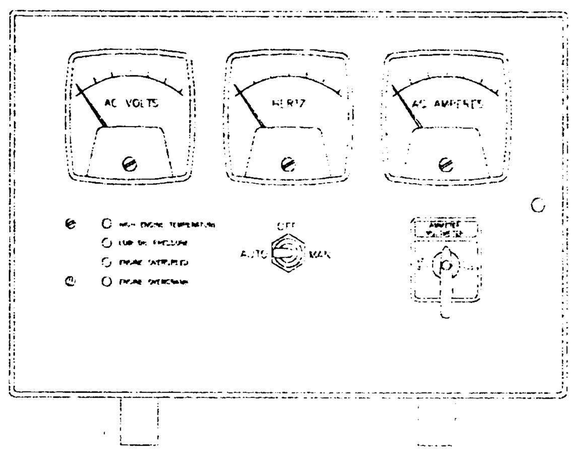
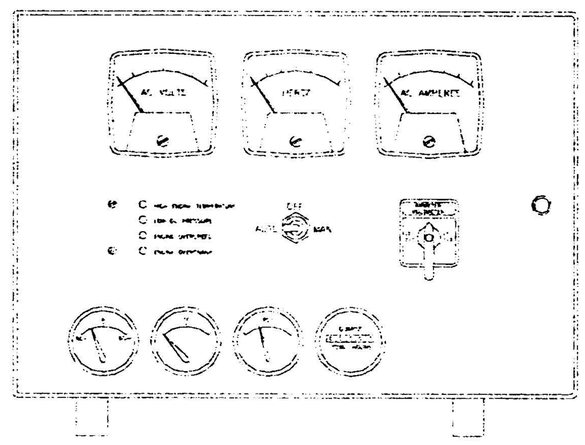
CONTROL PANELS TECHNICAL INFORMATION

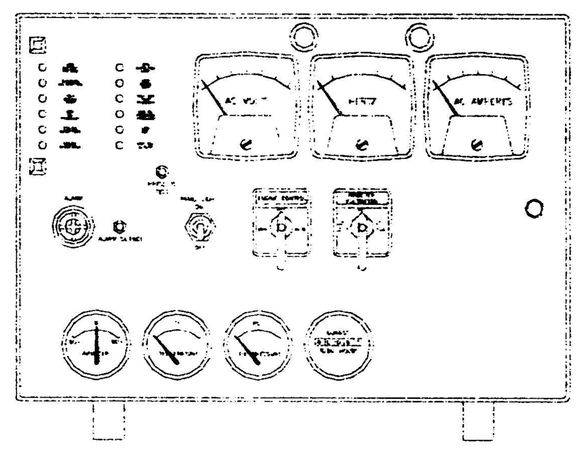
☐ **40 Series (Optional) Air Cooled Engine Models**

