

## THE LEAD/ACID BATTERY INDUSTRY IN AUSTRALIA

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### Introduction

The Australian lead/acid battery industry has undergone certain dramatic changes in recent years. Whereas in 1982 Australia had five major automotive battery manufacturers and a small import market, today there are only two major manufacturers and imports account for up to 30% of the battery market. This overview will concentrate on the events and changes of the last five years and attempt to draw a picture of the changing industry.

### State of market: January 1982

The lead/acid battery industry was, in early 1982, still recovering from a combination of an economic recession, extended battery life, and other factors that had caused an exaggerated decline in sales. Nevertheless, in the twelve months to January 1982, approximately 2.7 million automotive batteries were produced and only 32 500 were imported. Table 1 lists the names of the five Australian manufacturers and their plants.

### Plant closures and takeovers: 1982 - 1986

At the beginning of 1982, it was generally agreed that the industry was headed for a period of rationalisation. However, the changes over the following five years could not have been anticipated.

In June 1982, the first stage of that rationalisation occurred, Lucas closed its only battery plant at Cheltenham. At that time, the plant had an estimated capacity of 3000 units per day. Lucas continues marketing batteries today, sourcing their requirements from Century.

The industry remained relatively stable until September 1984. It was at this time that Century closed its older plants at Alexandria and Footscray,

TABLE 1

Australian automotive battery manufacturers in 1982

Company	Plant location
Century	Wacol (Queensland)
	Alexandria (New South Wales)
	Footscray (Victoria)
Lucas Chloride	Cheltenham (Victoria)
	Wacol (Queensland)
	Padstow (New South Wales)
Dunlop	Elizabeth (South Australia)
	Sandringham (Victoria)
	Canterbury (New South Wales)
Besco	Villawood (New South Wales)

allowing it to concentrate on its more modern plant at Wacol. The Century closures represented approximately 2800 units per day (1800 at Alexandria, 1000 at Footscray). Century covered this production loss primarily through increasing imports.

November 1984 brought yet another closure with Chloride ceasing automotive battery manufacture at its Padstow and Wacol plants. It is said that Chloride did not suffer any capacity loss at this time due to the simultaneous expansion of its Elizabeth plant.

Although there were no closures in 1985, in July of that year Dunlop Olympic Ltd. purchased the Chloride operations in the U.S.A., Canada, Mexico, Australia and New Zealand. No closures resulted from the takeover, but it did force a change; Dunlop Batteries changed its name to Pacific Dunlop Batteries Ltd. in 1986.

October 1986 brought a sudden closure. The Besco plant at Villawood was closed after attempts to sell the plant by Peko Wallsend, a large, aggressive mining company, had failed. At the time of closure, the plant had increased its capacity to approximately 2900 units per day.

Thus, in less than five years, two battery manufacturers had ceased production completely, there was one takeover, and five plants with an estimated combined capacity of 8600 units per day were closed. Table 2 summarises the current status of automotive battery manufacturers; Fig. 1 shows production levels during the period 1982 - 1987. It should be noted that while the discussion above has concentrated on major battery manufacturers, Australia does have two small battery manufacturers, namely, Amplex (New South Wales) and Eclipse (Western Australia).

### Against the trend

In contrast to the closures already detailed, Dunlop launched the revolutionary Pulsar battery into commercial production during 1985. A

TABLE 2

Australian automotive battery manufacturers in 1987

Company	Plant location
Pacific Dunlop Batteries Ltd.	Sandringham (Victoria) Elizabeth (South Australia) Canterbury (New South Wales) — industrial batteries only Padstow (New South Wales) — industrial batteries only Geelong (Victoria) — Pulsar manufacture
Century	Wacol (Queensland)

