This report on PULSE-TYPE METAL DETECTOR

is submitted

as part fulfillment of Final Year Course for the Diploma in Electrical Engineering of Electronics Department

School of Engineering

MARA INSTITUTE of TECHNOLOGY for 1985/86 session.

Вy

- 1. Norsa adah bt. Hj. Shaari 83478736
- 2. Faridah bt. Harun 83461680

Supervisor:

Encik Ahmad Jamal bin Salim

ABSTRACT

This project was carried out for the requirement of the award of the Diploma in Electronics Engineering from MARA INSTITUTE of TECHNOLOGY, Shah Alam, Selangor.

This report explained the purpose of Pulse-Type Metal Detector, how it works and some of its application. Taking for granted that the reader has acquired some basic knowledge in electrical and electronics circuit theory, the report is made as short as possible without omitting the necessary point.

The report has been made chapter by chapter starting by introducing the principles and the building blocks which make-up a pulse-type metal detector. The other chapters include the actual construction of the pulse metal detector, some theory on the components used and the operation.

Also included are discussions and the numerous illustrations which will help to reinforce the text.

ACKNOWLEDGEMENTS

In the Name of Allah, most merciful and most compassionate.

We thank Allah along that He is in His Infinite Mercy and Grace made our humble endeavours possible.

We wish to express our utmost appreciation to our project advisor, Encik Ahmad Jamal bin Salim, who has devoted much of his time in giving us the suggestions, criticsms, guidances and the required technical advice.

Our gratitude also goes to the technicians of the Electronics and the Mechanical Departments for their kind help and permission in helping us getting the device, gathering facts and technical data which are relevant to the project.

And special thanks to our beloved parents who have given us their moral support, encouragement and imagination.

TABLE OF CONTENTS

	Page		
Abstract	X		
Acknowledgements			
Table of Contents	iii-iv		
List of Illustrations and Figures	v-vi		
CHAPTERS			
1. INTRODUCTION			
1.1. General Introduction	* 1		
1.2. Applications	2		
2. PROJECT ANALYSIS			
2.1. Basic Frinciples of Operation	3		
(block Diagram)			
2.2. Circuit Theory	· v		
2.2.1. The Pulse Generator	6-7		
2.2.2. The Timing Circuit	10		
2.2.3. The Receiver	13-14		
2.2.4. The Click Generator	17		
2.2.5. The Voltage Converter	20		
3. CONSTRUCTION			
5.1. The Frinted Circuit Board	22-23		
3.2. The Search Coil	24		
X A Wha Wardware	25		

			Page
4.	DISCUSSION		29
,5•	CONCLUSION		30
	APPENDICES		
	Appendix I	Theory of Essential Components Used.	31-43
	Appendix II	List of Components.	44-46
	Appendix III	Manufacturers Data Sheets.	47 - 59
	REFERENCES		60
	USER'S GUIDE		61