



CUSTOMER INFORMATION SHEET – NO. 30

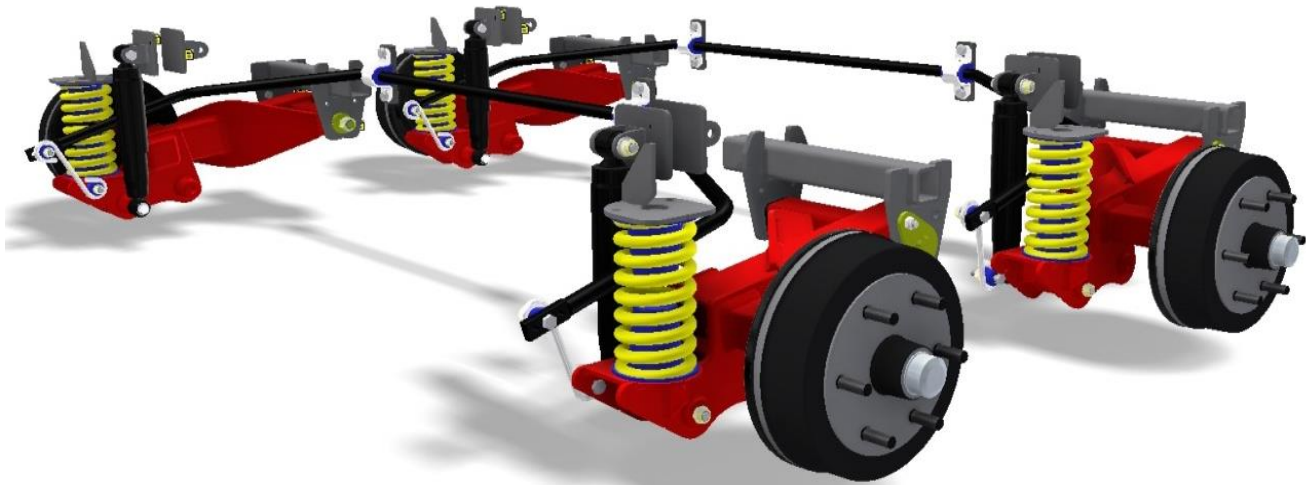
CRUISEMASTER™ CRS INDEPENDENT COIL SUSPENSION

1 WHY INDEPENDENT SUSPENSIONS?

Beam axles have passed the test of time and are generally a good workhorse. However, you don't see them any more on cars. Why is this?

The first reason is geometry. That is the path the wheel takes as it moves up and down on the suspension. A traditional axle does not allow the wheel/tyre to travel in a manner that allows the tyre to follow the road surface. One side influences the other introducing problems such as bump steer. Handling, tyre wear and braking become compromised.

Secondly, the large unsprung weight of the axle has high inertia not allowing it to follow road undulations easily putting excessive loads into the chassis. The weight itself often reduces payload. Thirdly, the axle reduces ground clearance in the centre of the vehicle and may restrict the fitting of ancillaries such as water tanks.



2 CRUISEMASTER™ CRS

The Cruisemaster™ CRS Independent suspension system is the latest addition to the Cruisemaster™ range of independent suspension systems. It has been designed to give excellent ride characteristics utilising a design registered polyurethane bump stop which doubles as a spring locator and provides a secondary spring rate which comes into play under higher loads.

Cruisemaster™ CRS has been designed to cope with bitumen and graded dirt roads. Corrugations can be tolerated for short distances.

The simplicity of the design is a credit to the Design Engineers. The new lighter, yet stronger single arm suspension frame with Polyurethane low friction bushes is perfectly suited to this suspension system.