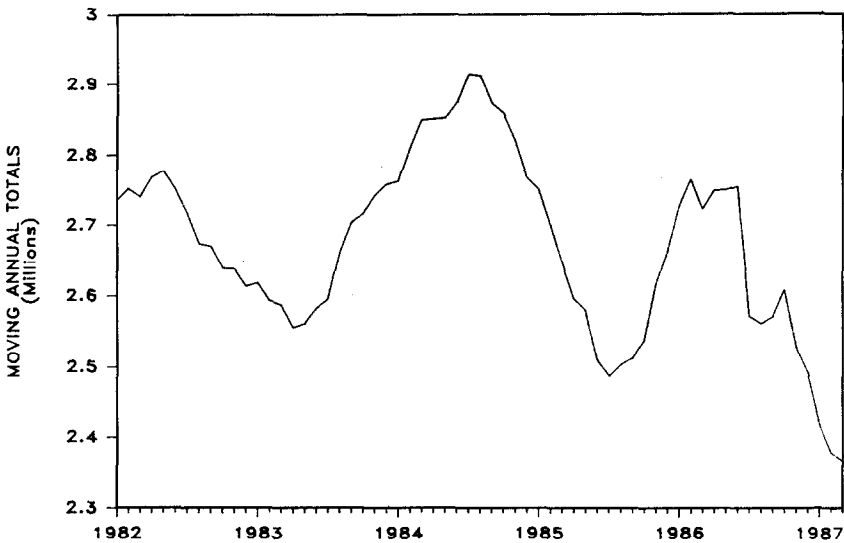


Fig. 1. Australian production of automotive batteries.

new plant at Geelong (Victoria) was to be developed in 3 stages. Stage 1 was opened in May 1985 with an estimated capacity of 1000 units per day. Development of stages 2 and 3 was delayed on account of a decision to redirect equipment in pursuit of the lucrative U.S. market. Stage 2 is, however, now nearing completion. In addition, a new purpose-designed Pulsar battery factory in the U.S. is under construction.

### Battery imports

In the years leading up to 1984, automotive battery imports accounted for 1-2% of the total market sector. Batteries imported from countries classified as "developing nations" were subject to tariff concessions. Instead

of paying the general rate of 30%, batteries from developing nations were subject to only 5% tax. This alone did not appear to be of sufficient incentive for higher levels of imports until 1984. That year brought the realisation that batteries could be imported from Asia cheaper than it was possible to produce them in some Australian plants, especially in view of the over-valued Australian dollar at the time. It was at this point that some of the effects of the winding down of local automotive design were being seen. No longer were Australian car makers requesting batteries peculiar to Australia. Principally, the influence of the Japanese automotive design forced international sizes to be specified. Consequently, it was during 1984 that Asian battery manufacturers were able to target Australia vigorously as a destination for their exports. As a bonus, the Australian peak sales period corresponds to the off-season market for northern hemisphere producers, thus allowing the Asian manufacturers to maximise use of their plants throughout the year. It may be true to say that the availability of cheap, quality imports forced the final decision on a number of plant closures.

Battery imports began to rise rapidly and peaked at over 1.3 million units per annum in early 1986. This very high level was partially the result of stock piling of batteries prior to a change in the tariff laws that became effective on 1 July, 1986. The tariff changes meant that imports from the so-called developing nations were subject to import duty at 5% less than the general rate, *i.e.*, the import duty was increased by 25%, to 30%. In combination with the further devaluation of the Australian dollar, the tariff change caused a sharp decline in the monthly import figures until the beginning of this year (1987). However, since February, the total imported has increased steadily to approximately 138 000 units in May 1987. It is suggested that the recent increase in imports is a compensation for the Besco closure. Figures 2(a) and (b) show the level of imports by month and as moving annual totals, respectively. Figure 3 compares the level of Australian production with imports as moving annual totals.

### Automotive battery life

A survey of batteries at scrapyards carried out in 1978 revealed the mean battery life to be approximately 32 months. The method of survey, however, used the date-of-manufacture as the "start of life" rather than the date-into-service. This assumption was made as only 30% of batteries surveyed had their date-into-service actuated. Only batteries that died of old age were included. A repeat survey in 1980 found that the average age of batteries in scrapyards was 47 months. The dramatic improvement corresponded to the introduction of low-maintenance types, a change in the distribution of engine sizes in new cars, and consumers becoming more aware of their "hip pocket nerve".

