

August 3, 1971
Revised & Re-issued 9-10-71
Pgs. (2 & 4) Revised 10-7-71
Page (4) Revised 10-19-71
Pgs. (2 & 4) Revised 11-3-71

ENGINEERING MEMO # 308

TO: Memo Distribution

FROM: R. E. Orwig

SUBJECT: TRANSMISSION CONTROLLED SPARK (T.C.S.) SYSTEMS FOR 1972
CHECKER VEHICLES

The purpose of the T.C.S. System is to limit the engine distributor spark advance to a definite prescribed set of conditions. Due to the new 1972 Federal exhaust emission requirements, the Checker vehicles will require changes to the present Combination Emission Control (C.E.C.) System in use. Unlike before, the Aerobus must also have the T.C.S. system starting with the 1972 models (not later than December 31, 1971).

For 1972, the six-cylinder engine equipped cars will have a slightly different system than the V/8 engine cars. A brief description of each system is as follows:

6-CYL. ENGINE CARS

The T.C.S. System will provide distributor advance and a throttle linkage control under any of the following conditions:

1. Engine block coolant below 82°F or above 260°F.
2. During first 20 seconds after ignition is turned on.
3. When transmission is in third gear.

The engine temperature switch and 20 seconds time delay relay now operate independently and either one can control the C.E.C. valve depending on which pair of contacts remain closed the longest.

V/8 ENGINE CARS

The V/8 engine will not use the C.E.C. valve, but instead will use a solenoid vacuum valve (similar to 1970) mounted to the engine. An idle-stop solenoid will be used and is supplied as part of the carburetor. This T.C.S. system will provide spark advance under any of the following conditions:

1. Engine block coolant below 82° or above 260°F.
2. Approximately 23 seconds after transmission is in third gear.

Note that the reversing relay has been eliminated by providing a new "reversed-contact" transmission switch. Also, the 24 ohm resistor has been eliminated and the two new time delay relays operate directly from 12 volts. Additional solenoids (idle-stop) have been added to these systems. The idle-stop solenoids and the C.E.C. solenoid are supplied as part of the carburetor assemblies, but must be wired by Checker.

Attached to this memo are schematics and flow diagrams to explain the functions of these systems.

