



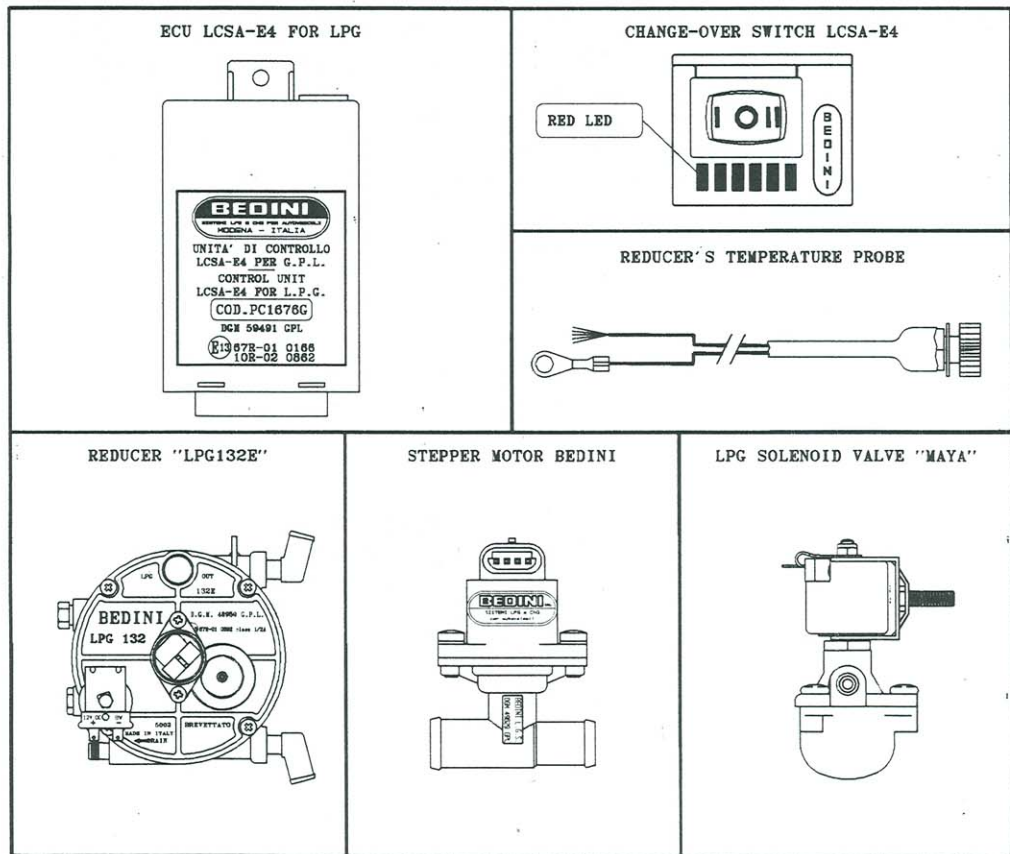
CONTROL SYSTEM LCSA-E4 FOR L.P.G.

THE LCSA-E4 IS A DEVICE ABLE TO CONTROL THE CARBURATION OF LPG ENGINES.

IT IS COMPOSED BY 6 COMPONENTS :

- 1) ECU ABLE TO OPERATE THE WHOLE SYSTEM.
- 2) CHANGE-OVER SWITCH THAT INTERFACING WITH THE ECU ALLOWS TO SELECT THE DIFFERENT FUNCTIONS OF THE SYSTEM.
- 3) A PROBE TO CHECK THE TEMPERATURE OF THE REDUCER.
- 4) LPG REDUCER WITH A STEPPER MOTOR TO ADJUST THE IDLE.
- 5) STEP MOTOR FOR MAXIMUM RPM ADJUSTMENT.
- 6) LPG SOLENOID VALVE.

SYSTEM COMPONENTS



- SETTING PROCEDURES -

IMPORTANT : BEFORE THE SETTING PROCEDURES PLEASE BE SURE TO CHECK THAT ALL THE PARAMETERS OF THE ECU HAVE BEEN SET ACCORDING TO THE INSTRUCTIONS OF THE PROGRAM MANUAL "BEDINI PRO".

THE SETTING PROCEDURES MUST BE DONE WITH HOT ENGINE AND BE SURE TO HAVE AIR CONDITION, HEADLIGHTS AND DEFROSTER OFF.