During May and July of 1982, a survey of batteries in use was conducted by the Australian Lead Development Association. The survey was

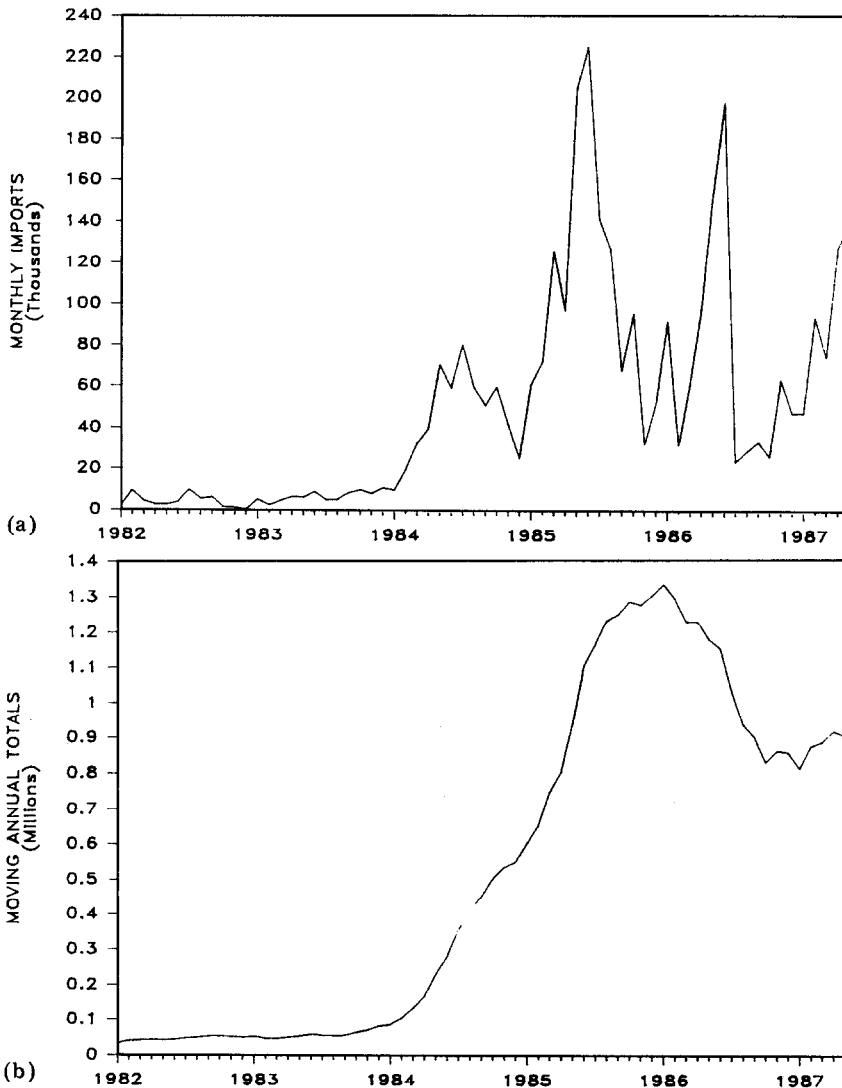


Fig. 2. Australian imports of automotive batteries: (a) monthly; (b) moving annual totals.

conducted at full-service petrol stations and revealed the following information

- mean battery life was 42 months
- average time between manufacture and sale was 4.6 months for replacement batteries
- 20% of 4 year-old vehicles still had their original equipment battery.