1972 6 CYL. COMBINATION EMISSION CONTROL (C.E.C.) SYSTEM SCHEMATIC

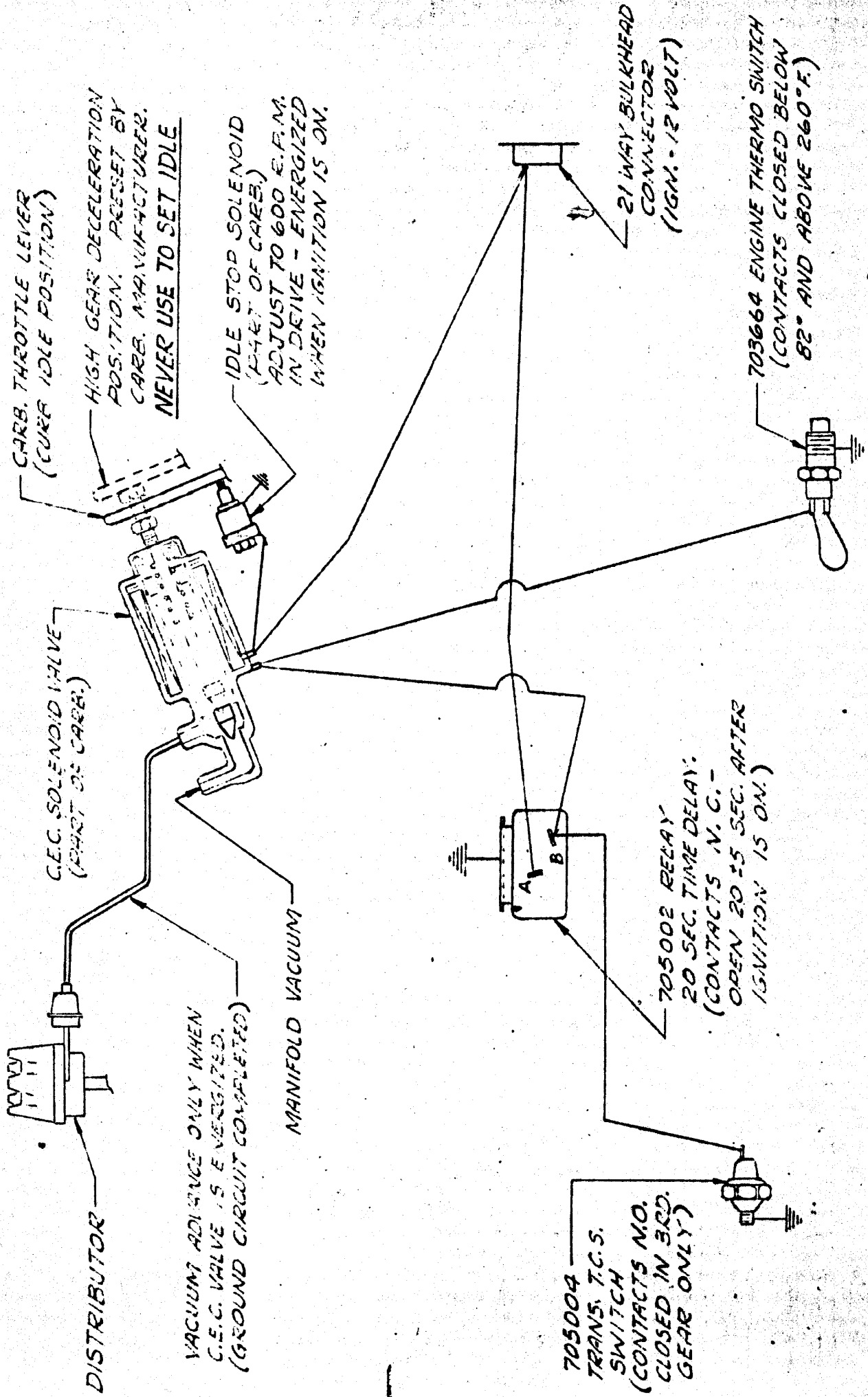
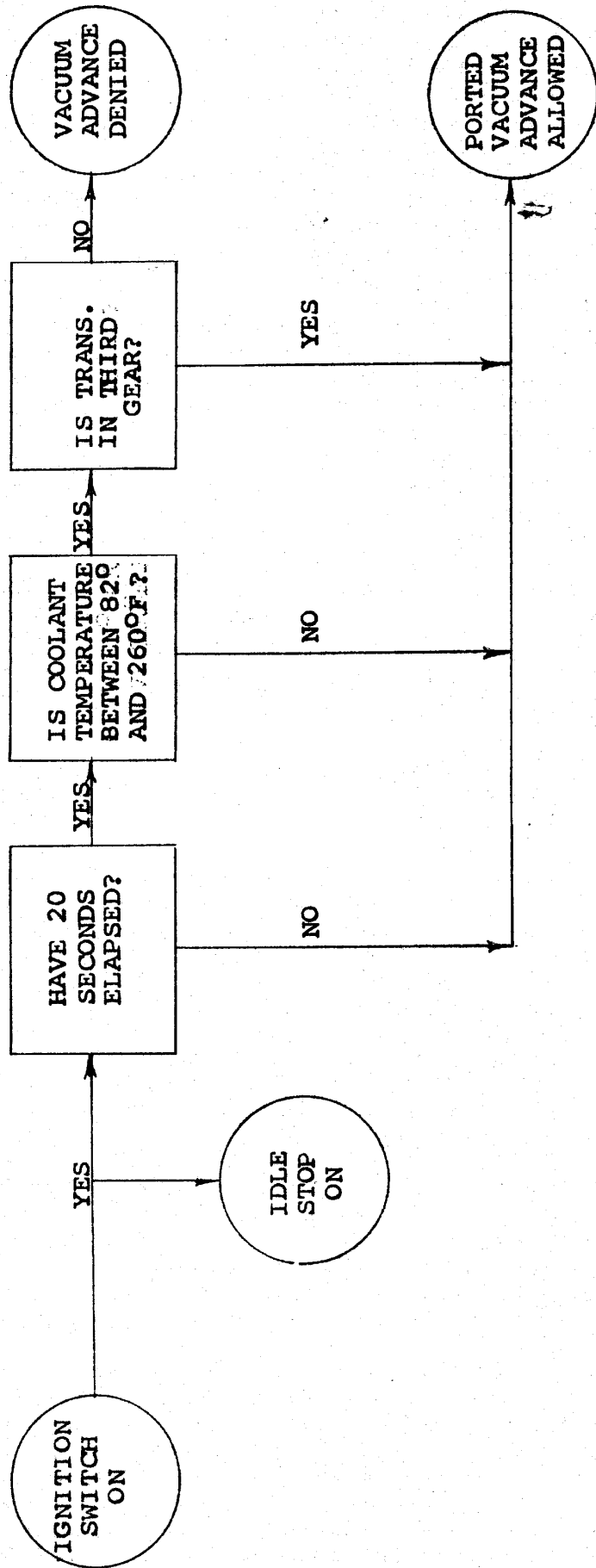


