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## Fitting Instructions for the 'CPOne35' Casa Performance kit

**Casa Performance Product Code: X807**

### Introduction

The [CPOne35](#) kit is an advancement in the world of smallframe Lambretta models. It is a plug 'n' play **135cc** conversion kit designed, tested and produced by **Casa Performance** that can be fitted to ANY Lambretta **J Range** (J50, Cento, J125, J125 Starstream, Super Starstream) or **Luna Line** (Lui 50C/CL, Lui /Vega/Cometa 75S/SL) model, with no modifications necessary to the engine casing whatsoever.

The cylinder is multi-port, made from high-grade aluminium in steel moulds, nicasil lined and has 4-stud exhaust fixing points (2 studs are in the original positions). The 60mm Meteor piston is made specifically for this kit. The inlet is via a 4-petal reed-valve with a unique, one-piece rubber inlet manifold designed for 24/25mm carbs. The cylinder head has multiple fixing points.

Power output is **10-12bhp** depending on the specific exhaust used, with a very useable, linear power delivery similar to a 200cc Lambretta. The **CPOne35** is designed as a road-going kit for everyday use. It is NOT designed as a 'performance' or 'race' kit, despite having lots of tuning potential.



### The 'CPOne35' kit

The complete **CPOne35** kit includes the following parts:

- 1 x cylinder
- 1 x cylinder head
- 1 x rubber inlet manifold
- 1 x reed valve
- 1 x piston

5 x gaskets (2 x base/2 x inlet/exhaust)  
Fasteners, hardware and studs

#### **Technical Specification:**

Capacity: 135cc (48 stroke x 60mm bore)  
Material: very high-grade aluminium produced in steel moulds  
Induction: 4-petal reed valve with one-piece rubber manifold (with integral aluminium base plate)  
Cylinder head: very high-grade aluminium with multi-point fixing  
Exhaust: 4-stud fixing (2 studs are in the standard positions)  
Piston: specific 60mm with wire-type piston rings made by Meteor exclusively for Casa Performance  
Power output: 10-15bhp (depending on exhaust used)  
Modifications needed to engine casing: none

The **CP One35** kit is designed to fit **ALL** the following Lambretta models:

#### **Luna Line**

Lui 50C & 50CL (50cc 3-speed)  
Lui-Vega-Cometa (75cc 4-speed)

#### **J Range**

J50 (50cc 3-speed)  
Cento (100cc 3-speed)  
J125 (125cc 3-speed)  
J125 Starstream & Super Starstream (125cc 4-speed)

**The reason the CP One35 kit fits all these Lambretta models is that they all have the same base gasket & crankcase mouth design.**

## **What's needed?**

#### ***What do I need to fit a 'CPOne35' kit to my scooter?***

The absolute **bare minimum** of parts needed to convert your scooter are a **CPOne35** kit and a correct width **48mm stroke crankshaft** (see below). If you have a 50cc or 75cc scooter, you will also need a set of **cylinder studs** and a **cylinder cowl**ing.

Longer cylinder studs will be required for all 50cc and 75cc models. The studs needed are those fitted as standard to Cento, J125 and Starstream models (Casa Lambretta part No. [967](#) ). Alternatively, **Casa Performance** manufacture very high-quality cylinder studs (part No. [X821](#)). These studs are available as optional extras when purchasing a kit.

#### ***What crankshaft do I need?***

There are two important factors: crankshaft **WIDTH** and crankshaft **STROKE**.

#### **Width**

All J Range and Luna Line scooter engines can be divided into two groups, with correspondingly **different width crankshafts**:

1. All 3-speed models (see the model listing above) have **36mm** wide crankshafts
2. All 4-speed models (see the model listing above) have **40mm** wide crankshafts

#### **Stroke**

All Lambretta 50cc and 75cc models use a short 44mm stroke crankshaft, whereas all 100cc and 125cc models use a longer **48mm** stroke crankshaft. The **CPOne35** kit is designed to be used with a **48mm stroke** crankshaft.

For 50cc and 75cc models that have an 'incorrect' 44mm stroke crankshaft, when choosing a replacement crankshaft, the two all-important factors are:

1. that the **WIDTH** of the new crankshaft is correct for your engine casing (i.e. 36mm for a 3-speed casing, or 40mm for a 4-speed casing) and
2. the conrod is the correct **48mm STROKE**

**Example for a 3-speed engine casing:** If you have a 3-speed J50 or Lui 50, you will need to fit a crankshaft from a Cento, J125 or the [HD3](#) crankshaft produced by Casa Performance. These are all 36mm wide and have the correct **48mm** stroke conrod needed for a **CPOne35** kit.

**Example for a 4-speed engine casing:** If you have a 4-speed 75cc Lui/ Vega / Cometa, Starstream, you will need to fit a crankshaft from a Starstream or the [HD4](#) crankshaft produced by Casa Performance. These are all 40mm wide and have the correct **48mm** stroke conrod needed for a **CPOne35** kit.

***Is a standard crankshaft okay to use with a CPOne35 kit?***

Yes, as long as the crankshaft is in perfect condition. We ran an original Innocenti J125 Starstream crankshaft in a 4-speed Vega 75cc casing when testing a prototype **CPOne35** kit for several thousand miles, and it was fine. The power output and torque of the kit are very linear, right across the rev range (i.e. it's not 'on-off' as can be the case with some small capacity reed-valved tuning kits) and this helps to reduce crankshaft wear. The only negative factor can be the balance factors of standard crankshafts, which might not be ideal for the **CPOne35** kit, and this could cause undue vibration. Casa Lambretta manufactures economical, standard type Cento/J125 and Starstream crankshafts. However, Casa Performance manufactures high-quality dedicated crankshafts for both 3-speed engine casings ([HD3](#)) and 4-speed engine casings ([HD4](#)) and these are strongly recommended, being built specifically for use with the **CPOne35** kits.

***Can the original 'Lubematic' 2-stroke oil injection system found on 'Lui75SL' and 'Cometa' models be maintained with a CPOne35 kit?***

No.

## **'CPOne35' Kit Assembly**

These instructions are mostly generic as they are relevant for all the J Range and Luna Line models listed above, with singular model or range references solely where needed.

