

**Model EC-A,  
Adjustable**

**Electric Contacting Register**

**Installation &  
Operation Manual**



**BadgerMeter, Inc.**

**IOM-425-05**  
Part No. 53400-425

3-09

## PREFACE

### SCOPE OF THE MANUAL

This manual contains information concerning the installation, operation and maintenance of Badger's Electric Contracting Register, Model EC-A. To ensure efficient operation of the EC-A, the instruction given in this manual should be thoroughly read and understood. Retain the manual in a location where it is readily available for reference.

### CHANGES IN THE MANUAL

Changes or additions to the original edition of this manual will be covered by a "CHANGE NOTICE" supplied with the manual. The change notice will explain any differences between the product received and the EC-A described in this manual.



## DESCRIPTION

Badger's Electric Contracting Register, adjustable Model EC-A, provides an electric pulse output for a given quantity of liquid passing through a disc, turbo or other type of meter. The contactor, or lower section of the EC-A, contains a gear train assembly, cam-operated roller-level switch and appropriate change gears. The top portion consists of a register with nonreset totalizer and a hinged cover.

Contact rates can be changed in the field with change gears and/or one of three different gear trains. To make sure you obtain the correct parts, contact Badger Meter, Inc., Customer Service, and provide the following information from EC-A nameplate:

- Existing pulse rate.
- Part number.
- Gear driver/driven.

**NOTE:** Normally closed contact should be used for most applications, and especially to obtain shortest contact duration.

## OPERATION

The Model EC-A Electric Contracting Register is mounted on a meter equipped with proper change gears between meter and register. Water or other liquid flowing through

the meter causes a cam in the contactor section to rotate. The cam operates a single-pole, double-throw switch. When connected to a suitable power supply, the register will provide a pulse output corresponding to a predetermined quantity of liquid. If desired, the pulses can be used to actuate a relay which, in turn, will operate other equipment. In a typical application, pulses from the EC-A would be transmitted to a chemical feed pump for boiler makeup water or for cooling towers.

## SPECIFICATIONS

**Totalizer** - Nonreset with six number wheels plus stationary zeros corresponding to test circle.

**Units of Measure** - Gallons...cubic feet...cubic meters...liters...pounds.

**Switch Type** - Single-pole, double-throw...N.O. or N.C. connections...roller-lever, cam-operated.

**Switch Ratings** - 10 amps and 1/4 hp, 125 or 250 volts AC...1/2 amp, 125 volts DC...1/4 amp, 250 volts DC.

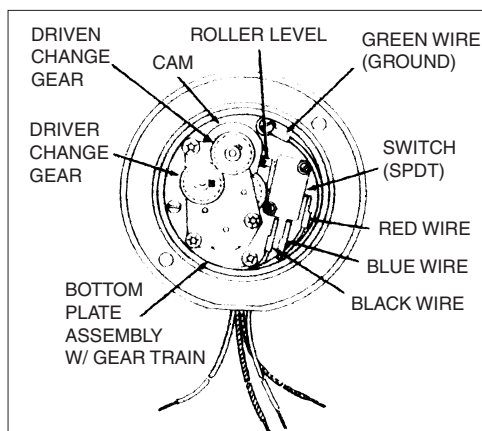
**Contact Rates** - Adjustable in field with change gears and/or different gear trains.

## MAINTENANCE AND SERVICING

For periodic inspection or when operation of the EC-A indicates a need for servicing, refer to adjoining page for identification of replacement parts and to back cover for ordering information. If satisfactory servicing cannot be performed, contact Badger Meter, Inc., Customer Service.

### A. CHANGING GEAR TRAIN ASSEMBLY

1. Disconnect electric power at junction box.
2. Loosen and remove two register cover screws (See item 2 in illustrated parts listed on facing page.)
3. Lift and remove register hood, gasket and register assembly (items 1, 4 and 5) from contactor housing.



**Figure 2. Electrical Contactor Section**

4. With long-nose pliers, disconnect wire lugs from terminals on switch (Item 13).
5. With small screwdriver, loosen screw holding ground wire (see Figure 2) and remove screw and wire lug from bottom plate. Use hold-down screwdriver to lift out screw.
6. Loosen metal and nylon screws (Items 14 and 17) that anchor bottom plate to housing.
7. The replacement gear train is a complete assembly with mounting plate (Item 16). Remove switch from existing plate (see instruction in Switch Replacement section below) and mount on new assembly.
8. Adjust switch as described in Switch Replacement section.
9. Install change gears in location as indicated on nameplate.
10. Reassemble contactor assembly, reversing the procedure outlined above. Make certain nylon screw is in mounting hole under switch lugs.