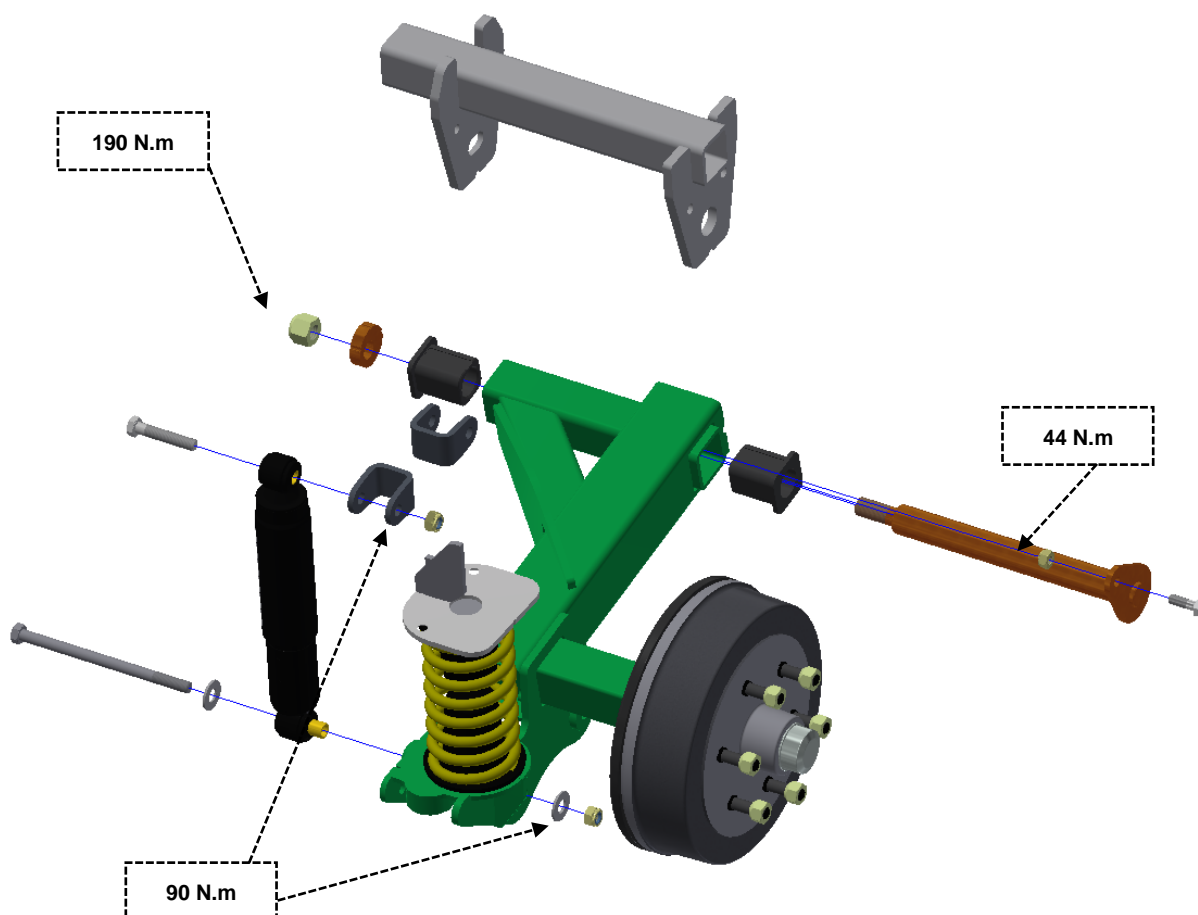
Cruisemaster™ CRS is available in a number of interchangeable spring configurations so that the suspension can be tuned to the trailer or caravans mass.

Cruisemaster™ shock absorbers have been developed by Cruisemaster™ to ensure wheel movement is controlled at all times and provides superior damping control in both bump and rebound directions.

- **LOW MAINTENANCE POLYURETHANE BUSHES/STEEL SLEEVES IN ALL MOVING PARTS**
- **INDEPENDENT SUSPENSION FRAME REDUCES UNSPRUNG WEIGHT**
- **SINGLE AND TANDEM CONFIGURATIONS**
- **EASY FITMENT**
- **TOE & CAMBER ADJUSTMENT**

- The toe adjuster cam is used to adjust wheel alignment and is located on the inside of the hinge assembly.
- 1.4 degrees of toe adjustment via cam, pre-set 1 degree positive camber unladen. Camber can be adjusted if required using offset bushes.