1. Remove your old carburettor, exhaust and cylinder kit. If you have short 50/75cc type cylinder studs, remove them.
2. Thoroughly clean and degrease the entire working area with a non-aggressive product such as 'brake cleaner'.
3. Check the conrod, the crankshaft and the main bearings for wear or play. All parts must be in perfect condition. If in doubt, replace them. **Rimini Lambretta Centre** has all the parts needed and **Casa Performance** manufacture crankshafts, [CNC magneto flanges](#) and [Ducati Firefly](#) electronic ignitions if you wish to upgrade your engine.



4. Add a drop of 2-stroke oil to a new small end bearing and slide it into the conrod. The **CPOne35** piston is designed to be used with a standard largeframe Lambretta 16x20x20 size small end bearing.



5. Fit both piston rings to the piston and then one circlip. We thoroughly recommend the use of the 16mm version [circlip fitting tool](#) when doing so that have made manufactured. This superb tool makes exceptionally light work of a difficult job as can be seen in [this YouTube video](#).



*If you use the circlip fitting tool, first fit the gudgeon (wrist) pin just past one of the circlip recesses, as this will ensure the circlip sits correctly when installed.*

*Once the circlip is installed, remove the gudgeon pin. Now slide the piston down over the conrod, with the arrow on the piston crown facing towards the exhaust port, until the holes of the piston are visibly aligned with the centre of the small end bearing. Gently push the gudgeon pin into the piston, until it passes through to the other side, against the ready-fitted circlip.*

If the gudgeon pin blocks part way DO NOT HIT OR FORCE IT in any way.

Simply move the piston around slightly to aid alignment until the gudgeon pin can be pushed through with ease. Now fit the second circlip into its hole, again preferably utilising the circlip fitting tool, ensuring that it is firmly seated within its recess once in place.



6. If you have previously removed short 50/75cc type cylinder studs, now fit the longer type cylinder studs, applying a small drop of medium strength Loctite threadlock (or similar) to the threaded sections that will be inserted into your engine casing. Once fully fitted, clean off any excess Loctite from around the bottom of each stud.





7. Fit the 4 exhaust studs, applying a small drop of medium strength Loctite threadlock (or similar) to the SHORTER threaded sections, that will be inserted into the cylinder.

**ONE TO WATCH!** Very early first Batch **CPOne35** kits had standard Lambretta type exhaust studs but subsequently all supplied exhaust studs have different-length threaded sections. If you fit longer exhaust studs in the lower positions, check that they do not pass through into the holes for the long cylinder studs, or you may not be able to fit the cylinder! To check, just look down through both holes for the cylinder studs to ensure that neither are obstructed by the exhaust studs (see photo above).

Please note that all exhausts produced by **Casa Performance** for the **CPOne35** kits have cylinder mounting flanges with 4 holes, whereas all original Lambretta exhaust flanges for both J range and Luna Line models have just 2 holes. If you intend to fit a standard type exhaust, just fit the two studs in the original Lambretta positions (i.e. 'top left' and 'bottom right' as you look directly at the exhaust port). Most original type Lui/Vega/Cometa 75cc model exhausts use a short, cast iron manifold that requires a unique, very long exhaust stud on the flywheel side. If you intend to use that exhaust, this stud will need to be removed from your old cylinder and re-fitted to the **CPOne35** cylinder.



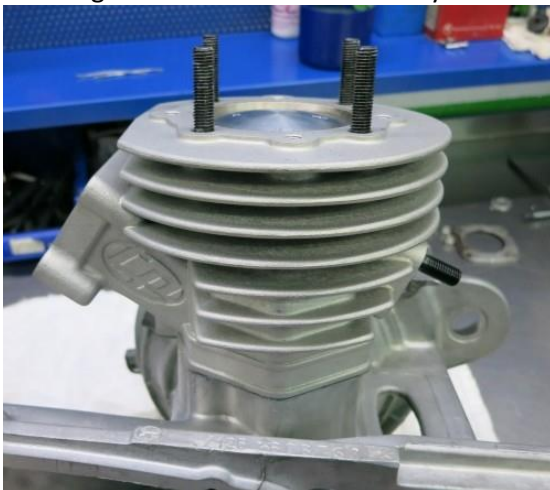
8. You now need to check the squish clearance between the piston crown and cylinder head. This is done 'dry', i.e. WITHOUT the use of sealant, grease or oil. There are two base gaskets supplied with each **CPOne35** kit which are 0.3mm and 0.5mm thicknesses. *We normally fit the 0.3mm gasket to start with.* Turn your crankshaft until the piston is in a fully lowered position. Slide the base gasket down over the cylinder studs until it is fully seated home on the engine casing. Ensure that the piston rings are in the correct positions with the ring pegs visible, or alternatively, this operation can be carried out without



initially fitting the piston rings.



9. Now you need to slide the cylinder down over the studs, until it comes into contact with the top of the piston. Gently squeeze each piston ring to close it up, to allow the cylinder to drop down over the piston. Once both piston rings are inside the cylinder, gently slide it downwards until it's fully seated home on the engine casing. Now turn the crankshaft by hand to ensure the piston can travel freely within the cylinder.



10. With the piston in a position slightly back down into the cylinder i.e. NOT at top dead centre ('TDC'), place a 6cm length of solder (that is preferably 1.5mm thick) on top of the piston crown, along a line that corresponds with the gudgeon pin, as per the photo above.



11. Fit the cylinder head onto the cylinder and ensure it is fully seated home.

**ONE TO WATCH!** *The cylinder head is a precise fit in the top of the cylinder - so take extra care when fitting, to ensure the cylinder head does not sit lop-sided on the cylinder (see above), or you could damage both the head and cylinder when you tighten up the nuts!*



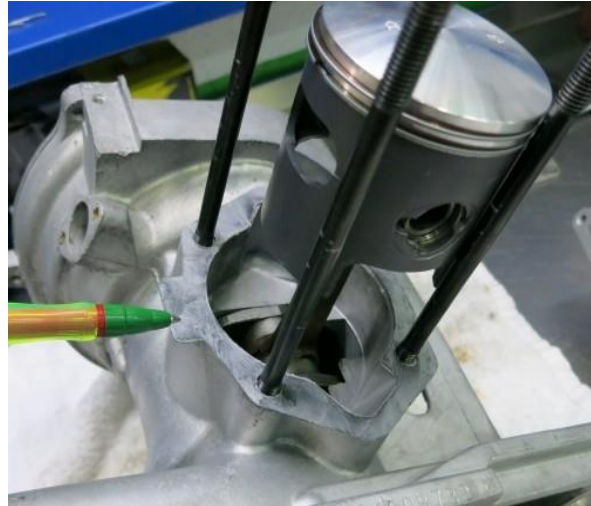
12. Fit 7mm washers to the 4 x cylinder studs. Now fit the 4 x 7mm nuts (the tall nut can be used in any position at this point). Tighten each nut slightly, one at a time in a criss-cross, diagonal fashion until all four are tightened up to 15Nm. *There is no need to use Loctite, or to fit the 3 x 6mm Allen screws at this point.* Turn the engine over slowly. As the piston goes up to TDC position it will crush the solder slightly between its crown and the underside of the cylinder head.

