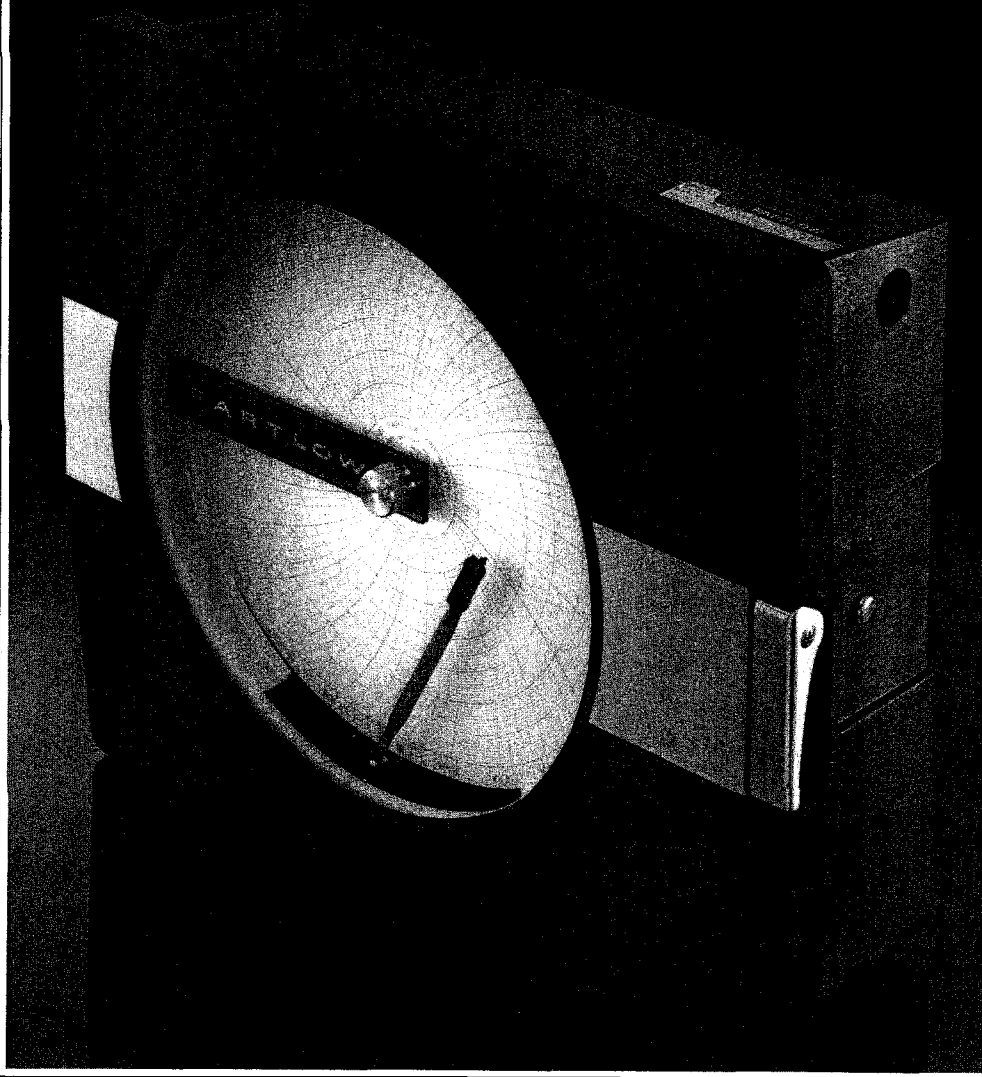


MECHANICAL RECORDING THERMOMETER

The RFT thermometer records temperature on a large 10 inch diameter chart. The instrument is available in electrically driven chart drives and also wind up spring operation, making it suitable for remote "no power" installation. It derives its simplicity and efficiency from the Piston-Pak filled system sensing element. Approximately 25 element ranges are available with a span of -30°F to 1100°F.



