MAXPAK PLUS
ACCESSORY

INSTRUCTION MANUAL D-3820-3

50 AND 100 MILLIVOLT ARMATURE SHUNT KITS

For Medium Horsepower Non-Regerative MaxPak Plus Controllers And All Regenerative MaxPak Plus Controllers Model Numbers 23C13-23C17, 23C23-23C29, 23C38-39 Assembly Drawings 705391 & 705391-1

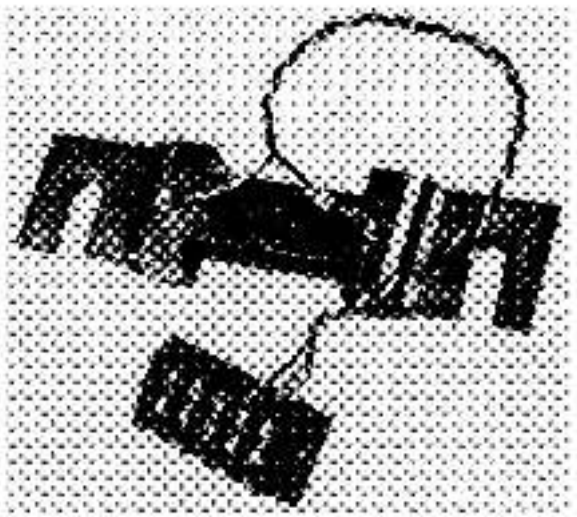
The equipment described below should be installed only by qualified electrical maintenance personnel familiar with the construction and operation of the equipment and the hazards involved.

DESCRIPTION

These armature shunt kits provide millivolt level signals proportional to d-c armature amperes. Output from the shunt may be used to operate an ammeter for display of motor armature amperes or to drive an instrument requiring a millivolt input proportional to armature current.

WARNING

OUTPUT TERMINALS AND ANY ELECTRICAL OUTPUT LEADS FROM THESE SHUNTS ARE AT ARMATURE POTENTIAL TO GROUND AND CAN DELIVER UNLIMITED POWER. THEY ARE EXTREMELY DANGEROUS AND MUST BE CONSIDERED LETHAL.



Each of these shunt kits has been mechanically configured to allow simple installation into non-regenerative MaxPak Plus controllers from 25 through 75 horsepower at 230 volt a-c input, from 50 through 150 horsepower at 460 volt a-c input and from 40 through 180 horsepower at 550 volt a-c input or any regenerative MaxPak Plus controller. It replaces a removable section of armature circuit busbar. **These kits are mechanically incompatible with and should not be specified for use in non-regenerative MaxPak Plus controllers either larger or smaller in horsepower than listed above. See I/M D-3835 for shunt kits for use with low horsepower non-regenerative MaxPak Plus controllers.**

Each kit is complete with shunt, replacement braided strap, terminal strip and mounting screws, a terminal strip marker and twisted pair cable for wiring the shunt to the terminal strip.

NOTE: When specifying a shunt kit, consider expected drive overloads and the need to meter them. For example, Table 2 indicates that a 60 hp drive with a 500 volt armature has a full load current of 100 amperes. if the drive is expected to deliver 150% output for acceleration or short-term overload, then, 150 armature amperes would be expected during these periods. if a 100 mv. meter will be used to indicate motor current, and accurate metering of overload current is desired, then a 150 ampere,100 mv. shunt (M/N 23C15) should be specified. The meter should be calibrated to read 150 amperes full scale.

SPECIFICATIONS

Shunt current and millivolt output rating can be determined by kit model number. See Table 1. Table 2 lists full load armature current by drive horsepower and armature voltage for reference purposes.

TABLE 1
KIT SPECIFICATIONS

Model Number	Armature Current (Amperes)	MV. Output	Assembly Drawing
23C13	75	100MV	705391
23C14	100	100MV	705391
23C15	150	100MV	705391
23C16	200	100MV	705391
23C17	250	100MV	705391
23C38	300	100MV	705391
23C39	400	100MV	705391
23C23	75	50MV	705391-1
23C24	100	50MV	705391-1
23C25	150	50MV	705391-1
23C26	200	50MV	705391-1
23C27	250	50MV	705391-1
23C28	300	50MV	705391-1
23C29	400	50MV	705391-1

TABLE 2
FULL LOAD ARMATURE CURRENT

HP Rating	Full Load Rated D-C Armature Current (Amperes)		
	240V	500V	600V
25	93		
30	110	—	—
40	144		57
45			69
50	178	86	72
60	212	100	86
70			100
75	265	129	107
90			129
100	—	167	139
120			167
125	—	205	171
150	—	250	208
180	—	—	250

INSTALLATION

(Refer to Assembly Drawing)

1. Remove the contactor cover, if one is in place on the drive. If a circuit breaker is present it should be disconnected and set aside during shunt kit installation.

WARNING

BEFORE ATTEMPTING TO INSTALL THIS MAX-PAK PLUS MODIFICATION KIT, DISCONNECT AND LOCK OUT ALL SOURCES OF INCOMING POWER TO THE CONTROLLER CABINET.

2. Remove the busbar link from terminal 47 of the power module. Remove the braided strap from the top stud. This strap is identified in non-regenerative controllers by the following part number printed on the strap:

   basic drives – 700867-3SM

   drives with basic features plus dynamic braking – 700867-3SL

   drives with reversing and dynamic braking -700867-3R or 3RH

3. If the shunt is being installed in a non-regenerative drive with either basic features or basic features plus dynamic braking, the above identified strap should be removed from the drive and discarded. It should be replaced with the 700867-3RD strap furnished with this kit. This strap is longer than the strap originally furnished with the drive and allows for proper connection with the shunt in place.

   There is no need to replace the 700867-3R or -3RH strap furnished with non-regenerative reversing drives. If installing the shunt in a reversing or regenerative MaxPak Plus, skip to installation step 5.

4. Connect the -3RD strap to the armature contactor terminal from which the -3SM or -3SL strap was removed. Fasten in place using the Keps nut originally furnished for this connection and tighten to 125/140 lb.-in. (1.441/1.6 kg.-m.).

5. Mount shunt onto power unit studs. NOTE: On the 100 mv. 250, 300 and 400 ampere shunts (M/N 23C17, 38 and 39) two spacers must be placed over the studs before mounting the shunt to bring stud diameter to that required for matching shunt mounting holes.

6. With the braided strap oriented as shown in Figure 1, reconnect the braided strap to terminal 47 and fasten it and the shunt into place using the Keps nuts removed in Step 2. Tighten to 125/140 lb.-in. (1.44/1.6 kg.-m.). This strap orientation (placed at right angles to the shunt and then "folded" 90 degrees en route to the contactor terminal) will assure sufficient strap length regardless of the drive horsepower or shunt model number involved.

7. Replace the contactor cover plate and reinstall the circuit breaker if removed during step 1.

8. Fasten the terminal board and marking strip to the auxiliary panel as indicated on the assembly drawing. Self tapping screws are provided for this purpose with the kit. (If a contactor cover is in place, the terminal board may be mounted on the cover itself, as shown in the assembly drawing).

9. Connect the free end of the twisted pair cable to the terminal board as shown. This connection may have already been made at the factory.

10. Connect the ammeter output (1419+,1319-) to the ammeter. This ammeter wiring can be run in conduit containing 115 volt control leads. Do not run in conduit containing twisted signal wiring from potentiometers or tachometer feedback, etc.

REPAIR PARTS

A complete spare part list is provided on sheet 1 of the assembly drawing.

FIGURE 1