Now remove the 4 x cylinder nuts and the actual cylinder head. Remove the length of solder from the piston crown and GENTLY measure it with a digital vernier caliper where it has (visibly) been crushed. The measurement should be between 1.0 - 1.3mm. In our case the measurement was **1.19mm**, which is fine.

If the measurement is less than 1.0mm, replace the 0.3mm thick base gasket with the 0.5mm thick gasket, as this will effectively raise the cylinder and therefore increase the squish clearance. *A combination of the two base gaskets can be used if necessary.* In the (unlikely) case that it is more than 1.3mm, you will need to remove the appropriate amount of material from the shiny machined 'gasket face' area on the underside of the cylinder head with a lathe.

Repeat the above process once you have made the alterations until your squish measurement is within the correct range.





13. Carefully remove the cylinder, taking care not to damage the base gasket. Remove the base gasket and lightly grease it (with heavy duty bearing grease) and slide it back down over the studs until it is fully seated home on the engine casing. *Alternatively, we recommend the use of a good quality sealant such as [Threebond](#) instead of grease.*



14. Apply a smear of good quality 2-stroke oil over the entire bore inside the cylinder. Slide the cylinder down over the studs, until it comes into contact with the top of the piston. Ensure that the piston rings are in the correct positions with the ring pegs visible. Gentle squeeze each piston ring to close it, thus allowing the cylinder to drop down over the rings. Once both piston rings are inside the cylinder, gently slide it downwards until its fully seated home on the engine casing. Now turn the crankshaft by hand to ensure the piston can travel freely up and down within the cylinder.



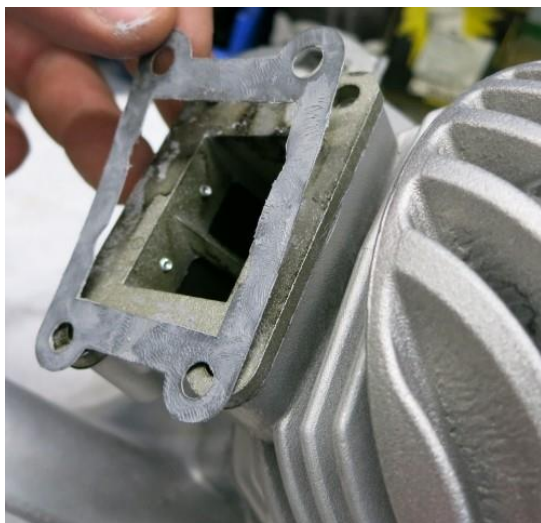
15. Apply a smear of [Threebond sealant](#) to the machined 'gasket face' area of the cylinder head, and allow it a little drying time. Fit the cylinder head onto the cylinder and ensure its fully seated home. *Again, take care to ensure that the cylinder head is correctly seated inside the cylinder!*

Fit 7mm washers to the 4 cylinder studs. Apply a small drop of medium strength Loctite threadlock (or similar) to the protruding threads of the cylinder studs. Now fit the 4 x 7mm nuts. The nut fitted to the front, on the kickstart side, needs to be the unique, taller nut (i.e. No. '4' in the photo below-left and indicated by the pen in the photo below-right).



Tighten each nut slightly, in a criss-cross diagonal fashion, as per the sequence of the **red** numbers in the photo above, until all four are tightened up to **15Nm**. Fit the split and flat washers to the 3 x 6mm Allen screws and fit them to the cylinder head. Tighten them up fully to **11Nm** as per the sequence of the **green** numbers in the photo above. Turn the crankshaft by hand to ensure the engine rotates smoothly.





16. Carefully place an inlet gasket over the reed petals of the reedvalve block. Then insert the reedvalve into the cylinder. Place the second inlet gasket on top of the reedvalve. Then mount the rubber inlet manifold. Apply a small drop of medium strength Loctite threadlock (or similar) to the 4 x Allen screws. Add their flat 6mm washers and tighten the whole reedvalve assembly to the cylinder. RLC recommends applying a smear of [Threebond sealant](#) to both sides of each reedvalve gasket. The upper



Allen screw on the kickstart side may seem difficult to access initially but as the inlet manifold is made from rubber, this can happily be squashed slightly during tightening (see photo above) without causing damage.

17. Fit the exhaust gasket to the cylinder and then fit the exhaust. Again, *RLC recommends applying a smear of [Threebond sealant](#) on both sides of the gasket.*

18. Fit the cylinder head cowling to the engine. *Read the text below for suitable cylinder cowling ID info.*

19. Fit and tighten the sparkplug and fit the HT cap. The **CPOne35** kit uses a long-reach type spark plug.

20. Connect the fuel line, choke cable and throttle cable to the carburettor. Fit the carburettor to the manifold and firmly tighten the clamp. Do NOT over-tighten the clamp.

Open the petrol tap, activate the choke and start the scooter. ***Enjoy!***

## **OTHER INFORMATION**

### **CARBURETTOR TYPE AND SETTINGS**

**Casa Performance** has carried out all testing on the **CP One35** kits using [Dell'Orto PHBL25](#) and [Polini Evolution CP24mm](#) carburettors. Both these carbs can be supplied with flip-up or cable operated choke mechanisms. To provide exact jetting tables for either type of carb is nigh on impossible as factors such as your location, ambient temperature, location altitude, exhaust type, filter type and various other factors will all have a major influence on final carb settings. Therefore please note that the following settings are purely AN INDICATION provided simply as a starting point.

#### **Polini CP24 Evolution**

Slide: D25-30

Needle: CP14 22 (2<sup>nd</sup> clip from top)

Main Jet: 114 or 115

Tickover jet: 46

Atomiser: 35-12

#### **Dell'Orto PHBL25**

Slide:40

Needle: X2 (top clip)

Main Jet: 115

Tickover jet: 72

Atomiser: AQ264

Float Needle Valve: 200

Both these settings were acquired in Italy, with a standard type exhaust (i.e. NOT a sports/expansion chamber) and using a [Marchald foam-type airfilter](#) on the carburettor.



