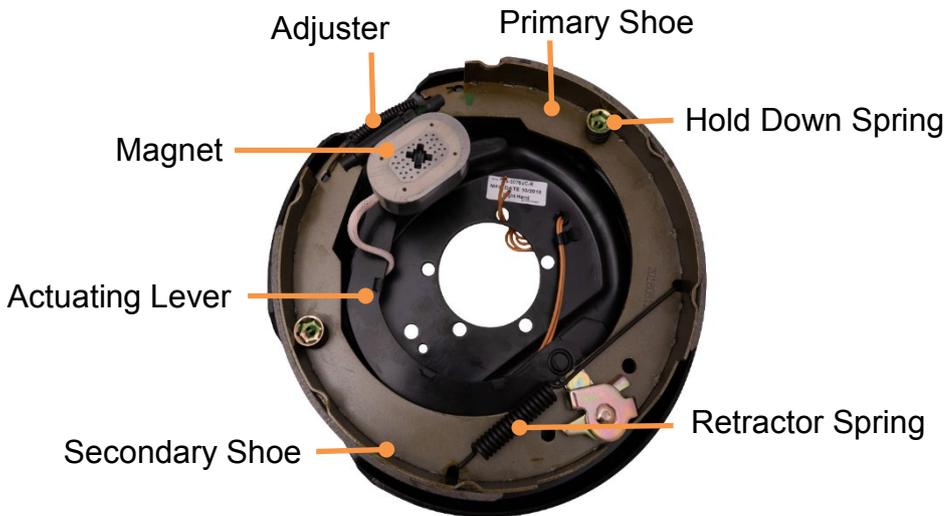




**CUSTOMER INFORMATION SHEET – NO. 001**

**ELECTRIC BRAKES**

Your trailer/caravan has been fitted with CRUISEMASTER™ electric brakes; please take time to familiarize yourself with the operation and maintenance requirements.



# 1 SERVICE BRAKE SPECIFICATIONS

## 1.1 Brake Bolts and Torque

BRAKE	PATTERN	BOLT	NUT	TORQUE
12x2" CRUISEMASTER™	5 HOLES 98.5 PCD UNEQUAL AS PICTURED	3/8" UNF x 3/4" GRADE 5 Z/P	3/8" CONELOCK GRADE C Z/P	33 N.m
10x2 1/4" CRUISEMASTER™	4 HOLES 101.6 PCD	--	7/16" CONELOCK GRADE C Z/P	53 N.m

The CRUISEMASTER™ brakes on your trailer are similar to the drum brakes on some cars. The basic difference is that your automotive brakes are actuated by hydraulic pressure while your CRUISEMASTER™ trailer brakes are actuated by an electromagnet.

## 1.2 Drum Size

In order to maintain safe brake operation, it is important to ensure the brake drums stay within a reasonable limit. Standard operation will generally result in the drum outlasting the brake assembly and in some cases a re-machine may be possible to further extend the life of these components. We recommend the 10" drum internal diameter be no more than **256.3mm** and the 12" drum be no more than **307.0mm**. These dimensions are cast into the outside of the Vehicle Components drum for future reference. If the internal diameter exceeds this dimension in either case the brake drum should be changed immediately to ensure safe brake operation.

## 1.3 Brake Ratings

### 10" Brake Capacity

SUSPENSION TYPE →		GT	CRS	XT COIL DROP	XT COIL STRAIGHT	XT AIR	ATX COIL	ATX AIR
TYRE DIAM. ↓	AXLE TYPE →	MAX GTM	MAX GTM	MAX GTM	MAX GTM	MAX GTM	MAX GTM	MAX GTM
SINGLE AXLE	710	1800	1440	1800	1800	1530	-	-
	760	1800	1440	1800	1800	1530	-	-
	774	-	1440	1440	1440	1530	-	-
	804	-	-	1440	1440	1530	-	-
	840	-	-	-	-	-	-	-
TANDEM AXLE	710	2790	2970	2610	2610	2520	-	-
	760	2790	2970	2610	2610	2520	-	-
	774	-	2970	2610	2610	2520	-	-
	804	-	-	2610	2610	2520	-	-
	840	-	-	-	-	-	-	-

## 12" Brake Capacity

SUSPENSION TYPE →		GT	CRS	XT COIL DROP	XT COIL STRAIGHT	XT AIR	ATX COIL	ATX AIR
TYRE DIAM. ↓	AXLE TYPE →	MAX GTM	MAX GTM	MAX GTM	MAX GTM	MAX GTM	MAX GTM	MAX GTM
SINGLE AXLE	710	-	2250	2340	2520	2340	2520	2520
	760	-	2250	2340	2520	2340	2520	2520
	774	-	2250	2340	2520	2340	2520	2520
	804	-	-	2340	2520	2340	2520	2520
	840	-	-	-	-	-	2520	2520
TANDEM AXLE	710	-	3150	3690	4005	3960	4005	4005
	760	-	3150	3690	4005	3960	4005	4005
	774	-	3150	3690	4005	3960	4005	4005
	804	-	-	3690	4005	3960	4005	4005
	840	-	-	-	-	-	4005	4005