☐ **45 Series (Standard) Water Cooled Engine Models**

☐ **50 Series (Optional)**



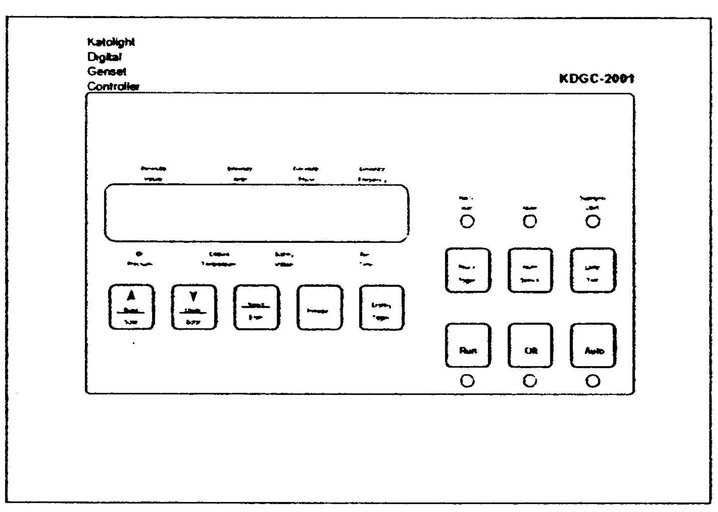


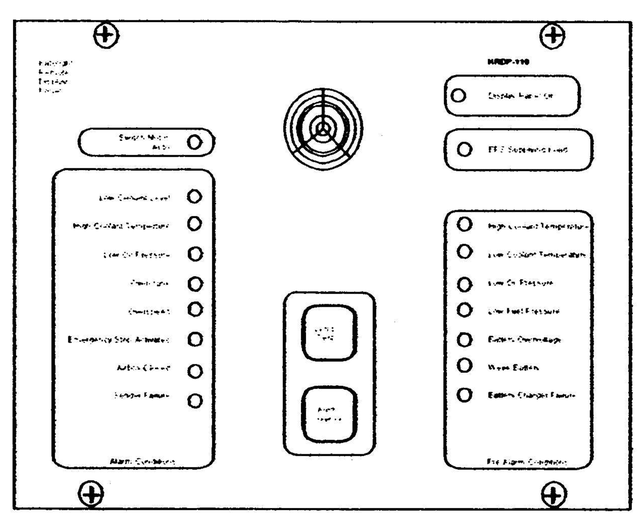


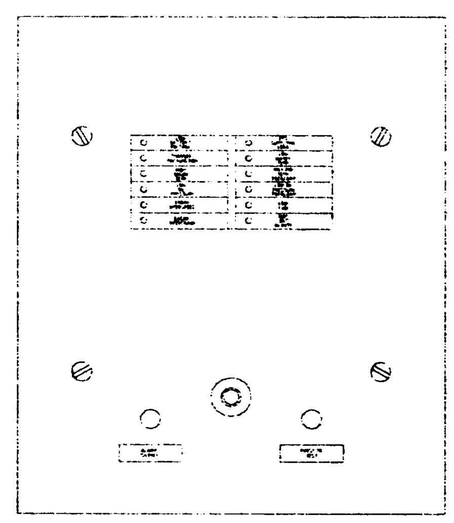
☐ **KDGC-2001 (Optional)**

☐ **KRDP-110 (Optional)**

☐ **12 Light Annunciator (Optional)**







Note: Make your panel and/or annunciator selection on this page by checking the appropriate panel option and then refer to information that follows pertaining to that selection.

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■ 40, 45, and 50 Series

Katolight Standard Control Panels

STANDARD FEATURES

Voltmeter: 3 ½ ", 2% Accuracy
Ammeter: 3 ½ " , 2% Accuracy
Frequency Meter: 3 ½", 55-65 Hz Dial Type
Combination Selector Switch

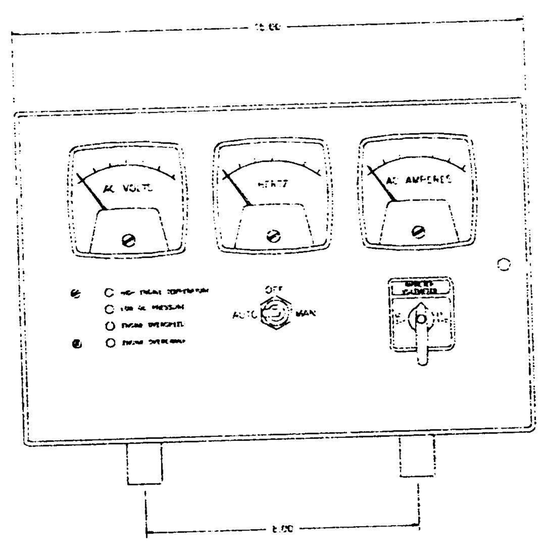
- 4 position, 3 phase
- Ammeter (only) 3 phase, 1 position
- (4) Vibration shock mounts

Engine Control:

- KASSEC, 12 or 24 volt DC with cycle cranking timer, 5 engine shutdowns with 4 separate failure lights, when the following conditions are indicated:
- High water temperature/low water level
- Low oil pressure
- Engine overspeed
- Engine overcrank
- A three position mode switch (auto-off-manual). Engine control is designed for switch grounding on failure.

All Standard series control panels are complete packages, ready for installation. The panels have been designed and tested to insure a reliable quality product.

Standard 40 Series-



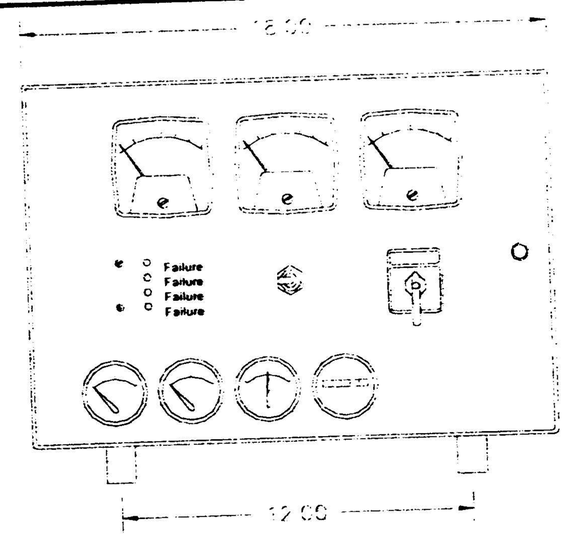
Optional Features available for the 40 Series:

- Alarm buzzer with silencing switch
- Auxiliary relay for dry contacts (1 max.)
- Emergency stop button

OR

- Two hooded panel lights & on/off switch

Standard 45 Series-



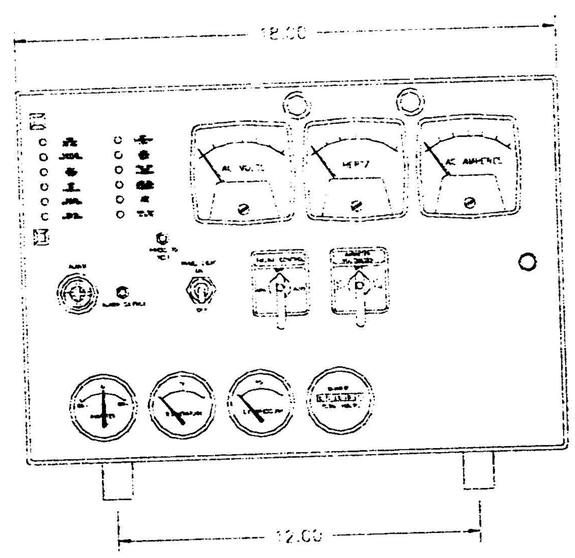
Additional Engine Gauges are displayed on the 45 Series Control Panel:

- Battery Charging DC Ammeter, 2"
- Water Temperature, 2"
- Oil Pressure, 2" Running Time Meter, 2" DC, 5 digits
- DC Running Time Meter, 5 digits, 2"

Optional Features available for the 45 Series:

- Emergency stop button
- Alarm buzzer with silencer switch
- Auxiliary relay for dry contacts (2 max.)
- Low water level LED
- Two hooded panel lights & on/off switch
- NEMA 12 enclosure adder

Standard 50 Series-



Additional Features on the 50 Series:

- Oil Pressure Gauge with Sender
- Coolant Temperature Gauge with Sender
- Battery Charger Ammeter
- Running Time Meter (DC)
- Two Hooded Panel Lights with On/Off Switch

Additional Engine Controls displayed on the 50 Series Control Panel:

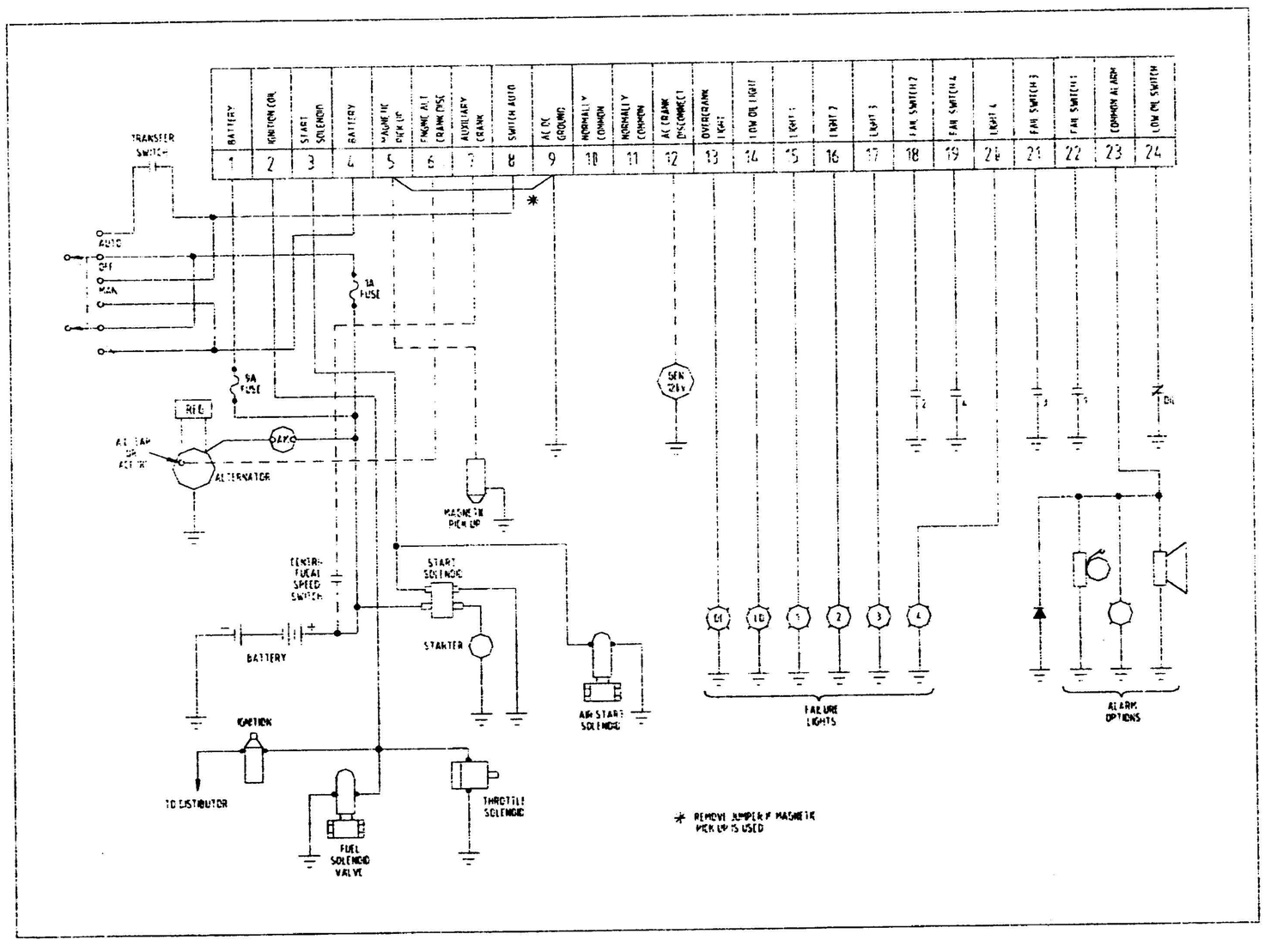
- Low Battery Voltage
- Charger Malfunction
- EPS Supplying Load
- Low Oil Prealarm
- High Engine Temperature Prealarm
- Low Fuel (add switch to fuel tank)
- Unit Not in Auto