X833



X833A

**Casa Performance** has also manufactured other [cast aluminium manifolds](#) as optional extras, to fit a Dell'Orto SH1/20mm (for Lui/Vega/Cometa 75cc scooters) or a Dell'Orto SHB 19mm (for J Range scooters).

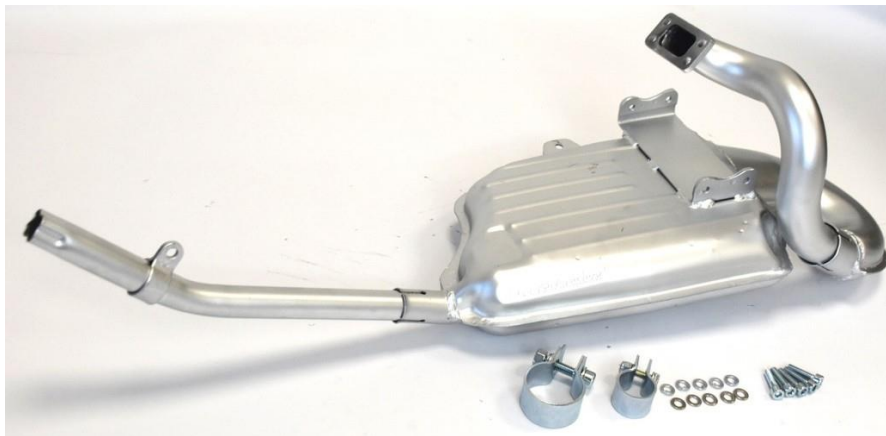
#### **PETROL FUEL TAP**

For Luna Line models use the larger bore, [8mm attachment type petrol tap](#) as fitted to 75cc models. These are available in both 'front exit' and 'rear exit' versions.



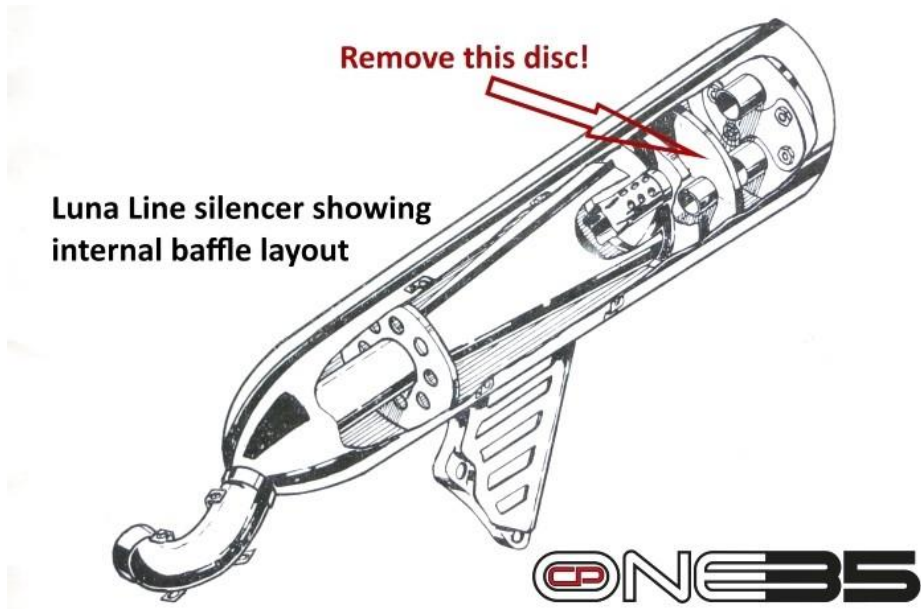
For J Range models, the original type tap has a long main body that can come into contact with the carburettor. Therefore replace the standard fuel tap with a **rear, or side-exit [Fast Flow' type fuel tap](#)** as used on largeframe models (see photo above). Although the main body of the tap is shorter, it will fit okay. If it still fouls against the top of the carburettor, remove and shorten the throttle cable curve, until you have clearance. Shorten the petrol tap rod to suit. If the curved throttle cable guide on top of the carburettor still fowls the petrol tap, this can be shortened (where it fits into the top of the carburettor).

#### **IGNITION SETTINGS AND SPARK PLUG TYPE**





**Casa Performance** manufactures both a standard-type [Maxibox](#) and a [LunaSports](#) expansion chamber-type exhaust for Luna Line models. Power output of the **CPOne35** kits depends on which exhaust you use. We have seen that usually, an engine fitted with a **Maxibox** exhaust should produce at least 10bhp, or 12bhp+ with a **LunaSports** exhaust, when combined with an out-of-the-box **CPOne35** kit in completely untuned format.



If you use an original type **Vega 75cc model** exhaust, power output will be approx. 10bhp at the rear wheel, and if you modify that same exhaust by removing a 'baffle' disc (as seen in the 60's Lambretta Tuning Manual), you'll see an extra 10% power.

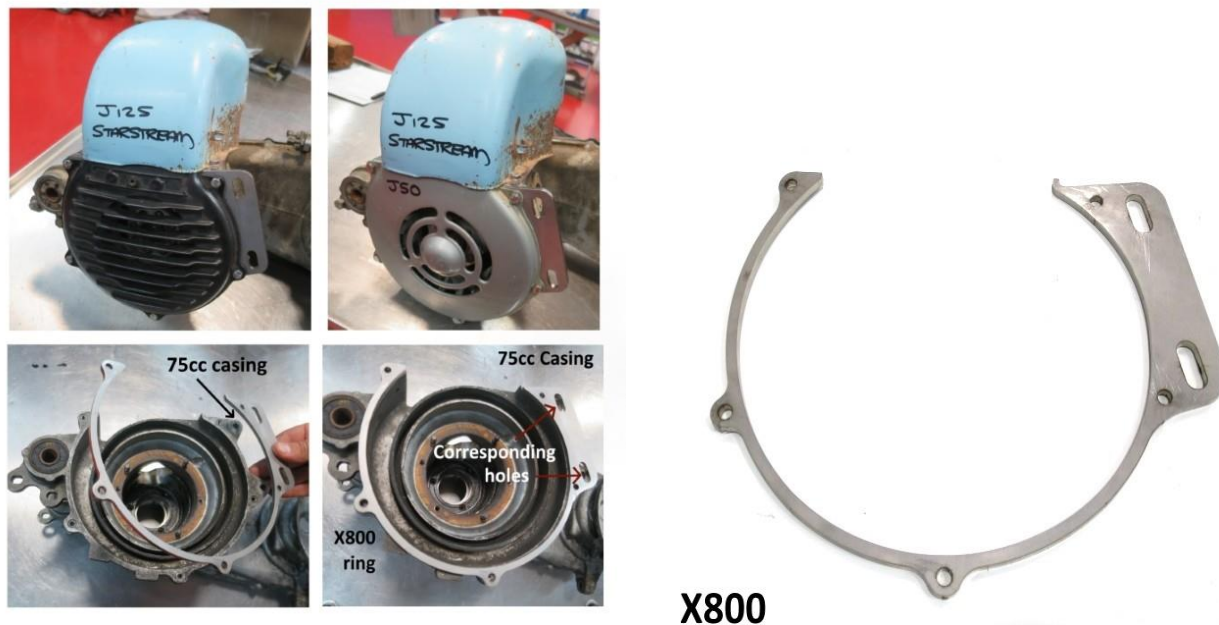
As the exhaust flange on the **CPOne35** cylinder has 4 x 7mm fixing studs, as opposed to the standard 2-stud fixing, **Casa Performance** exhausts all have 4-stud fixing but all original exhausts with the standard 2-stud fixing can be used, as 2 of the 4 studs present on the cylinder are in the original positions.