**\*2520 Single Axle GTM available only with CRUISEMASTER™ Drum**

Each brake will operate with a current draw of 3 amps, remembering a single axle set will draw 6 amps during service and a tandem will draw 12 amps. Wiring should be sized accordingly to ensure minimal voltage drop along the length of the trailer.

## 2 PARK BRAKE OPERATION

When using the park brake facility, a cable is attached to the designated lever arm on the outside of the backing plate then to the base of the handbrake so to operate the brakes without need for constant electricity supply.

## 3 HOW TO USE YOUR ELECTRIC BRAKES PROPERLY

Your trailer brakes are designed to work in synchronization with your tow vehicle brakes. Never use your tow vehicle or trailer brakes alone to stop the combined load. Electric brake controllers provide a modulation function that varies the voltage to the electric brakes with the pressure on the brake pedal or amount of deceleration of the tow vehicle.

***Please note that simple trailer based brake controllers provide limited control and should only be used when an in-car modulated system is not practical.***

Proper synchronization of tow vehicle to trailer braking can only be accomplished by road testing.

Before any synchronization adjustments are made, your trailer brakes should be burnished in by applying the brakes 20-30 times with approximately a 30 km/h decrease in speed, e.g. 60 km/h to 30 km/h. Allow ample time for brakes to cool between applications. This allows the brake shoes and magnets to “wear-in” to the drum surfaces. During this time, maintain a mid-low setting on your controller to avoid any shoe damage by rapid bedding.

## 4 SYNCHRONISATION

To ensure safe brake performance and synchronisation, read the brake controller manufacturer's instructions completely before attempting any synchronisation procedure.

**Before road testing make sure that it is safe to do so**

With the brakes correctly adjusted make several hard stops from 30km/h on a dry road free of sand and gravel. There should be no sensation of the trailer 'jerking' or 'pushing' the tow vehicle. The trailer should not be braking the towing vehicle, as overheating of the brakes and premature wear may occur.

## 5 GENERAL BRAKE MAINTENANCE

	INITIAL CHECKS			SERVICE INTERVALS		
	1 <sup>st</sup> 100km	1 <sup>st</sup> 300km	1,000km	5,000km 3 Monthly	10,000km 6 Monthly	20,000km 12 Monthly
<b>Brake Adjustment &amp; Check</b>	-	☑	☑	☑	☑	☑
<b>Brake Service</b>	-	-	-	-	☑	-

## 6 BRAKE ADJUSTMENT & CHECK

Brakes should be adjusted at intervals shown above, when the brake shoes and drums have “seated”, or as use and performance requires. The brakes should be adjusted in the following manner:

1. Jack up trailer and secure on adequate capacity jack stands. Follow trailer manufacturer's recommendations for lifting and supporting the unit. Check that the wheel and drum rotate freely.
2. Remove the cover from the adjusting slot on the bottom of the brake backing plate.
3. With an adjusting tool, rotate the star wheel of the adjust assembly to expand the brake shoes. Adjust the brake shoes out until the pressure of the linings against the drum locks the wheel against movement by hand.
4. Rotate the star wheel in the opposite direction 7-10 turns until the wheel turns freely with a slight lining drag.
5. Replace the adjusting hole cover and lower the wheel to the ground.
6. Repeat the above procedure for all brakes.

**Never crawl under your trailer unless it is securely resting on properly placed jack stands.**

## 7 BRAKE SERVICE - CLEANING AND INSPECTION

Your trailer brakes must be inspected and serviced at yearly intervals or more often as use and performance requires.

Magnets and shoes must be changed when they become worn or scored thereby preventing adequate vehicle braking.

Clean the backing plate, magnet arm, magnet and brake shoes. Make certain that all the parts removed are replaced in the same brake and drum assembly. Inspect the magnet arm for any loose or worn parts. Check shoe return springs, hold down springs, and adjuster springs for stretch or deformation and replace if required.

Before reassembling, apply a light film of Silver Grade Anti-Seize or similar grease, or anti-seize compound on the brake anchor pin, the actuating arm bushing and pin, and the areas on the backing plate that are in contact with the brake shoes and magnet lever arm.

Apply a light film of grease on the actuating block mounted on the actuating arm.

