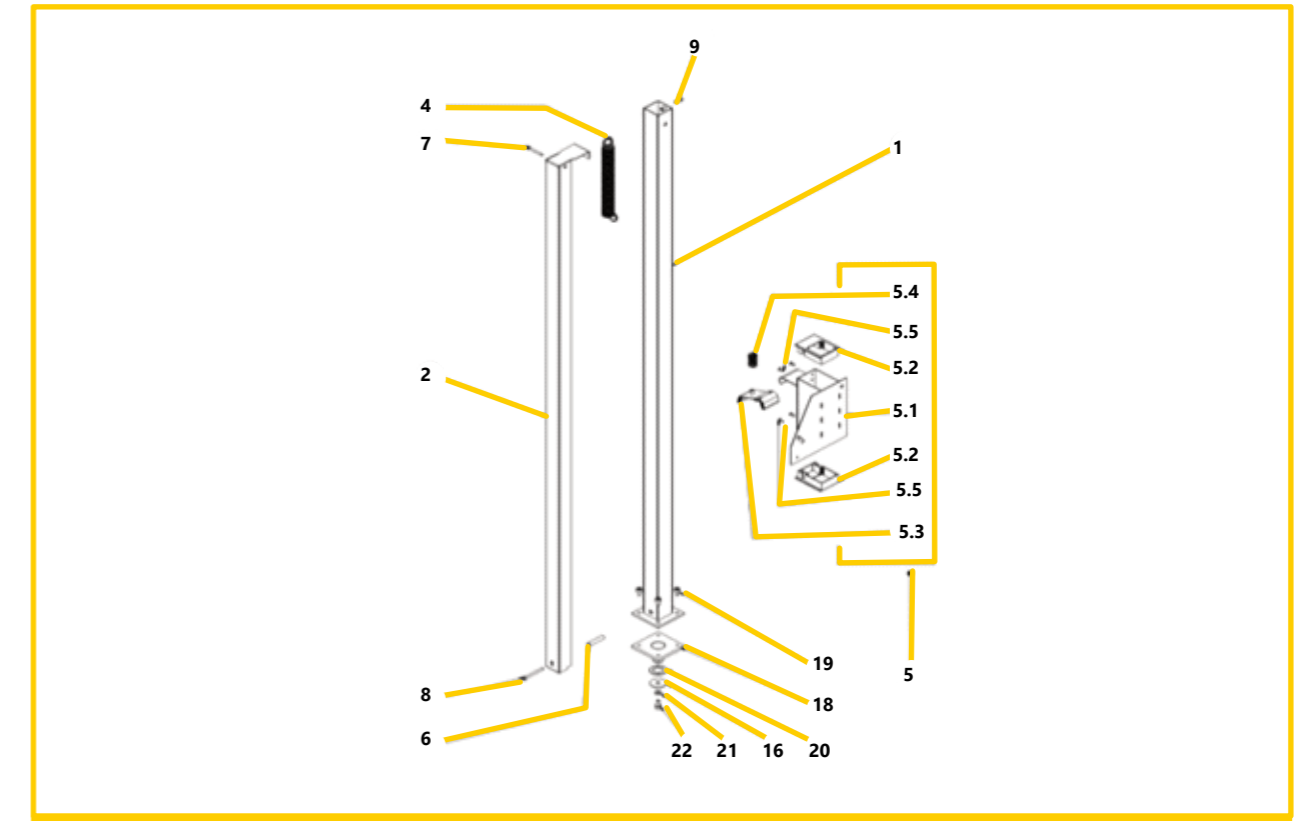
Check the level by observing the spirit level inside the optical box. If not level, adjust the position of the box on its brackets after slackening the mounting nuts. Retighten the nuts and recheck after adjustment.

Full calibration of the unit can be provided by our service agents - see contact details at the end of