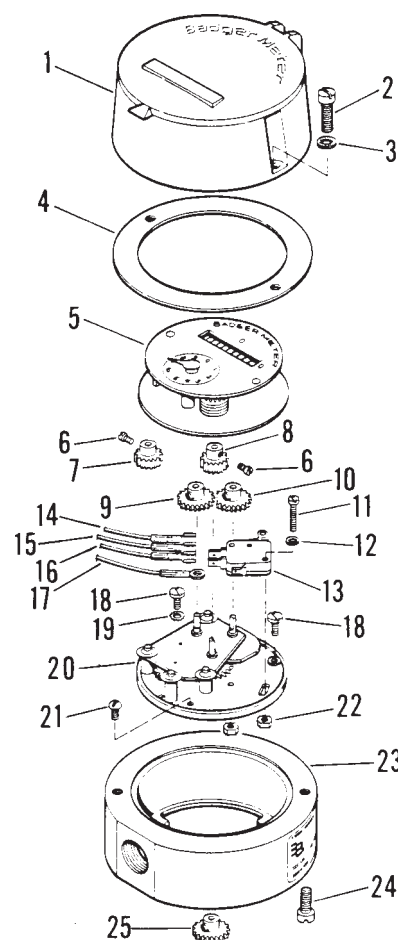
## B. SWITCH REPLACEMENT

1. To replace switch, remove the entire gear train assembly as explained in section "A".
2. Remove two screws with hex nuts that hold switch to bottom plate (Figure 3 on back page). Install new switch.
3. With both screws slightly loose, adjust switch.
4. Rotate cam (Figure 3) so rounded "corner" is opposite switch.
5. Now rotate switch into cam until normally-open switch closes.
6. Tighten the screw opposite pivot screw, then the pivot screw itself.
7. Reinstall gear train assembly in housing.
8. Reconnect wires to switch. (See Figure 2 for proper color coding.)

(Instructions continued on back page)

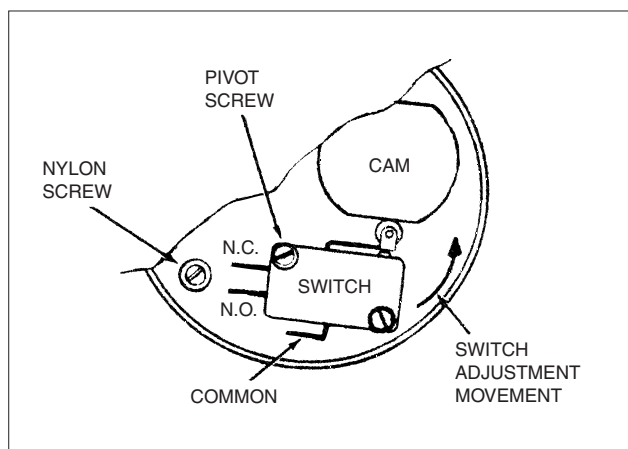
## REPAIR PARTS LISTS

Item No.	Name of Part	Part Number
1	Hood Assembly, Register.....	58234-002
2	Screw, Cover to Housing.....	55048-251
3	Lock Washer.....	55293-010
4	Gasket, Register Cover.....	58404-001
5	Register Assembly (Specify meter size and registration required)....	-----
6	Setscrew, Change Gear.....	01065-000
7	Change Gear, Register (Specify number of teeth and diameter).....	-----
8	Change Gear, Electric Contactor (Specify number of teeth and diameter).....	-----
9	Change Gear, Driver (Specify number of teeth and diameter).....	-----
10	Change Gear, Driven (Specify number of teeth and diameter).....	-----
11	Screw, Pan Head, Switch.....	55090-120
12	Lock Washer.....	55291-005
13	Switch, Roller-Lever.....	24574-007
14	Wire Lead Assembly, Black (N.C.).....	23218-092
15	Wire Lead Assembly, Blue (N.O.).....	23218-091
16	Wire Lead Assembly, Red (Common).....	23218-090
17	Wire Lead Assembly, Green (Ground).....	23218-093
18	Screw, Pan Head, Bottom Plate.....	55090-169
19	Lock Washer.....	55281-007
20	Bottom Plate and Gear Train Assy. (1:1 Gear Ratio).....	58227-001
20	Bottom Plate and Gear Train Assy. (2:1 Gear Ratio).....	58227-004
20	Bottom Plate and Gear Train Assy. (9:1 Gear Ratio).....	58227-005
21	Screw, Nylon, Bottom Plate.....	32296-000
22	Nut, Hex., Bottom Plate.....	55002-032
23	Housing, Contactor.....	57724-002
24	Screw, Fill. Head (Register to housing).....	55048-276
25	Change Gear, Contactor to Meter (Specify number of teeth and diameter).....	-----



### C. INSTALLING DIFFERENT CHANGE GEARS

1. Repeat steps one through three in Section "A".
2. Loosen setscrews in gear hubs that hold "driver and "driven" change gears to spindles (Fig. 2).
3. Lift change gears from spindles.
4. Install different change gears. Note location so that new gears are installed on correct spindles (Figure 2).
5. Reinstall parts removed under procedure "1" above. Restore power.



**Figure 3. Switch Adjustment**

### ORDERING INFORMATION

Order replacement parts through your local Badger Meter sales representative or directly from Badger Meter, Inc. When placing an order, provide the following information:

- a. Complete description of assembly or parts required.
- b. Part number of item as listed in illustrated parts list.
- c. Quantity of parts required.
- d. Purchase order number plus exact return and billing addresses.



Please see our website at  
**[www.badgermeter.com](http://www.badgermeter.com)**  
for specific contacts.

Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists.



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