These results tend to confirm the estimates obtained from the 1980 scrapyards survey. Battery-life surveys are always very costly, complex to perform, and the results are difficult to analyse and may be of questionable

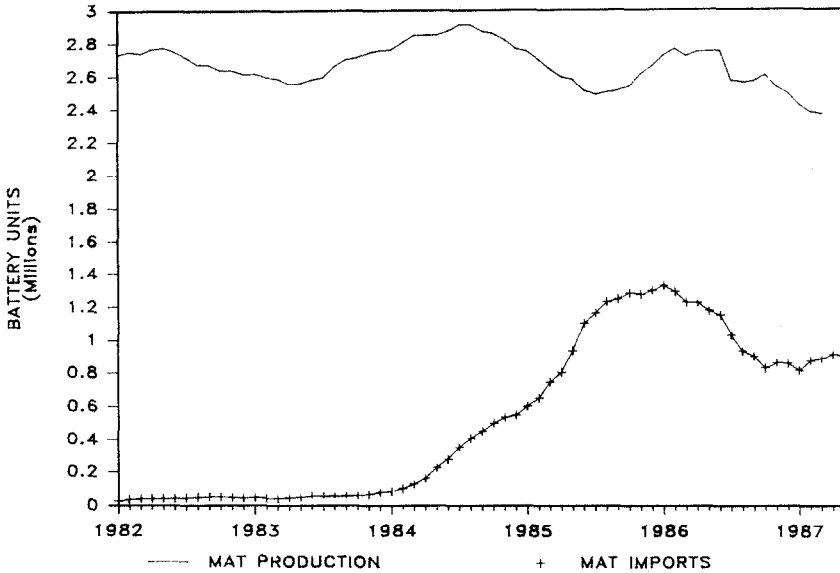


Fig. 3. Australian production and imports of automotive batteries.

accuracy. The results quoted above should be seen as estimates only and should not be used as hard and fast rules.

### Motor vehicle market

Australia, with a population approaching 16 million, has by comparison with other nations quite a large, total motor vehicle population. Table 3 shows the size of the vehicle population at June 30 for the five years up to, and including, 1986. The data indicate that the population is increasing, although at a slow rate. It is expected that the 30 June, 1987 figure will show a much lower rate of increase.

The graph of new car registrations (Fig. 4) indicates a peak level of activity in early 1986. This corresponds primarily to the introduction of unleaded petrol in February, 1986. Since then, the new motor vehicle

TABLE 3

Australian motor vehicle population: number at 30 June, 1987

1981	7 565 900
1982	7 969 200
1983	8 187 800
1984	8 434 400
1985	8 729 100
1986	8 916 000

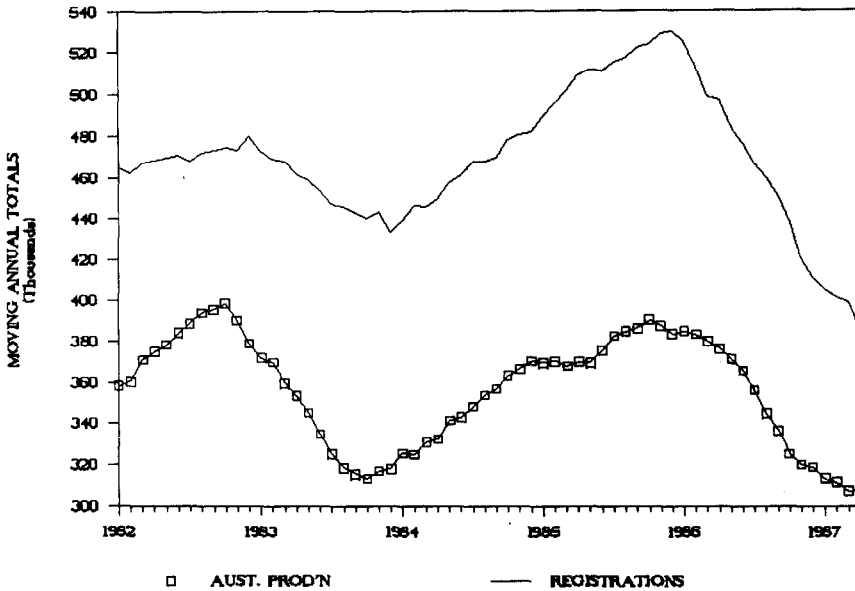


Fig. 4. Australian car statistics.