FIGURE 1



(CEC PLUNGER IS EXTENDED)

FLOW DIAGRAM FOR 1972 T.C.S. FUNCTION ON SIX CYLINDER ONLY

FIGURE 2

Rev 7 20 71

1972 V8 TRANS. CONTROLLED SPARK (T.C.S.) SYSTEM SCHEMATIC

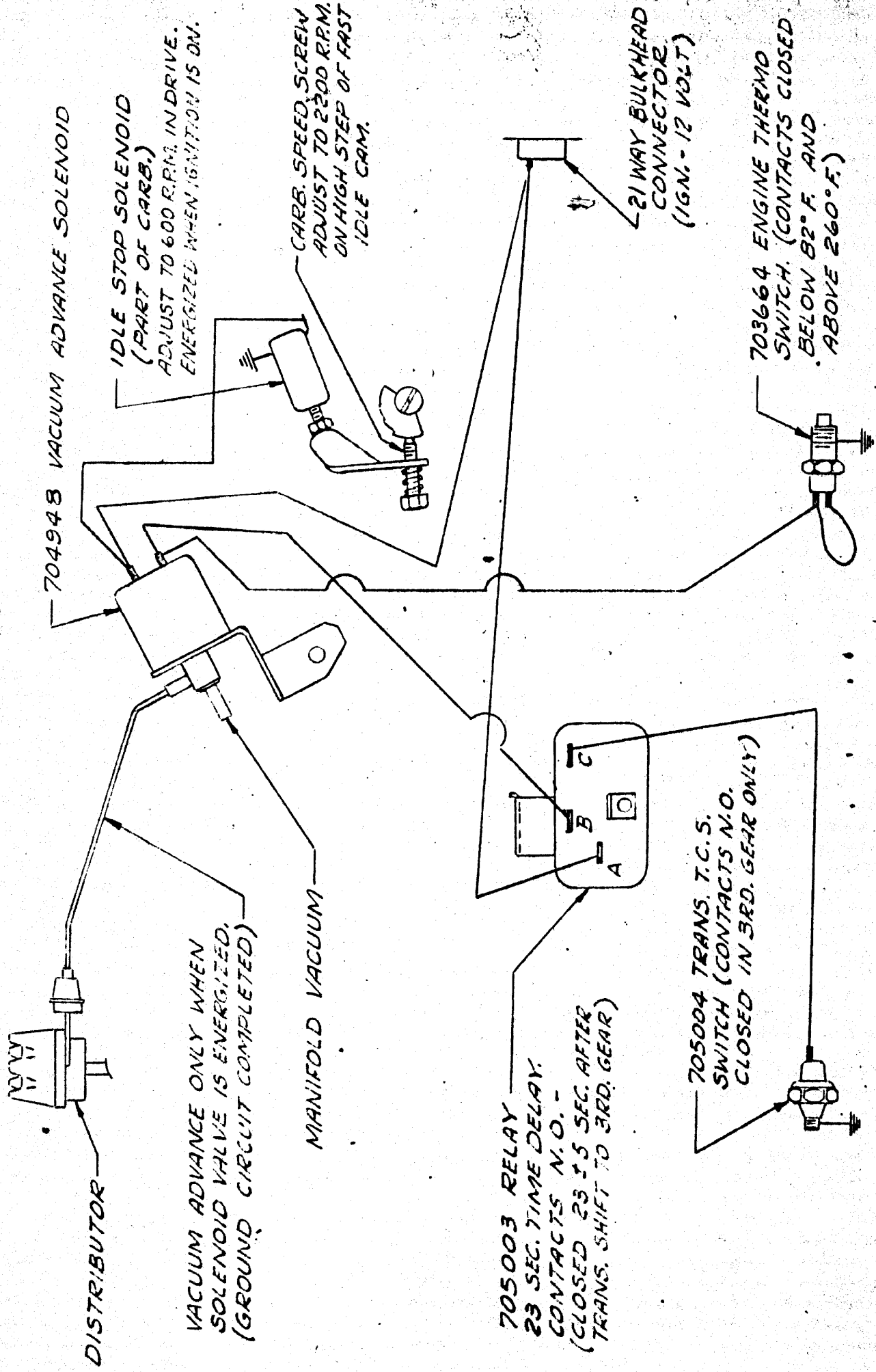
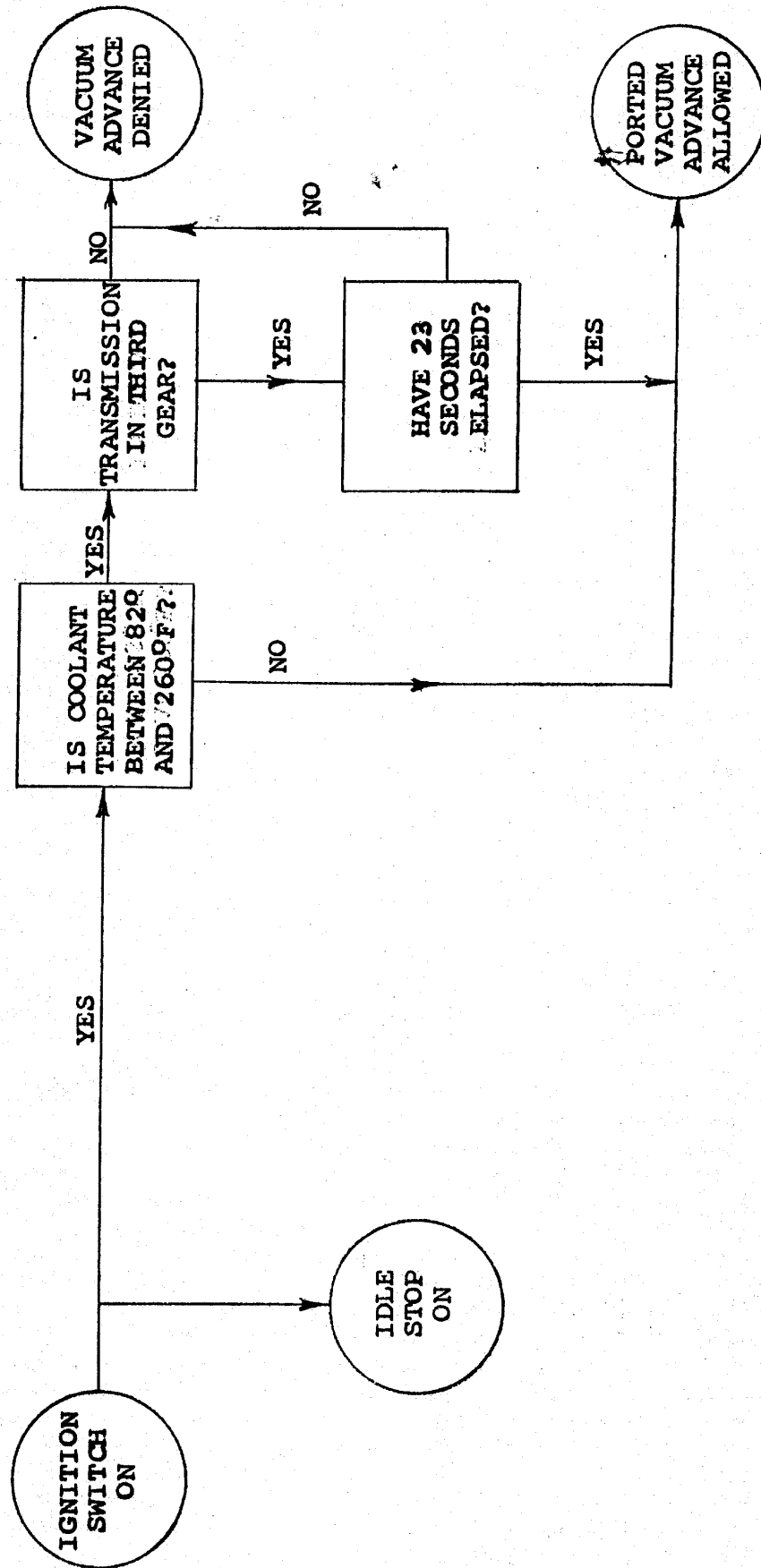


FIGURE 3



VACUUM FLOW DIAGRAM FOR 1972 TCS FUNCTION ON ALL V/8 ENGINES

FIGURE 4