#### **J Range Models**



**Casa Performance** manufactures a standard-type **Maxibox** exhaust for J Range models. Power output for a **CPOne35** engine fitted with a **Maxibox** exhaust should produce at least 10bhp when combined with an out-of-the-box CPOne35 kit, in completely untuned format. **This is the dedicated exhaust for use with the kit (see above pic), and the use of any other exhaust could seriously compromise the power output of the kit.**

#### Exhaust Mounting Ring for Lui 50 models + Flywheel Cowling Spacer Ring for all NON-75cc models



50cc Lui engines do NOT have the additional exhaust mounting lug cast into the engine casing to the right of the flywheel cowling, as their 75cc counterparts have. **Casa Performance** produces a stainless steel [flywheel spacer ring](#) that fits under the original 50cc flywheel cowling and has this additional lug incorporated within (see above). This adapter ring also **doubles up** as a spacer to fit under 50cc flywheel cowlings (as they are much shallower than 100/125cc flywheel cowlings) to obtain the correct height needed to be used in conjunction with 100/125cc cylinder cowlings.

#### GEARBOX

The **CPOne35** kit can be used with standard smallframe Lambretta gearing, with an abundance of sprockets available to acquire your desired final drive ratio. We have seen that the final drive ratio you choose depends greatly on the exhaust used, with Sports exhausts needing much shorter overall gearing ratios.

For gearbox options, these are our recommendations:

##### 3- speed gearboxes

If you have a 3-speed engine casing use a 3-speed Cento or J125 gearbox. All 3-speed Cento and J125 loose gear cogs, clusters and full gearbox sets are [readily available](#) new, as they are manufactured by Casa Lambretta. Standard 50cc 3-speed gearboxes (both J50 and Lui50) are too short to be used.

##### 4- speed gearboxes

If you have a 4-speed engine casing, use a 4-speed Vega 75cc or J125 Starstream gearbox. All 4-speed Lui/ Vega/Cometa and J125 Starstream loose gear cogs, cluster and full gearbox sets are [readily available](#) new, as they are manufactured by Casa Lambretta.



### 'Vega5' 5-speed gearbox

**Casa Performance** has designed, developed and manufactured the [Vega5](#) which is a complete **5-speed gearbox** that can be fitted to **ANY** J Range or Luna Line scooter, irrespective of engine capacity size (cc) or if it is a 3 or 4-speed engine casing. For 4-speed engine casings the **Vega5** is a plug 'n' play gearbox that requires **no modifications or additional components**.



For 3-speed engine casings, you will also require a 4-speed layshaft ([M336](#) for J Range and [M253](#) for Luna Line scooters), a 4/5-speed type gearbox endplate (remade [Casa Performance endplates](#) are also be available, see above), a 4-speed engine sidecasing, a distance-spacer for the chain guide(s), 4-speed type gearchange control shaft with integral lever (i.e. the shaft that actually goes down into the gearbox), a 4-speed type tie-bar and a special front drive sprocket sleeve ([X813](#)).

There are two versions of the **Vega5** gearbox: [Mk1](#) and [Mk2](#) (released in July 2022). The Mk2 has much-reduced 2<sup>nd</sup>-3<sup>rd</sup>-4<sup>th</sup>-5<sup>th</sup> ratios, making it much better for use with machines fitted with a sports expansion chamber-type exhaust, enabling the use of a cush-drive type front sprocket assembly to be fitted. For identification purposes, these are the teeth numbers:

Mk1 loose cog teeth: 44-41-37-33-31



Mk1 cluster teeth: 10-13-16-18-20

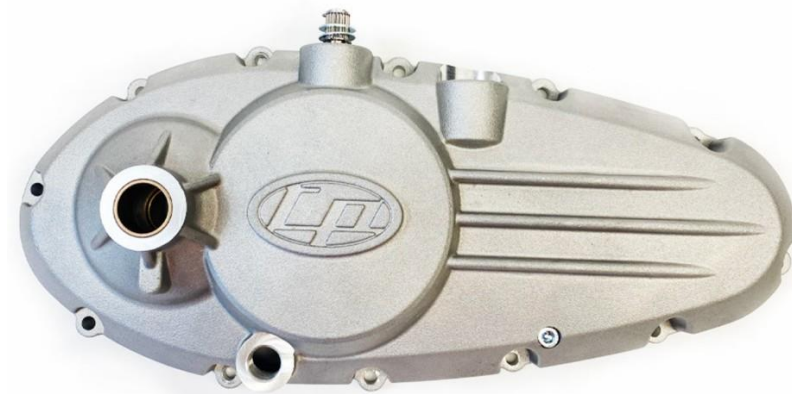
Mk2 loose cog teeth: 44-41-38-35-34

Mk2 cluster teeth: 10-13-16-18-20

The individual components of the two versions are NOT to be mixed, as only the loose first gear cog is identical in both Mk1 and Mk2 gearboxes.

### **ENGINE SIDECASING**

Please note that J Range and Luna Line 4-speed sidecasings are MUCH deeper than equivalent 3-speed sidecasings. In both 3 and 4-speed cases, J Range and Luna Line sidecasings are perfectly interchangeable with each other, despite being aesthetically different externally, as Luna Line sidecasings are visibly much more angular.



