

"Miniwatt"

DIGEST

VOL. 8. No. 4
JULY-AUGUST 1970

— TECHNICAL AND COMMERCIAL TOPICS OF
CURRENT INTEREST TO THE ELECTRONICS INDUSTRY —

CONTENTS

	Page
Philips Hendon Integrated Circuit Facility	50
Miniwatt Integrated Circuit Type TAA570 TV Sound IF Amplifier and Detector	52
Principles of Operation of the Miniwatt TAA570	54
Automatic Drawing of Masks for Integrated Circuits	58



Published by the
"Miniwatt"
Electronics Division of
PHILIPS Industries
Limited,
20 Herbert Street,
Artarmon,
N.S.W. 2064, Australia



Hendon made integrated circuit type TAA570 as used
by a leading Australian television receiver manufacturer

Photograph by courtesy of E.M.I. (Australia) Limited

PHILIPS HENDON INTEGRATED CIRCUIT FACILITY

On July 31st the \$1,000,000 Philips Integrated Circuit Facility was officially opened at the Company's Hendon Factory before some 250 guests from all States. Guest of honour was the Minister for Supply and Leader of the Government in the Senate, the Hon. Sir Kenneth Anderson. Opening addresses were delivered by Mr. J. Bourne, Hendon Works Chief Engineer, and Philips Industries Limited Chairman, Mr. H. Huyer.

Sir Kenneth Anderson then delivered his official opening address, which we reprint in full below.

Mr. Premier, Leader of the Opposition, distinguished guests, ladies and gentlemen:

I am pleased to be present today to perform the opening of these extensions to Philips Hendon Division. The expansion here is a testimonial to the confidence shown by Philips in Australia's electronics industry and, speaking on behalf of the Commonwealth Government, I regard the setting up of these new facilities as a significant step toward Australia's greater independence in this field.

This facility is important to the Australian industry because Philips now possess appreciable capability in diffusion design and assembly of micro-electronic devices. The application of sophisticated micro techniques is essential for the Australian industry to play a role in the manufacture of defence electronic equipment. The company deserves praise for the foresight and confidence it has displayed in becoming involved in such production in Australia at its own expense.

I might mention that my Department is actively investigating means of ensuring that local industry will further participate in defence projects using this new technique.

You will all be aware of the efforts the Commonwealth Government is making to ensure that the Australian industrial base has the capacity and the technical know-how to manufacture and maintain a significant proportion of our defence equipment and to this end our policy is to procure defence equipment from local sources at all times where this is economically and technically feasible.

It would be wishful thinking to hope that Australia's electronics industry could at this point in time compete across the board with, for example, the American industry. But this is not to say that the Australian industry could not equal or even surpass overseas expertise in a particular field. Limitations in size do not necessarily impose limitations in specific abilities.

We recognise that space research is at present a major force behind technological advance. The Australian electronics industry is actively involved in running the NASA tracking stations in partnership with my Department.

We have had, until recently, a long programme of ELDO launches. We have launched Australia's own satellite WRESAT. We are active in the field of communications satellites through our membership of INTELSAT, the international telecommunication satellite project. Our long-term participation in the joint project with Great Britain and in arrangements with the United States on other co-operative efforts has resulted in important "spin-off" to Australia. Many of you will be well aware of these activities, a significant number of which are concentrated in this State of South Australia. These associations will continue to provide impetus to our local industry.

One important method of improving the local industry's self-sufficiency is by the awarding of research and development contracts. The Transistor Section of Philips Industries, Hendon, has, as one example, received significant orders to investigate stress-testing, failure analysis and qualification testing as applied to transistors.

The Commonwealth Government can also assist industry by ensuring that defence planning is sufficiently long-term to allow industry to become aware of what we require, and thus afford it a proper opportunity to compete in the design and the production stages of equipment programmes. You will be aware that there is now a reasonably wide range of items in the recently-outlined defence procurement programme which will affect the electronics industry.

Although at present the Australian electronics industry cannot meet *all* the needs of the Services, particularly in respect of large systems development, the industry has a hope for greater participation in this vital field of technology by using the concepts of co-production and offset orders.

To assist industry in this activity the Commonwealth Government has recently, as you know, set up new machinery to work closely with Australian industry in a programme to achieve increased sales to overseas defence industries as an offset against Australian purchases of defence equipment.

The new machinery consists of a Standing Committee of the three departments principally involved—Defence, my own Supply Department and Trade and Industry—and a new Advisory Committee of senior industrial leaders.

The Committee of Departments has the task of developing and carrying out a co-ordinated programme of work to promote increased sales of Australian-built equipment and components; to encourage co-operative research and development projects between Australian and overseas industry; to encourage Australian firms to take on work for overseas firms that wish to build up the Australian content of items they offer for sale to the Australian Armed Forces; and to seek sub-contracts from overseas defence contractors. In this task the Commonwealth Government will have the advice and assistance of the Advisory Committee of businessmen.

Needless to say, offset and co-production policies will not work unless industry shows that it can take an initiative, be competitive, and provide what is needed. It is certainly not something which the Commonwealth Government can achieve on its own account.

It is possible that this new facility of the Philips company may be a source of production for offset orders. For example, when it is necessary to buy major defence equipment from overseas, the capacity available in Australia will be made known to overseas defence contractors who, in order to make their proposals more attractive to the Commonwealth Government, will be encouraged to approach you in regard to the supply of micro-electronic devices.

A feature of the electronics industry is that it becomes heavily involved in projects where the prime contractor is in another industry, say the shipbuilding industry or the aircraft industry.

We have seen this effect in Supply's own past and present ventures into this field with Jindivik, Malkara, Ikara, and Turana. These projects have all had an impact on the local electronics industry. The industry has shown, too, that, given the opportunity, it can produce the goods.

Perhaps I could mention two current projects which illustrate that increasingly now, new developments in electronics are being encouraged by the Commonwealth Government.

Firstly, the Department of Supply has recently called tenders for the development of a short-range radio for the Army. This project will rely heavily on the use of micro-circuits. In conjunction with this project other support contracts are being arranged. These are:—

- (a) the development of a new style of battery to power the set;
- (b) a study designed to produce an advanced and novel aerial design.

The second project will, in the electronics sense, be one of the biggest that the industry has ever faced. This is the light-destroyer project for the Navy and all that this will mean in terms of the electronics systems involved. The Department of Supply is actively engaged in the present planning for this project to ensure that the local industry participates to the maximum extent possible.

In the case of the light-destroyer project and others like it, a prime-contractor sub-contractor relationship will exist. However, the prime-contractor will be required to demonstrate his proposed Australian content.

I should like to conclude by summing up the Commonwealth Government's aim as challenging, but one that nevertheless must be achieved. It is: to have a strong, self-reliant and viable industry. The need for this is obvious: in the event of emergency, both defence and civil communications systems must be adequate, reliable, fully-supportable and replaceable.

The economic advantages of self-sufficiency for Australia in times of peace are also obvious.

All the problems I have touched on can, I believe, be overcome with goodwill and co-operation between Commonwealth Government and private industry and by the application of the sort of determination shown by the Philips company in its development here.

I hope that the period of greater participation in new projects which I have suggested is now commencing, will involve further participation by Philips both in the equipment area and in the challenging new field of micro-electronics.

It is with great pleasure I now declare open this integrated circuit facility of Philips Industries Limited.