

EMICC SYNCHROSTATIC

STATIC FIELD CONTROL FOR BRUSH-TYPE SYNCHRONOUS MOTORS

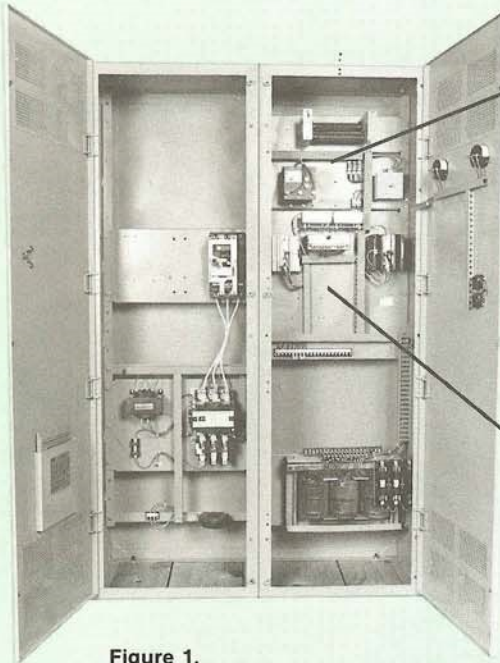


Figure 1.
Synchrostatic field control complete with Synchronex static exciter.

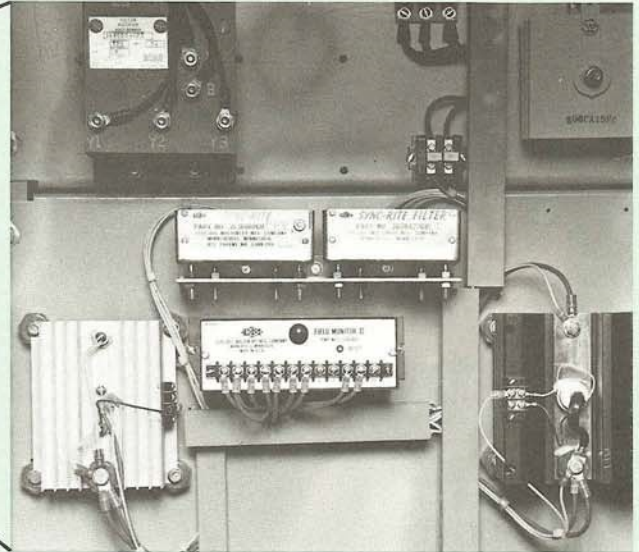


Figure 2.
Synchrostatic field control panel is available as a separate unit or as an integral component of complete motor control.

An advanced concept for application and removal of field excitation on brush-type synchronous motors.

The Synchrostatic field control system replaces the electro-magnetic relay method of applying and removing field excitation on brush-type synchronous motors. When incorporated into a standard motor control, this all static system provides a compact, highly sensitive unit to meet specific control requirements.

Advantages of Synchrostatic Controls:

RELIABILITY

Solid state components are free from contamination and have long operating life, thereby providing high reliability with minimum maintenance.

COMPACT

Synchrostatic controls can easily be incorporated into standard control panels.

PRECISION CONTROL

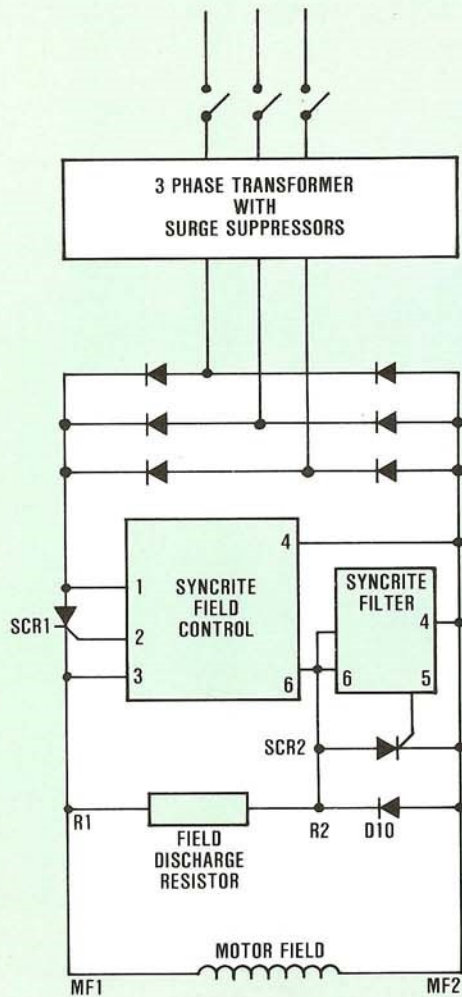
Critical synchronizing requirements can be met with Synchrostatic since the synchronizing point is adjustable.