**Examples:** A 3-speed J50 sidecasing can be fitted to a 3-speed Lui 50cc, or vice-versa. Or, if you want to fit a 5-speed **Vega5** gearbox to any J Range or Luna Line scooter, irrespective of engine capacity or model, you can use a sidecasing from either a 4-speed Starstream, a 4-speed Lui/Vega/Cometa or the [sidecasing manufactured by Casa Performance](#). This has the added benefit of an internal 'rack and pinion' clutch actuating arm, making handlebar clutch lever operation extremely light, even with a heavy-duty clutch.

### **TRANSMISSION**

#### **Clutch**

Original J Range and Luna Line clutches were manufactured in either 2 or 3-plate versions, depending on the scooter model. There are three different sizes of clutch (bell) crownwheel sprockets in 45, 46 and 47 teeth sizes.

The main difference is that J Range clutch ([45,46](#) and [47](#) teeth) crownwheels all use a [needle bearing](#) which runs within a pressed-in steel race, whereas Luna Line scooters use a bronze bush in ([46](#) and [47](#) tooth) crownwheels.

#### **Clutch spider**

Once again, Innocenti confusingly produced two different types of central clutch spiders for 2-plate or 3-plate clutches, albeit with correspondingly (easily visible) different heights. Only 50cc machines (both J Range and Luna Line) use 2-plate clutches and in any case these are NOT to be used. **Therefore all the following information concentrates on the 3-plate type clutch spiders.**



The clutch spiders have two different sizes of the central splined hole, which is either SMALL or LARGE, where it fits onto the gearbox cluster. When choosing a clutch spider for your scooter, ensure it is a **3-plate type** with the correct sized central splined hole to match your gearbox cluster.

The SMALL splined hole measurement is 13.2mm, whereas the LARGE hole measurement is 15.2mm.

They can be divided up as follows, along with the recommended replacement upgrade Casa Lambretta clutch spider (if needed):

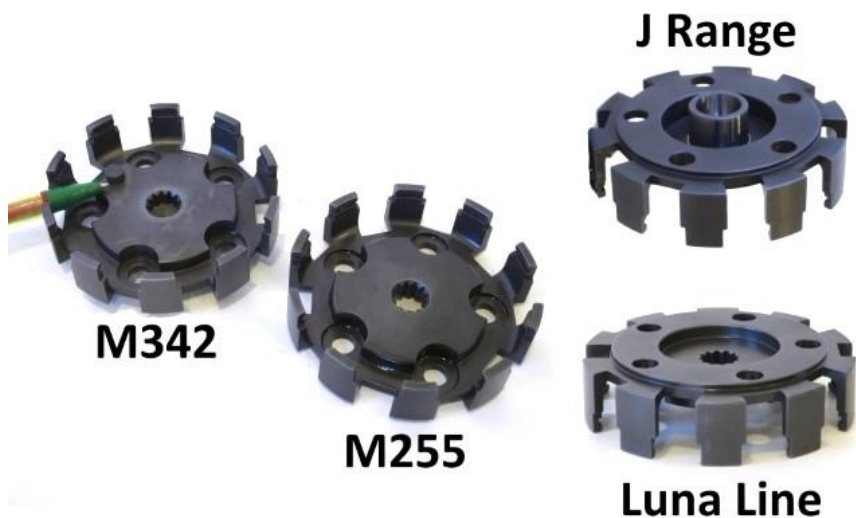
J50 (early 1964 production only): small splined hole/3-plate = **OK!** ([M342](#))

J50 (all subsequent models): small splined hole/2-plate = fit clutch spider [M342](#)

Cento 100 /J125/Starstream: large splined hole/3-plate = **OK!** ([M340](#))

Lui 50C/CL: small splined hole/2-plate = fit clutch spider [M255](#)

Lui/Vega/Cometa 75cc: small splined hole/3-plate = **OK!** ([M255](#))



*The new generation Casa Lambretta clutch spiders are modern CNC manufactured parts which are angular on the underside, making them perfect if you wish to convert your standard clutch to 4-plates (advisable)!*

#### J Range clutch spiders

For J Range scooters there are two types of 3-plate clutch spiders, with either a SMALL or LARGE central splined hole. Original Innocenti small hole spiders were only fitted to VERY early production J50 models, but they are extremely rare and usually completely worn out, so replacement with a Casa Lambretta spider [M342](#) is recommended. J Range clutch spiders are easily identifiable as they have an extra cylindrical 'shoulder' on the underside for the needle bearing to run on and also have a small lug for the securing tab washer (as indicated by the pen in the photo above).

### Luna Line clutch spiders

This 3-plate type, as fitted by Innocenti to all Lui/Vega/Cometa 75cc models, is without the protruding 'shoulder' on the underside, as a bronze bush and steel spacer are used. These are also easily identifiable as there is no tab washer lug, as a spring washer is used under the main fixing nut instead. If you wish to replace or upgrade this part, the correct Casa Lambretta clutch spider is [M255](#).

### ***Can a standard type clutch be used?***

Yes, but only if you have a [3-plate clutch](#) and use stronger 'competition' or [200cc model clutch springs](#). An engine fitted with a **CPOne35** kit and a Standard type exhaust will require at least a 3-plate clutch, and even then, this is pushing the situation to the absolute limit. Converting to a 4, or better still, a 5-plate clutch is a sensible option. The 2-plate clutches found on J50cc and Lui 50 models are NOT sufficient.

Alternatively, **Casa Performance** now produces a 5-plate, 10-spring, modern cassette-type clutch called the [LunaMaster](#) specifically designed for use with the **CPOne35** kits, in **45, 46** and **47** teeth sizes. These clutches are quite capable of resisting power outputs of even highly tuned **CPOne35** kits and they use the same friction clutch plates as those utilised in Casa Performance **SSR265 Scuderia** engines.



### Sprocket Combinations & Drive Chains

Drive chains in (nearly) all ('pitch') lengths are readily available from [Casa Performance](#). The best 'tool' to calculate eventual gearbox combinations, ratios and set-ups is **Tony Cassidy's** excellent [GEARBOX VISUALISER](#).

