ACKNOWLEDGEMENT

I am very grateful to Dr. D.S. Bedi for the inspiration and constant help he provided to me at all the stages in the completion of this thesis work. But for this, the work would not have been completed.

I am also very much thankful to Dr. P.B. Mahapatra who still remains the soul behind my work. He also helped me nearly at every stage.

I am indebted to Principal Dr. Rajnish Prakash for his constant encouragement.

I am also thankful to Shri Ujagar Singh, Sh. Gurnam Singh, Sh. Sanjeev, Sh. Yash Paul, Sh. Gurdev Singh and all the staff of the Manufacturing Process Laboratory, Jig & Tool Laboratory, Metal Testing Laboratory and the Drawing Department for extending their whole hearted' co-operation and help.

I am also greatful to my postgraduate (M.E.) Production Engineering Students for their co-operation and help.

Above all, I am indebted to my wife and children who have co-operated in all circumstances.

HARINDERJIT SINGH