LIST OF CONTENT

LIST OF CONTENT (CONT.)

LIST OF TABLES

Table **Page**

LIST OF TABLES (CONT.)

LIST OF FIGURES

LIST OF FIGURES (CONT.)

Figures **Page**

ABBREVIATIONS

HCNG	=	A mixture of hydrogen and compressed natural gas
DDF	=	Diesel dual fuel
CO	=	Carbon Monoxide
CO_2	=	Carbon Dioxide
HC	=	Hydro Carbon
PM	=	Particulate Matter
NO_x	=	Nitrogen Oxide
LHV	=	Lower heating value
ECU	=	Electronic controlled unit
LPG	=	Liquefied petroleum gas
CNG	=	Compressed natural gas
H_2	=	Hydrogen
GHG	=	Greenhouse gas
BSFC	=	Brake specific fuel consumption
HP	=	Horsepower
TPS	=	Throttle Body Position Sensor
RPM	=	Round per minute
IC	=	Internal combustion engine
SI	=	Spark ignition engine
BTDC	=	Bottom top dead center
TDC	=	Top dead center
C˙	=	Degree Celsius
F˙	=	Degree Frarenheit
ECM	=	Electronic Controlled Management
CH_4	=	Methane
EPA	=	Environmental protection agency
CARB	=	The California Air Resources Board
EU	=	European Union
SUV	=	Sport Utility Vehicle

ABBREVIATIONS (CONT.)

NAAQS	=	National ambient air quality standards
PPM	=	Part per million
g	=	Gram
km	=	Kilometer
mi	=	Mile
kW	=	Kilowatt
Mpg	=	Mile per gallon
L	=	Liter
h	=	Hour
EC	=	European Commission
$\dot{m}_f$	=	Mass flow rate in kg per hour
W_f	=	Actual mass of fuel in kg
t	=	Time consumed to burn the actual mass in second
Bsec	=	Brake specific energy consumption in kJ per kW per hour
Q_{HV}	=	Lower heating value in kJ per kg
FP	=	Fuel power in kW
η_{BTH}	=	Brake specific thermal efficiency in percentage (%)
BP	=	Brake power in kW
FP	=	Fuel power in kW
A/F	=	Air fuel ratio per unit of mass fuel
$\dot{m}_a$	=	Volume of air intake into the cylinder in kg/s
$\dot{m}_f$	=	Mass flow rate in kg per hour
SDC	=	Specific diesel consumption in gram per kilowatt per hour
V_d	=	Volume of diesel consumed in cubic meter, cm^3
P_d	=	Specific weight of diesel in kg/l
p	=	Engine power in kW
P_f	=	Power input from fuel in kW
CV_d	=	Calorific value of diesel
f_c	=	Fuel consumed in cm^3 per hour

ABBREVIATIONS (CONT.)

P_g	=	Power from gas in kW
CV_g	=	Calorific value of gas in kJ/Nm^3
g_c	=	Gas consumption in Nm^3 per hour
ds	=	Diesel substitution
W_i	=	Work output
ß	=	Density of CO_2 in gram per ft^3
∀	=	Volume flow rate in ft^3 per minute
F	=	Water condensation in the sample line factor
dt	=	delta time in 1 second
Bsfc	=	Brake specific fuel consumption