3 Installation Procedure



Prepare chassis and fit weld-on parts as per installation drawing 33N 1100

1	Insert M10 bolt into retaining hole towards the wheel before fitting the frame.
2	Push the frame into the hinge. Ensure polyurethane bushes have been fitted and a layer of grease has been applied to the inside surface and end faces of bush.
3	Insert the hinge bolt (ensure the thread passes through both hangers undamaged) and align the head with the M10 retaining bolt, fitted as described above.
4	Fit toe adjustment cam.
5	Fit 3/4UNF Nylon insert nuts. Check suspension alignment as per procedure below. The hinge has 1 degree built in positive camber. Additional adjustments can be made using offset camber bushes. Tighten to specified torque.
6	Fit M10 Nylon insert nuts and torque.

4 Wheel Alignment Procedure

- 1 Place the trailer/caravan on a smooth level surface and, if possible, at typical operating load.
- 2 Move the trailer backwards and forwards to eliminate any twist in the wheels.
- 3 Run a straight edge across the face of the tyre (watch for surface irregularities) then measure the distance from the straight edge to the chassis rail. Do this in front and behind the tyre. Record these two measurements. (A jig can be made up to take measurements straight from the wheel)



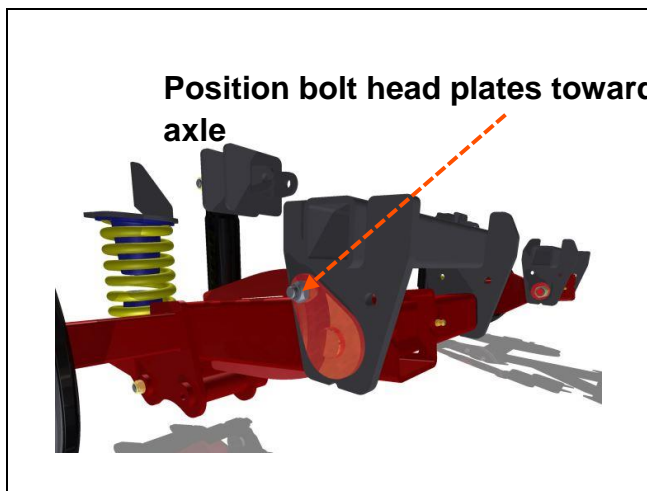
It is also possible to measure alignment directly from the brake drum/disc face to the chassis rail. However, this does not take into account the effect of load on the suspension and may be more prone to measurement errors.

- 4 A single axle or front axle on a tandem should be adjusted to have 2 - 3mm toe-in. That is, the measurement taken in front of the tyre should be 2 - 3mm less than the rear measurement.
- 5 Rear wheels on a tandem should measure parallel from the chassis rail, so the two measurements should be equal.
- 6 When setting the wheel camber, we recommend to use a digital spirit level on the rim (at the rated load) and to set the camber at 0° to 0.5° negative to the vertical for all wheels. (Negative camber is where the top of the wheel is leaning in towards to trailer)

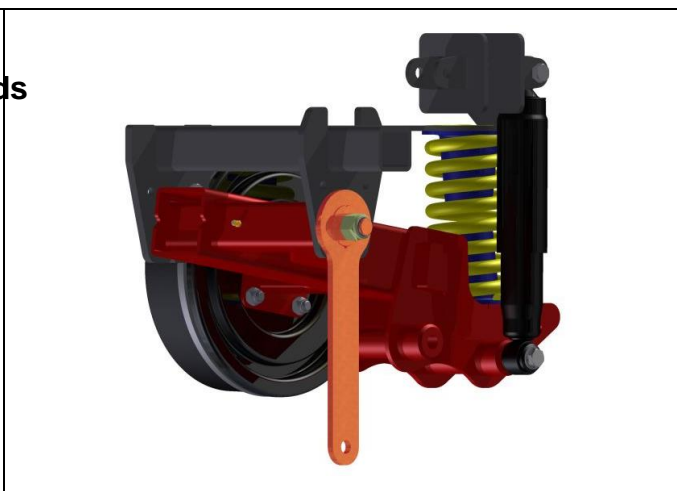


Exact measurements will depend on the type and loading configurations. However, experience has shown that the figures given are a good starting point. Modifications to these figures may need to be made to suit individual installations.