market has been in a state of decline forced by high interest rates, increased prices (as a result of the devalued Australian dollar), the introduction of a Fringe Benefits tax, and a combination of other factors. The latest new vehicle registration figures are being compared with those of 1967. The Australian Government does, however, believe that the industry will recover after a period of model-number rationalisation and productivity improvements.

The economic and political circumstances that have forced the slump in the Original Equipment market will also have affected the replacement battery market. Australian consumers will tend to extend the life of their batteries if possible; it is known that sales of home battery chargers are quite high.

### Other possibilities

The main emphasis of this overview has been the market for motor vehicle batteries (excluding motorcycles). However, other markets exist or are emerging.

#### (i) Motorcycle batteries

All motorcycle batteries are imported into Australia; the market size is typically around 200 000 units annually. The market is not expected to expand at any significant rate.

*(ii) Miners' cap lamps*

Australia, as a major mining nation, requires batteries for miners' cap lamps at the rate of approximately 25 000 units per year. These batteries are used mainly in the large metal mines and underground coal mines.

Although there are no special requirements for use in the metal mines, the batteries must meet British Standard 4945-1973 for use in the coal mines. Currently, batteries with a life of approximately 2 years are being imported from Crompton Oldham Batteries (U.K.). It is unlikely that any real growth will be seen in this market, primarily because of the mining industry's increased productivity campaigns.

*(iii) Submarine batteries*

Until April 1985, the Royal Australian Navy relied upon the import of batteries from the U.K. to maintain its six Oberon class diesel-electric submarines. Chloride began producing the batteries at Padstow shortly before its takeover by Dunlop.

The completed battery, making up some 10% of the submarine's total weight of 2410 tonnes, is truly massive. Containing 143 tonnes of lead, each 230-tonne battery consists of 448 individual two-volt cells. Together, they produce either a 448 V (16 800 A h) battery using parallel connection of cells or an 896 V (8400 A h) battery by series connection — a flexibility that gives either 'sprinting' or 'staying' power, according to the submarine's tactical needs.

Within the last 2 - 3 months, the Australian Government announced a deal to purchase new submarines designed by Kockums of Sweden. The new-generation submarines will be built in Australia and so it is assumed, will be the batteries. Kockums specify batteries from Tudor (Sweden).

*(iv) Power-supply load-levelling*

Australia's population of over 15 million people is spread over very great distances, primarily around the seaboard. Consequently, power supply throughout Australia can face problems. It is not unusual for power to be supplied by small, non-integrated networks with no ability to share power loads with other networks. Alternatively, power can be supplied via very long transmission lines with consequent voltage loss. The Australian Lead Development Association has commissioned the CSIRO Division of Energy Technology to undertake a feasibility study into the use of lead/acid batteries for power-supply problems. Although it is too early to predict the results of this study, the possibility of employing lead/acid batteries in such an application appears promising.

*(v) Stationary batteries*

The Australian stationary battery market is dominated by the government-operated telecommunications company, Telecom Australia. The batteries used by Telecom have a pure-lead, cast, positive grid and an anti-monial-lead negative grid, a configuration peculiar to Australia. These



batteries give an operating life of 15 - 20 years and form the basis of an Australian standard.

*(vi) Uninterruptible power supply*

The use of small, sealed lead/acid batteries in uninterruptible power-supply systems is believed to be a growing market. All small, sealed lead/acid batteries are imported. As of July 1987, a new tariff concession was granted allowing small, sealed lead/acid batteries (capacity less than 11 A h at C/20 rate) to be imported with only 2% duty applicable. It is hoped that definitive import statistics will be available in the near future.