This is the complete list of all possible front drive sprocket & clutch crownwheel sprocket combinations for all J Range and Luna Line Lui/Vega/Cometa models, complete with the required length chain (all with *live* product links):

### **45T Clutch crownwheel Sprocket**

45T clutch sprocket + [11T](#) front sprocket = [73 link chain](#)

45T clutch sprocket + [12T](#) front sprocket = **NO!**

45T clutch sprocket + [13T](#) front sprocket = [74 link chain](#)

45T clutch sprocket + [14T](#) front sprocket = [74 link chain](#)

45T clutch sprocket + [15T](#) front sprocket = [75 link chain](#)



45T clutch sprocket + [16T](#) front sprocket = [75 link chain](#)

#### 46T Clutch crownwheel sprocket

46T clutch sprocket + [11T](#) front sprocket = **NO!**

46T clutch sprocket + [12T](#) front sprocket = [74 link chain](#)

46T clutch sprocket + [13T](#) front sprocket = [74 link chain](#)

46T clutch sprocket + [14T](#) front sprocket = [75 link chain](#)

46T clutch sprocket + [15T](#) front sprocket = [75 link chain](#)

46T clutch sprocket + [16T](#) front sprocket = [76 link chain](#)

#### 47T Clutch crownwheel sprocket

47T clutch sprocket + [11T](#) front sprocket = [74 link chain](#)

47T clutch sprocket + [12T](#) front sprocket = **stretched 74 link chain**

47T clutch sprocket + [13T](#) front sprocket = [75 link chain](#)

47T clutch sprocket + [14T](#) front sprocket = **NO!**

47T clutch sprocket + [15T](#) front sprocket = **NO!**

47T clutch sprocket + [16T](#) front sprocket = [76 link chain](#)

#### Front Sprocket

Front drive sprockets are divided into two types: **cush-drive** and **NON cush-drive**. Cush drive type front sprocket assemblies were fitted as standard to Cento, J125 and Starstream models. All 50cc and 75cc models have NO cush drive as standard, but they can easily be converted to cush drive with the appropriate parts, all of which are [readily available](#).

The advantages of a cush drive set-up are that this really reduces wear and tear on the gearbox and clutch and it therefore follows that the fitment is advised. 3-speed models need a different drive sprocket sleeve (also called a collar) than 4-speed models, as this is longer and has an extra section that fits between the crankshaft and main drive side bearing. The dish-shaped washer under the sleeve is also different for 3 and 4-speed models.

If you intend to fit a 4 or 5-speed gearbox into a 3-speed engine casing, you will need a [special front sprocket sleeve](#) produced by **Casa Performance** to obtain the correct chain alignment between the sprocket and clutch.

Front drive sprockets are available in the following types and teeth sizes:

#### NON cush drive sprockets

[11 teeth](#) (Innocenti + Casa Performance) *note: there are versions for both 3 and 4-speed engines*

[12 teeth](#) (Casa Performance) *note: there are versions for both 3 and 4-speed engines*

[13 teeth](#) (Innocenti + Casa Performance) *note: there are versions for both 3 and 4-speed engines*

[14 teeth](#) (Casa Performance) *note: there are versions for both 3 and 4-speed engines*

[15 teeth](#) (Casa Performance)

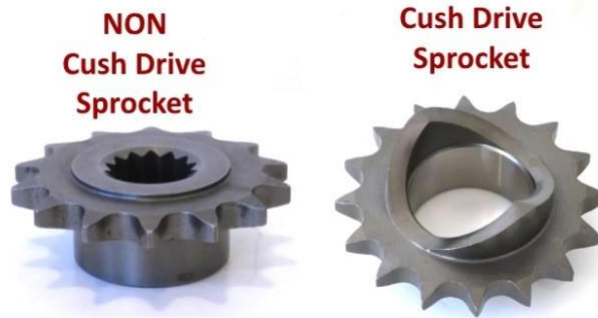
#### Cush drive sprockets

[14 teeth](#) (Innocenti + Casa Lambretta)

[15 teeth](#) (Casa Performance)

[16 teeth](#) (Casa Performance)

**Examples:** If you have a 3-speed J50, you will need to fit a cush drive sprocket assembly from a 3-speed Cento or J125. If you have a 4-speed Cometa 75cc, you will need to fit a cush drive sprocket assembly from a 4-speed J125 Starstream.



Which cush drive set-up to choose when converting a NON cush drive model :

3-speed J50 (all versions): you will need the cush drive parts from a 3-speed Cento / J125

3-speed Lui 50C / 50CL: you will need the cush drive parts from a 3-speed Cento / J125

4-speed Lui/Vega/Cometa 75cc: you will need the cush drive parts from a 4-speed J125 Starstream

### Drive sprocket assembly for 3-speed engine casings



### Drive sprocket sleeve + dished washer for 4-speed engine casings



Please note some very early production J50 models were also fitted with a 14T cush drive set-up that uses a unique height spring (Item: [M345z](#)).

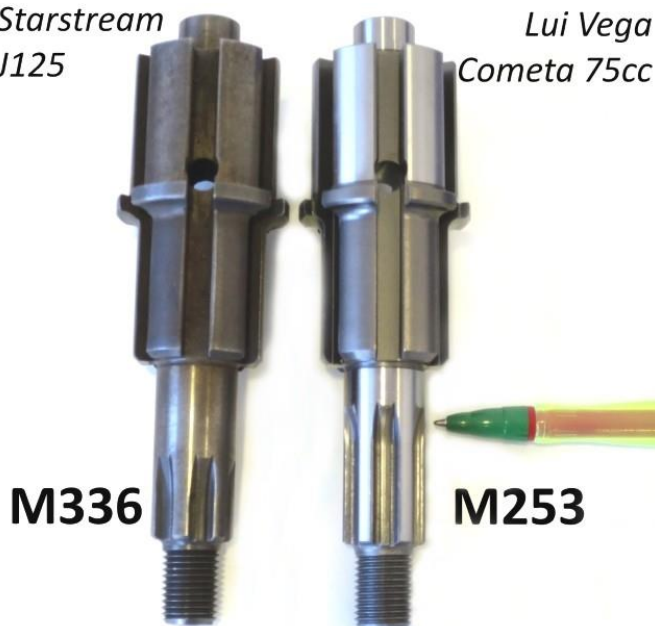


#### Chain Guides

**Standard chain guides can be used.** Alternatively, Casa Performance has manufactured a [very high quality top chain guide](#) tensiometer for all J Range and Luna Line scooters, and this can be used without the lower guide. There are two original types of guides (with different fixing hole distances cast into the engine casing) and this new chain guide tensiometer can be used for either type of engine casing.