■ Katolight Automatic Solid State Engine Control Technical Kassec Bulletin (12 Volt Or 24 Volt):

Katolight Automatic Solid State Engine Control (KASSEC) will automatically start and stop diesel, gasoline, natural gas and LPG engines or engine-generator sets under the control of an automatic transfer switch of load start contact closed to run. KASSEC is manufactured and tested to the highest quality control standards to ensure reliability.

FEATURES:

- Consistent operation from -30° C (-22° F) to +60° C (+140° F).
- Reliable Katolight solid-state design.
- Accommodates requirements for NFPA-110 annunciator for hospital application.
- Compatibility with virtually all engines in today's marketplace.
- Ease of installation, simple mounting bracket.
- Barrier screw type terminals U.L. and C.S.A. listed, with approved means for solderless connection of conductors.
- Adjustable seven (7) to fifty (50) second engine cranking circuit.
- Adjustable one (1) or five (5) crank, rest cycles.
- Adjustable seven (7) to fifty (50) second oil failure circuit.
- External alarm circuit for remote failure indication. Source 2 Amp Resistive.
- Available for 12 or 24 volt negative ground battery systems.
- Four (4) crank disconnects are available. (Mag pickup, engine alternator, 110 VAC, and auxiliary 12V DC or 24V DC). The mag pickup and engine alternator crank disconnects are adjustable.
- Positive lockout circuits prohibit recranking while engine is running.
- First failure shutdown lockout.
- 8 amp relay contacts for start and ignition system.
- Unit is sealed with a durable conformal coating.



■KASSEC Operation:

KASSEC will be in the "standby monitoring" mode whenever terminals #1 and #4 have battery voltage on them. In the "standby monitoring" mode, KASSEC will draw approximately 15 mA of current on the 12 volt model and approximately 17 mA of current on the 24 volt mode.

In the "standby monitoring" mode: when battery voltage is placed on Terminal #8 by the closing of a remote switch, relay or a transfer switch, the logic signal in KASSEC will operate the relays in KASSEC initiating cranking. Terminals #2 and #3 will have battery voltage on during the "cranking" period. During the "cranking rest" period, Terminals #2 and #3 will have zero voltage on them.

If the engine starts, one or more of the crank disconnect terminals #5, 6, 7 or 12 must have a signal placed on them. The KASSEC "start" relay will then open and Terminal #3 will go to zero volts. KASSEC is now in the "run" mode.

