ACKNOWLEDGEMENTS

I express my deep sense of thankfulness to Dr K. Vijaya Kumar Reddy Professor, Department of Mechanical engineering, J N T U College of Engineering, Hyderabad, for his valuable guidance, help and encouragement during the course of this splendid assignment. His readiness to spare his valuable time for discussions has generated inspiration and confidence in me to carry out this investigation. The scrupulous planning of Professor K. Vijaya Kumar Reddy only has streamlined my fuzzy ideas during every phase of this work.

I would like to express my sincere gratitude Dr B. Krishna Gandhi, Hon able Vice-Chancellor, Jawaharlal Nehru Technological University, Anantapur, for his encouragement and support in bringing in to a good shape.

I express my thanks to Dr A. Ananda Rao Principal, Dr K. Prahlada Rao, Vice-Principal, Dr. G. Prashanthi, Head of Mechanical Engineering, J. N. T College of Engineering, Anantapur, for their help and encouragement, moral support, co-operation, suggestions and gentle encouragement during the course of this work.

I am grateful to all my teachers and/or colleagues at J N T U College of Engineering At Anantapur Dr P. Dhanunjaya Rao, Dr K. Rajagopal, Dr D. Saibaba Reddy, Dr G. Bala rami Reddy, Dr S. A. Razak, Prof. P. Ramamurthy, Dr V. Pandurangadu, Dr K. Hema Chandra Reddy, Dr. K. Govindarajulu, Dr C.B Krishna Murthy, Dr M.V.L Prakash, Dr G. Shankar Rao, Dr K. Prabhakar Rao, Dr Kesava Rao, Dr Appala Naidu, Dr Raghuprasad Rao, Dr Krishna Dwapayana, Dr B Durga Prasad, Dr K. B Chandra Sekhar, Dr. Devanna, Dr E. Keshava Reddy, Dr Anjaneya Prasad, Dr E. L. Nagesh Dr Chandra Mohan Reddy,
Mr M.L.S Deva Kumar, Mr. E.Ramjee and Dr. M. Sreenivasa Reddy, wide their inspiration encouragement and help in carrying my Research work.

I am grateful to Dr B. Sudheer Prem Kumar, Vice-Principal, JNTU college of Engineering, Jagityal for his cooperation and timely suggestions.

I express my special thanks to Dr. P. Ravi Kumar, IC Engine lab in charge of Mechanical Engineering Department, NIT, Warangal, for permitting me to take special runs on Kirlosker Engine and timely suggestions and valuable guidance.

I express my thanks to Smt. P. Babitha, Administrative Officer, LIC of India Kazipet, Warangal Dt for taking pain to proof read my thesis.

I wish to thank to Dr J. Suresh Kumar, Mr B. Nageswar Rao faculty at J N T U C E Hyderabad for lending a hand to me a documentation formatting the thesis matter.

I thank Mr. P. Chandra Sekhar, M.Tech scholar, JNTU college of Engineering, Hyderabad for helping me in procuring the necessary equipment, literature and CD preparations.

I thank Mr. D. Vinay Kumar, Mr. P. Danaiah Ph.D Scholars, Department of Mechanical Engineering, NIT Warangal for helping me in the computer work and preparation of the thesis.

I thank Mr. K.M. Suryaprakash gowd, M.Tech (spacetechnology) scholar, Department of Physics, S V University, Tirupati for typing all the thesis work.

I thank Mr. Rama Chandra for his help and cooperation at each and every stage of Engine modification work. And also I thank Mr. Subba Rao, Mr. Ravindra, IC Engines laboratory technical staff Mechanical Engineering department NIT Warangal for their help and assistance give to me during the experimental work.
I express my appreciation to my life partner Smt. M. Kanthamma for her preparedness and my Daughter-in-Law Smt. M. Chandra Kala for their co-operation, encouragement and towards my health and my life. I enjoyed from the cheer ness of my sons Mr. M. Sesha Kalyana Babu and Mr. M. Vijaya Kanth and also grand children baby Harshita and baby Ishwarya while carrying out my research work.

I thank authorities of JNTU, Hyderabad for permitting me to take admission in the Ph.D programme.

I thank all the then principals of this college for providing me the required moral support extended to occupy this position, without whom I could not have been in this stage.

I thank one and all who helped me directly or indirectly for completing this project work.

Finally, I dedicate this research work to our beloved and loving parents Smt M. JAYAMMA, Sri Late M. NALLAPPA and grandmother Smt. Late MUNTIMADUGU ONNURAMMA of Muntimadugu village, Garladinne Mandal, Anantapur District, Andhrapradesh.

MUNTIMADUGU YOHAN