### 10. SPARE PARTS

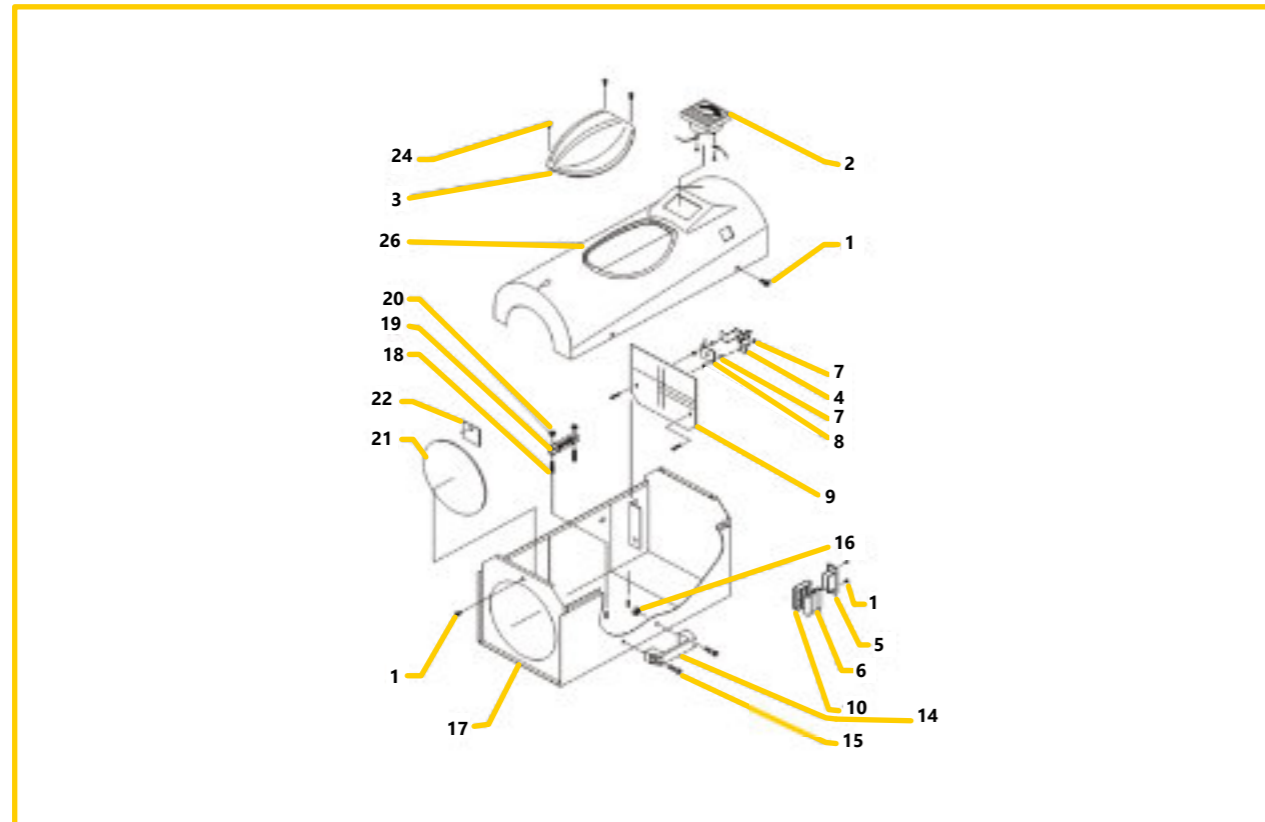


10.1 BASE		
Item No:	Description	Continental No:
1	Base	
2	Rear Wheel	2910002117500
3	Front Wheel with 20mm hole	2910002117600
4	Eccentric Pin	2910002115300
5	Spindle for Brake	
6	Pivot Brake	
7	Spindle for Wheel	2910002115200
8	Brake Pedal	
9	Ball Bearing	
10	End Cap	
11	Washer M8 x 24	
12	M8 Nyloc Nut	2910002115400
13	M8 Screw	
14	M8 Washer	2910002115500
15	M8 Screw	
16	Screw	
17	Screw	
18	Nut	
	3,700mm Rail Kit	2910002250400
	5,200mm Rail Kit	2910002250500