**Do not grease or oil the brake linings, drums or magnets.**

## 8 BRAKE SERVICE – MAGNETS

Electric brakes are equipped with high quality electromagnets that are designed to provide the proper input force and friction characteristics. Magnets should be inspected and replaced if worn unevenly or abnormally. A straightedge should be used to check wear. Open circuit resistance of each magnet should be between 3.0 to 3.8 Ohms.

Even if wear is normal as indicated by your straightedge, the magnets should be replaced if any part of the magnet coil has become visible through the friction material facing of the magnet. It is also recommended that the drum surface be refaced when replacing magnets. Magnets should also be replaced in pairs – both sides of an axle. Use only genuine replacement parts when replacing your magnets.

MAGNET KIT	PART NUMBER
10" KIT	05-3774
12" KIT	05-3775

## 9 BRAKE SERVICE - SHOES

A simple visual inspection of your brake linings will tell if they are usable. Replacement is necessary if the lining is worn (to within 1.6mm or less), contaminated with grease or oil, or abnormally scored or gouged. Hairline heat cracks are normal in bonded linings and should not be a cause for concern. It is important to replace both shoes on each brake and both brakes of the same axle. This is necessary to retain the “balance” of your brakes.

SHOE KIT	PART NUMBER
10" KIT	05-3773
12" KIT	05-3776

# 10 TROUBLESHOOTING

	COMPLAINT	POSSIBLE CAUSE	REPAIR PROCEDURE
COLD BRAKES	<b>NO BRAKES</b>	Open Circuit	Check for broken wires, loose connections. Improper grounding, faulty connector plug, between car and trailer, etc.
		Improperly wired or Inoperative Controller	Rewire Controller, check controller operation.
		Poor Brake Adjustment	Adjust brakes.
		Selective resistor defective	Check resistor for loose connections
		Worn or defective magnet	Replace magnet(s)
		Short Circuit	Check electrical circuit.
	<b>INTERMITTENT OR SURGING BRAKES</b>	Out of round drums	Turn or replace drums
		Inadequate trailer ground	Check for proper grounding. (Note: a ground through the trailer hitch is adequate)
		Broken magnet lead wires	Bench check magnets and replace if necessary
		Loose wheel bearings	Check and adjust bearings
	<b>WEAK BRAKES</b>	Loose connections	Check that all connections are clean and tight.
		Inadequate trailer ground	Check for proper grounding.
		Short circuit	Check electrical circuit.
		Selective resistor setting incorrect	Check for proper setting to avoid too much resistance.
		Worn or defective magnets	Replace magnets (magnet power gets better with wear).
Poor brake adjustment		Adjust brakes.	
Bent Backing plate		Check backing plate flange. Correct if necessary.	
Contaminated lining		Check and replace badly contaminated linings.	
Excessive load on trailer		Check to be sure trailer is not under braked. Also be sure to have brakes on every axle.	
Using trailer brakes only		Use of trailer brakes can cause early fade or loss of friction due to excessive heat..	
Inadequate gauge of wire		See wiring recommendations.	
HOT BRAKES	<b>GRABBING OR LOCKING BRAKES</b>	Flanges improperly installed	Check flange location. Refer to axle manufacturer.
		Contaminated lining	Check and replace badly contaminated linings. Disconnect red wire on Controller.
		Controller not modulating	Disconnect red wire on Controller. Road test for braking modulation. If modulation is OK check the red wire. Bench test Controller and replace if necessary.
		No selective resistor	A selective resistor is required when brakes have greater power than is necessary for the weight on the axle. Install selective resistor when necessary
		Weak or broken springs	Check for weak or broken springs, and replace is necessary.
	<b>DRAGGING BRAKES</b>	Brakes incorrectly adjusted	Check brake adjustment.
		Electrical defect in controller	Insufficient gap between Controller contactor strip and coil may cause brakes to drag.
		Hydraulic defect in Controller	Excessive residual pressure in tow car hydraulic system or a 'gummed up' Controller cylinder may cause the Controller to be held on slightly.
		Flanges improperly installed	Check flange location. Refer to axle manufacturer.
		Badly corroded brake assembly	Check brake assemblies for corrosion. Check to be sure magnet levers operate freely. Clean and lubricate brake assemblies.
		Weak or Broken springs	Check for weak or broken springs, replace if necessary.
	<b>NOISY BRAKES</b>	Lining excessively worn	Check and replace if necessary.
		Weak or broken springs	Check for weak or broken springs, replace if necessary.
		Range improperly located, bent backing plates	Check and repair if necessary
		Contaminated lining	Check and replace badly contaminated linings.
		Improper bearing adjustment	Check and adjust bearings. Check for worn or damaged bearings, replace if necessary.
		Brakes incorrectly adjusted	Check brake adjustment.