Function of Synchrostatic:

- 1 To apply dc excitation to the motor field at the proper slip frequency and at an optimum relationship between the rotor and stator poles.
- 2 To detect and remove field excitation, to connect the field discharge resistor when the motor is out of synchronization, and to reapply excitation where the application allows.
- 3 To protect the amortisseur winding when the motor is out-of-step.
- 4 To protect the motor should field excitation fail.

EMICC SYNCHROSTATIC STATIC FIELD CONTROL

FOR BRUSH-TYPE SYNCHRONOUS MOTORS

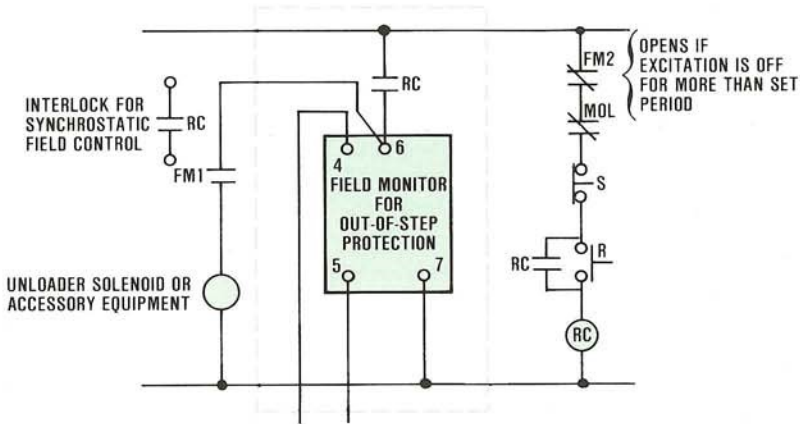
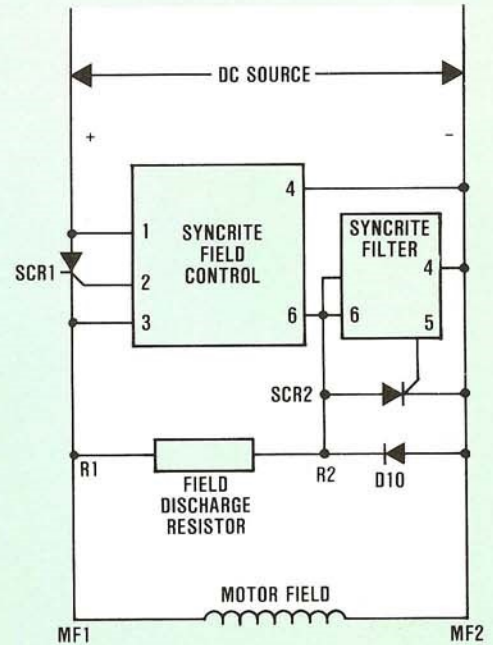


INTEGRAL AC SOURCE OF DC EXCITATION

Elements of the field control and excitation supply obtain power from a three-phase ac power supply. The ac power is converted to dc. The Synchrostatic control circuit removes the field discharge resistor and energizes silicon controlled rectifiers to apply excitation at a preset point.

SEPARATE SOURCE OF DC EXCITATION

Power can be supplied from any one of several possible dc sources . . . the Synchronex static exciter, dc bus, dc exciter, motor-generator set. The source must have the ability to be disconnected or inherently de-energized when the motor is stopped.



OUT-OF-STEP PROTECTION

Protection for the amortisseur winding during starting, and in the event the motor pulls out-of-step, is provided by the EMICC Field Monitor. The monitor is energized from the control circuit and from the motor ac input through a current transformer. The line diagram indicates the protective features. The Field Monitor is actuated whenever the motor is out-of-step because it is sensitive to the low power factor of the synchronous motor when out of synchronism. A time delay in the Field Monitor prevents motor shutdown before a predetermined interval. If the motor starts and synchronizes normally the timing cycle is stopped. If the motor does not synchronize, or pulls out-of-step, the Field Monitor operates after a time interval to shut down the motor.



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