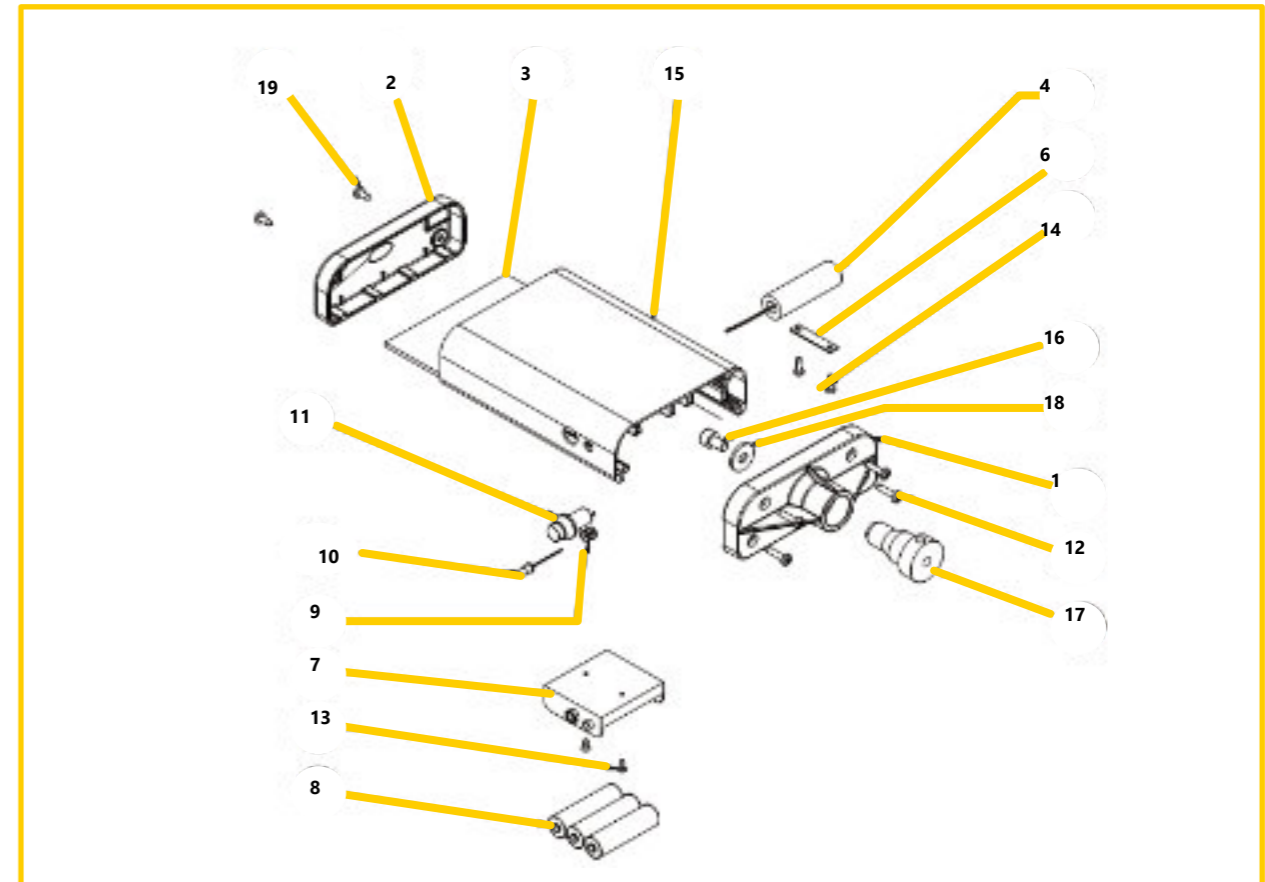
10.2 COLUMN		
Item No:	Description	Continental No:
1	Column	
2	Cover	
4	Spring	
5	Complete Sliding System	
5.1	Column Lock Case	
5.2	End Plate	
5.3	Column Lock Case	A2C88354600
5.4	Column Brake Spring	A2C88130400
5.5	Screw	A2C89124800
6	Spacer	A2C87811900
7	Screw	
8	Screw	
9	Screw	
16	Washer	
18	Support	
19	Screw	
20	Washer	
21	M8 Washer	2910002115500
22	Screw	





**10.3 OPTICAL BOX**

Item No:	Description	Continental No:
1	Screw	
2	Luxmeter	291000526200
3	Plexiglass Cover	A2C88498000
4	Laser	2910002276300
5	Battery Support	
6	Battery	
7	Nut	
8	Card	
9	Test Screen Plate	
10	Battery Holder	
11	Switch	2910002277000
14	Handle	
15	Screw	
16	Nut	
17	Optical Box Bottom	
18	Spring	
19	Spirit Level	
20	Nut	
21	Front Lens	A2C3973750000
22	Plaque	
25	Screw	
26	Optical Box Cover	2910002277300



**10.4 LASER VISOR - 2910002277000**

Item No:	Description	Continental No:
1	Support	
2	Cap	
3	Cover	
4	Laser	2910002277100
6	Plaque	
7	Hold Battery	
8	Battery	
9	Support	
10	LED	
11	Switch	2910002277000
12	Screw	
13	Screw	
14	Screw	
15	Frame	
16	Screw	
17	Pin	
18	Washer	
19	Screw	

## 11. AFTER SALES SERVICE

Apart from the routine maintenance and adjustments stipulated in this manual the equipment must not be tampered with in any way. All further servicing must be carried out only by an engineer from an Authorised Agent. Failure to observe these conditions will invalidate the Guarantee.

### ■ On-Site Service / Overhaul / Spare Parts

If you require a Service Engineer to attend ON SITE, either due to an equipment fault, or for machine calibration, or if the equipment covered by this manual requires to be sent back for factory overhaul, or if you need spare parts, please contact our Product Support Department.

### ■ Outside UK mainland

Service for export customers are provided by the agent from whom your equipment was purchased

### ■ UK After-Sales Service

Call Crypton Support for details of local service agents.

## 12. CONTACT DETAILS

### ■ SALES

**Tel:** 0121 725 1400

**Email:** sales@cryptontechnology.com

### ■ SUPPORT

**Tel:** 0121 725 1366

**Email:** support@cryptontechnology.com

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