*Starstream  
J125*

*Lui Vega  
Cometa 75cc*



#### LAYSHAFT AXLE

3-speed and 4-speed layshafts have visibly different lengths. The difference between J Range and Luna line layshafts is that the latter have longer teeth for the fitment of a splined, cone-less rear hub, as can be seen in the photo below. This applies to both 3 and 4-speed versions.

Layshafts can be interchanged between J Range and Luna Line engines BUT if you use a standard cast iron type Luna Line rear hub, you **MUST** use a layshaft with longer teeth.

#### CYLINDER & FLYWHEEL COWLINGS

There were several types of cylinder and flywheel cowlings fitted to both J Range and Luna Line machines

during production.

#### Flywheel Cowling

**Any standard flywheel cowling can be used.** J Range flywheel cowlings are made of steel, with 50cc model cowlings being much shallower than their Cento or 125cc counterparts. Luna Line flywheel cowlings are made of plastic. For all 50cc & 75cc models (both J Range and Luna Line) you will need to fit the **Casa Performance [flywheel spacer ring](#)** (mentioned previously) under the flywheel cowling to distance it away from the engine casing so that it aligns correctly with the taller Cento/J125/Starstream type cylinder cowling.

#### Cylinder Cowling

J Range cylinder cowlings are divided into two types: **short type** (50cc) and **tall type** (100cc & 125cc). Luna Line cylinder cowlings are made of steel and are both the **short type**, albeit with aesthetical differences between the 50cc and 75cc versions.

To fit a **CPOne35** kit, all 50cc & 75cc models (i.e. all models with a **SHORT** type cylinder cowling) will need a **TALL** type cylinder cowling; this means a cylinder cowling for a Cento, J125 or Starstream model. If you are using an original Italian Innocenti or Indian SIL cowling, this will need to be cut on the inlet side to clear the reedvalve assembly casting. The aperture on the exhaust side needs little/no modification.

There are also differences in original cowlings (of all origins) and on some, you might need to enlarge the hole for the spark plug slightly on the upper side of the aperture.



**X819**

Casa Performance also produce a [fibreglass cylinder cowling](#) that is supplied with the correct apertures for the **CPOne35** kits.





**Casa Performance** has also manufactured a CNC machined drive side [oilseal plate](#) (above right). This has an additional **Viton O-Ring** and offers perfect sealing, and comes ready supplied with a Viton oilseal (with a choice of oilseal for either 3-speed and 4-speed casings).

#### **FLYWHEEL SIDE MAGNETO FLANGE & DRIVESIDE OILSEAL PLATE**

There are two different types of mag flange fitted as standard to J Range and Luna Line machines, with two different types of bearings. Original flanges are extremely prone to breaking. Therefore **Casa Performance** has marketed [a CNC magneto flange](#) which is a plug 'n' play replacement for either type of original flange. This new flange (below-left) uses a single external Viton oilseal with a modern, open bearing. This helps the engine to spin MUCH more freely, whether it's standard or tuned. The flange is CNC machined and extremely high quality, with extra room for fuel to pass down in to lubricate the bearing.

#### **MODIFICATIONS NEEDED?**

We have tried to make sure that the **CPOne35** kit is as close to being plug 'n' play as is humanly possible, for both J Range and Luna Line machines.

#### **Engine Modifications**

No modifications to the engine casing are necessary.

#### **Frame Modifications**

The **ONLY** modification required to your scooter's bodywork to fit the **CPOne35** kit is the removal of a very small section of the leading edge of the rear mudguard. This amounts to little more than a few centimetres (*approx. 5cm*) and is necessary so that the rear mudguard does not foul the reed-valve inlet manifold under suspension movement. The picture below shows the small piece removed from a Luna Line rear mudguard.

In all cases, the easy way to check that you have removed the correct amount of material from the rear mudguard is simply to completely remove the rear suspension from the scooter and then (slowly) push down on the rear of the scooter, checking to see if the mudguard comes into contact with the inlet rubber when doing so. If they still come into contact, simply remove a small piece of the mudguard at a time until total freedom of movement is obtained.



On Luna Line scooters, when converting to a taller (100cc, 125cc or **CPOne35**) cylinder, the (taller type) cylinder cowling comes into close proximity to the underside of the frame and under heavy suspension movement, these can come into contact. To eliminate this, we suggest the use of a [BGM Lambretta rear shocker](#) for a Series 3/ GP-DL with [two special reduction bushes](#) that **Casa Performance** manufacture.

The extra length of this type of rear shock absorber greatly reduces the chances of the frame coming into contact with the cylinder head cowling.

The use of a Series 3 type rear shock absorber with reduction bushes will massively improve the scooter's handling on a Luna line machine and if you wish to also improve the front suspension, **Casa Performance** also market a set of [special axle nuts and weld-on top damper brackets](#) that allow the fitment of front shock absorbers as well. These can be used on both J Range and Luna Line scooters. These modifications alone will literally TOTALLY transform the way your scooter handles!

#### **CAN I TUNE THE 'CPOne35' KIT?**

Yes! We have purposely left a large base gasket face area (including an integral extra lug for a third transfer port) on the underside of the barrel and the two transfer ports are both 'lipped' over on their extremity at the base gasket face as well. In out-of-the-box format, the ports of the **CPOne35** kit match the ports of the engine casing. If you desire to open your transfer ports, then this 'lip' can be easily removed and the size of the transfer ports increases dramatically. We market and sell the **CPOne35** as a useable, road-going kit for everyday use, making it perfect as a daily rider for **commuting**, and even **touring**, if so desired. It is NOT a race kit, but if you do want to tune it, the potential is definitely there.

Any modifications carried to to a **CPOne35** kit are purely at the owner's risk, and invalidate any possible claim.

#### **LIABILITY**

**Rimini Lambretta Centre and Casa performance accept no responsibility for any issues arising from the fitment of the kit, in any countries where tuning, modifications or alterations are not permitted.**

#### **RUNNING IN PERIOD**

The recommended running-in period for the **CPOne35** kit is 350 miles/500km. During that time, just don't thrash it, or hold it at constant speeds for prolonged periods. When running-in, it's advisable to use the scooter around town and for short journeys rather than sitting at a constant speed on a motorway. Use good quality, [fully synthetic 2-stroke oil](#) at 3% initially, and 2% once the scooter has been run-in.

## Contact

For any queries or further information please contact us : [info@riminilambrettacentre.com](mailto:info@riminilambrettacentre.com)

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***Casa Performance***

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