PROCEDURE

PHASE A - LAMBDA PROBE

- 1) CHANGE-OVER SWITCH ON POSITION (I)
- 2) SETTING TOOL ON POSITION "WORK"
- 3) START THE ENGINE
- 4) KEEP THE ENGINE UP TO 3000 RPM CONSTANT
- 5) SETTING TOOL ON POSITION "SETTING"
- 6) THE TWO LEDS (RED - GREEN) SHOULD BE ON SIMULTANEOUSLY
- 7) THE TWO LEDS (RED - GREEN) SHOULD BE ON ALTERNATELY
- 8) ENGINE AT IDLE
- 9) TURN OFF THE IGNITION KEY

PHASE B - TPS

- 1) CHANGE-OVER SWITCH ON POSITION (I)
- 2) SETTING TOOL ON POSITION "SETTING"
- 3) START THE ENGINE, THE RED LED IS FLASHING
- 4) KEEP THE ENGINE RUNNING AT 3000 RPM, KEEP IT CONSTANT FOR AT LEAST 5 SECONDS
- 5) CHANGE-OVER SWITCH ON POSITION (O)
- 6) KEEP THE ENGINE RUNNING AT 1850 RPM, KEEP IT CONSTANT FOR AT LEAST 5 SECONDS
- 7) CHANGE-OVER SWITCH ON POSITION (I)
- 8) THE RED LED MUST BE ON
- 9) AT IDLING THE RED LED MUST BE OFF
- 10) 1850 RPM, THE RED LED MUST BE ON
- 11) RETURN TO IDLING
- 12) TURN OFF THE IGNITION KEY

PHASE C - FUEL CHANGE

- 1) CHANGE-OVER SWITCH ON POSITION (II)
- 2) SETTING TOOL ON POSITION "SETTING"
- 3) START THE ENGINE, THE RED LED IS FLASHING
- 4) ENGINE AT 2350 RPM CONSTANT FOR AT LEAST 5 SECONDS
- 5) CHANGE-OVER SWITCH ON POSITION (O)
- 6) ENGINE AT IDLING
- 7) CHANGE-OVER SWITCH ON POSITION (II), THE RED LED MUST BE OFF
- 8) ENGINE AT 2350 RPM, THE RED LED MUST BE ON
- 9) ENGINE AT IDLING
- 10) TURN OFF THE IGNITION KEY

NOTE

PHASE A - AUTOMATIC ACQUISITION OF LAMBDA PROBE TYPE AND STORING

RED AND GREEN LED

- THE SETTING TOOL LEDS USUALLY INDICATE THE STATE OF THE CARBURATION
- 6) ACQUISITION OF THE LAMBDA PROBE TYPE IS TAKING PLACE
 - 7) ACQUISITION HAS BEEN STORED

PHASE B - AUTOMATIC ACQUISITION OF THE TPS AND STORING

RED LED :

- THIS LED ON THE CHANGE-OVER SWITCH USUALLY SHOWS THAT THE CAR IS RUNNING ON PETROL
- 4) IF AT POINT "9" THE LED IS STILL ON RESTART THE SETTING PROCEDURE FROM POINT "4" BUT KEEPING THE ENGINE AT 4000 RPM CONSTANT.

PHASE C - ACQUISITION AND STORING OF THE RPM THRESHOLD FUEL-CHANGE FROM PETROL TO GAS

- 3) THE LED OF THE CHANGE-OVER SWITCH MUST BE FLASHING

PHASE D - STEPPER-MOTORS REFERENCE POSITION

- 1) CHANGE-OVER SWITCH ON POSITION (O)
- 2) SETTING TOOL ON POSITION "SETTING"
- 3) START THE ENGINE, THE RED LED IS FLASHING
- 4) ENGINE AT 3350* RPM CONSTANT
- 5) THE RED LED MUST BE ON
- 6) WAIT FOR THE FLASHING OF THE RED LED
- 7) CHANGE-OVER SWITCH ON POSITION (I)
- 8) THE RED LED MUST BE OFF
- 9) BRING SLOWLY THE ENGINE TO IDLING
- 10) THE RED LED MUST BE ON
- 11) WAIT FOR THE FLASHING OF THE RED LED
- 12) CHANGE-OVER SWITCH ON POSITION (O)
- 13) THE RED LED MUST BE OFF
- 14) ENGINE AT 3350 RPM CONSTANT
- 15) THE RED LED MUST BE ON
- 16) WAIT FOR THE FLASHING OF THE RED LED
- 17) CHANGE-OVER SWITCH ON POSITION (I)
- 18) THE RED LED MUST BE OFF
- 19) ENGINE AT IDLING
- 20) THE RED LED MUST BE ON
- 21) WAIT FOR THE FLASHING OF THE RED LED
- 22) TURN OFF THE IGNITION KEY
- 23) SETTING TOOL ON POSITION "WORK"

END OF SETTING

N.B. ONCE THE SETTING HAS SUCCESSFULLY BEEN COMPLETED THEN YOU HAVE THE POSSIBILITY OF RE-DOING SEPARATELY EACH SETTING PHASE, TAKING CARE OF SWITCHING THE SETTING TOOL BACK TO POSITION "WORK" AT THE END OF EACH SETTING.

PHASE D - STORING STEPPER- MOTORS REFERENCE POSITION

- 3) THE ENGINE IS RUNNING ON PETROL
- 4) BEFORE REACHING THE 3350 RPM THE ENGINE SWITCHES OVER TO GAS; IF THE PIPES ARE STILL EMPTY OF GAS THE ENGINE COULD STOP RUNNING, THEREFORE RESTART FROM POINT "3".

*3000 RPM FOR ENGINES THAT ARE NOT EXCEEDING THE 5500 RPM OF MAXIMUM PEAK.

- GENERAL WIRING DIAGRAM -