KASSEC has cyclic cranking which is adjustable. If the engine does not start in the first period of the cranking cycle, cranking will rest for the second period of the cranking cycle. These periods are equal. KASSEC will repeat cycle-cranking for an adjustable amount of cranks (1-5). If the engine has not started, KASSEC will go into an "overcrank failure" mode and both the Common Alarm Terminal #23 and the Overcrank Failure Terminal #13 will activate and battery voltage will be supplied from these terminals to be used for a failure light. Terminals #2 and #3 will go to zero volts. KASSEC is now locked in an "overcrank failure" mode resettable by turning the power to Terminal #4 off and on again.

When the engine starts, the Oil Failure circuit of KASSEC starts timing. If the Oil Failure Sender Terminal #24 does not activate (open from the ground) before the end of the timing period, KASSEC will go into the "low oil pressure failure" mode and shut the engine down. Terminals #2 and #3 will go to zero volts. The Common Alarm Terminal #23 and the Oil Failure Terminal #14 will activate and battery voltage will be supplied by these terminals to be used for a failure light. KASSEC is now locked in a "low oil pressure failure" mode resettable by turning the power to Terminal #4 off and on again. If Terminal #24 is grounded while KASSEC is in the "run" mode, KASSEC will go into the "low oil pressure failure" mode and shut the engine down. Terminals #2 and #3 will go to zero volts. The Common Alarm Terminal #23 and the Oil Failure Terminal #14 will activate and battery voltage will be supplied by these terminals to be used for a failure light. KASSEC is now locked in a "low oil pressure failure" mode resettable by turning the power to Terminal #4 off and on again.

NOTE: "battery voltage" or "supply voltage" will refer to the battery's positive voltage. "Ground" will refer to the negative side of the battery.

Terminal #1 supplies battery voltage to the high current requirement sections of the circuit. Battery voltage is supplied by KASSEC to the six Failure Lamps (Terminals #13, 14, 15, 16, 17 and 20), the Common Alarm Terminal #23, the Start Terminal #3 and the "energized to run" terminal #2.

Terminal #2 is the "energized to run" terminal. Up to 8 amps is available from this terminal to supply an external engine "run" component such as an ignition coil or fuel solenoid.

Terminal #3 is the Starter Solenoid Terminal. Up to 8 amps is available from this terminal to supply a starter solenoid on the engine.

Terminal #4 supplies battery voltage to all the logic circuitry. Anytime Terminal #4 is brought from the ground to battery voltage, KASSEC will be reset. Note: Terminal #4 is the main reset terminal for KASSEC.

Terminal #5 is the Mag Pickup Crank Disconnect input. This is one of four crank disconnects on KASSEC. When KASSEC is in the "cranking" mode and the input frequency of the mag pickup equals a value set by the adjustable resistor on KASSEC, KASSEC will crank disconnect and go into the "run" mode. If the signal from the mag pickup is lost while KASSEC is in the "run" mode and this is the only crank disconnect being used, KASSEC will go into the "overcrank failure" mode and shut the engine down.

NOTE: Whenever Terminal #5 is not in use, it must be tied to Terminal #9, Ground, to prevent accidental triggering of the crank disconnect circuitry.

Terminal #6 is the Engine Alternator Crank Disconnect Terminal. This is one of four crank disconnects on KASSEC. When an A.C. signal from the stator terminal of the engine alternator is fed to this terminal and KASSEC is in the "cranking" mode, KASSEC will crank disconnect and go into the "run" mode. With KASSEC in the "run" mode, the unit will not shut down or go into overcrank with loss of the alternator Crank Disconnect.

Terminal #7 is the Auxiliary Crank Disconnect Terminal. This is one of four crank disconnects on KASSEC. When a positive voltage is placed on this terminal and KASSEC is in the "cranking" mode, KASSEC will go into a "run" mode and this is the only crank disconnect being used. Loss of the positive voltage on Terminal #7 will place KASSEC into an "overcrank failure" mode and shut the engine down.

Terminal #8 is the Transfer Switch Terminal. This terminal is the main controlling terminal. Anytime this terminal is at battery positive, the unit will be in active modes of trying to start, run, failure. If Terminals #1 and #4 have battery voltage on them and Terminal #8 has no battery voltage present, KASSEC is in a "standby" position. Whenever this terminal is brought to battery voltage, KASSEC will be in an "operate" mode. The only exception to this is when a shutdown failure has occurred. KASSEC can only be reset from a failure mode by bringing Terminal #4 from Ground to battery voltage.

Terminal #9 is the Ground Terminal for KASSEC. All the grounded points should be common to this terminal.

Terminal #10 is not connected.

Terminal #11 is not connected.