- 7 If adjustments need to be made, raise van and support safely on jack stands. Loosen all hinge bolts (and U-Bolts on leaf suspensions) and adjust by rotating the adjuster lever using the special adjustment wrench (**Part No: 33N 2401**)
- 8 Check measurement again and repeat adjustment until correct.
- 9 Fasten all hinge bolts to the prescribed torque, whilst ensuring that the adjuster lever does not move from the set position.
- 10 If correct toe/camber adjustment cannot be achieved, special offset bushes (**Part No: 33N 2108**) can be used to gain additional adjustment. Please contact us for further information

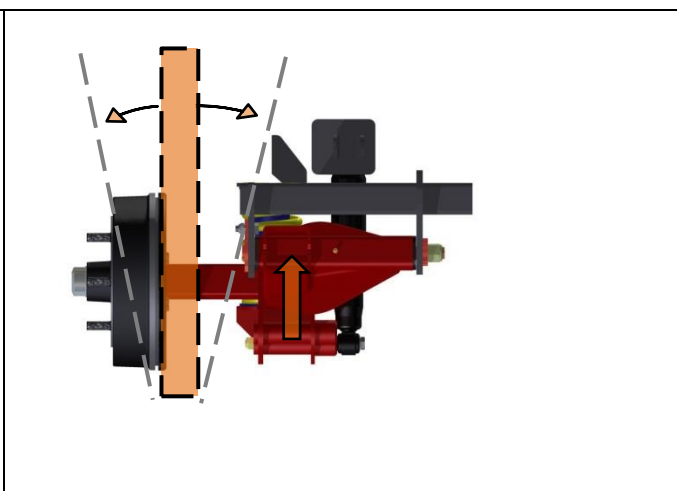
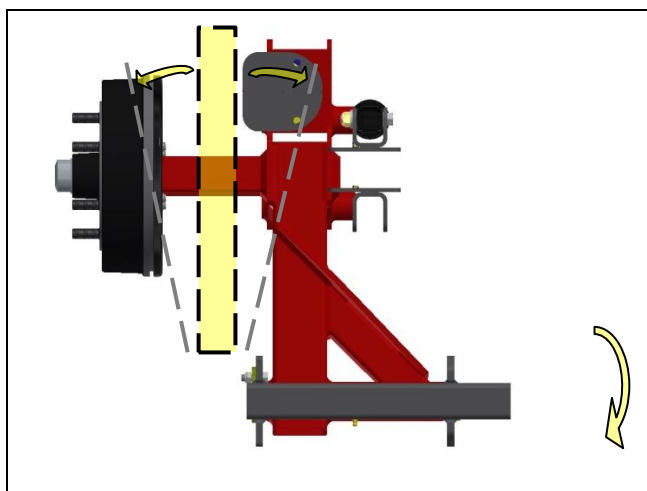


Reinforced hinge spindles with retaining heads



Use adjustment wrench to align toe adjustment cam on the inside of the hinge.

ENSURE THE SUSPENSION IS UNLOADED BEFORE LOOSENING / ADJUSTING THE HINGE.



Toe adjustment cam

1° built in positive camber (unladen) Will
move toward vertical at rated load.
(Additional adjustment available with offset
bushes)

5 MAINTENANCE AND OPERATION

Please refer to Customer Information Sheet No. 12 – General Maintenance

The suspension fitted has been selected according to the vehicle manufacturers recommended Aggregate Trailer Mass (ATM) which can be found on the vehicles compliance plate. It is important that these figures are not exceeded.