Form Number 3020
Published April 1990
Updated March 1991

SPECIFICATIONS INSTALLATION OPERATION

RFT

Partlow
The Partlow Corporation • Two Campion Rd. • New Hartford, NY 13413 USA • 315-797-2222 • FAX 315-797-0403
QUALITY INSTRUMENTATION DESIGNED & MANUFACTURED IN THE USA

RFT PRODUCT SPECIFICATIONS

Dimensions	15 1/8" W X 13 13/16" H X 4 7/8" D
Chart Diameter	10 inch
Chart Marking	Felt Tip Cartridge
Chart Drive	Electric with toggle switch, or spring wound
Chart Rotation Periods	24 and 48 hour, 7 day, other options
Surface Mounting	Brackets supplied with instrument
Flush Mount Cutout	13 1/2" W X 12 11/16" H
Electrical Hookup	Terminal Block accessible with cover open
Conduit Openings	One 7/8 inch diameter hole on each side of the case for 1/2 inch conduit fitting; drill guide hole spotted in the rear of the case showing optional rear conduit location.
Rated Accuracy	1% of element range
Agency Approvals	UL Listed
Approximate Net Weight*	9 lbs.
Approximate Shipping Weight*	14 lbs.

* Weight may vary depending on element length.

RFT ORDER MATRIX



RFT
(Requires L-Type element plunger)

CHART DRIVES*

01	125V/60Hz	24 H
02	125V/60Hz	7 D
03	125V/60Hz	12 H
04	125V/60Hz	48 H
05	125V/50Hz	24 H
06	125V/50Hz	7 D
07	Spring	24 H
08	Spring	7 D
09	250V/50Hz	24 H
10	250V/50Hz	7 D

ACCESSORIES

0 None

PISTON-PAK THERMAL SENSING ELEMENT

A Piston-Pak Thermal Sensing Element must be specified for each RFT. Use Partlow Form Number 3028 "Mechanical Instrumentation Products Cross Reference and Pricing Guide" to configure the matrix number for the sensing element.

Note:

This document should accompany the instrument to its final installation in order to provide operational and service assistance to the end user.

INSTALLATION AND WIRING

LOCATION

The element head assembly is subject to ambient temperature limitations of -30°F to 125°F (-35°C to 52°C) for low temperature head assemblies, and 32°F to 150°F (0°C to 66°C) for high temperature head assemblies. These temperature limitations must be considered when determining the instrument location. It should be located in an area as free from vibration as possible.

MOUNTING

The instrument(s) are shipped to be surface mounted. Figure 1 illustrates hole placement for surface mount condition.

Note: Holes in brackets supplied are 9/32 clearance holes for 1/4" bolts. The four holes called out in the drawing may be any size that will accommodate the fastening requirement, ie: 9/32 for 1/4" thru-bolt with nut fastening, or #7 drill for 1/4" x 20 NC tapped hole fastening or #3 drill for 1/4" x 28 NF tapped hole fastening.

The instrument may also be flush mounted. This is accomplished by removing the two surface mounting angle brackets from the instrument. Figure 1A illustrates panel cut out dimensions. Cut the panel opening to 13 1/2" x 12 5/8". Drill 9/32 clearance holes in four locations if 1/4" thru-bolt with nut installation is desired. Should a tapped hole be preferable drill a #7 hole in four locations for 1/4" x 20 NC or a #3 hole in four locations for a 1/4" 28 NF. Note: All configurations require a flat head screw for proper door operation. With the instrument in the upright position, insert it and the element with the panel opening and tilt into place. Depending upon your panel size it may be easier to make electrical connections before finally securing the instrument into the panel.

WIRING

The conduit hole will be used to make all electrical connections through. Make necessary electrical connections using short sections of flexible cable or conduit according to applicable electrical codes, ordinances and regulations regarding the use of conduit etc. Next access the electrical terminal block located behind the platen (to the right of the chart drive switch). Remove the terminal insulator and wire power to the terminal according to local N.E.C. codes. Use Figure 2 for hook up connections. Replace the insulator after wiring is complete.

STUFFING BOX INSTALLATION (IF APPLICABLE)

Overtightening of 21-T-105 stuffing boxes can damage the thermal element by restricting the capillary bore. To prevent damage, the stuffing box gland nut should be turned 1/2 to 3/4 of a revolution from a finger-tight position. This is equivalent to a torque of 130 to 180 inch-pounds for stainless steel.

Figure 1 - Surface Mount Dimensions

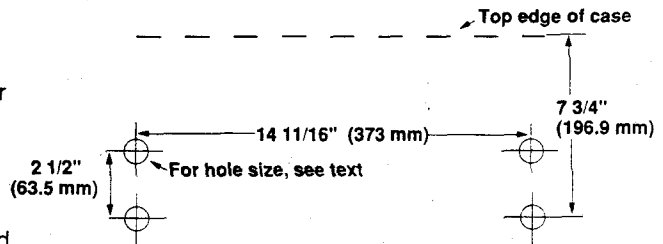


Figure 1A - Panel Cutout Illustration (in inches)

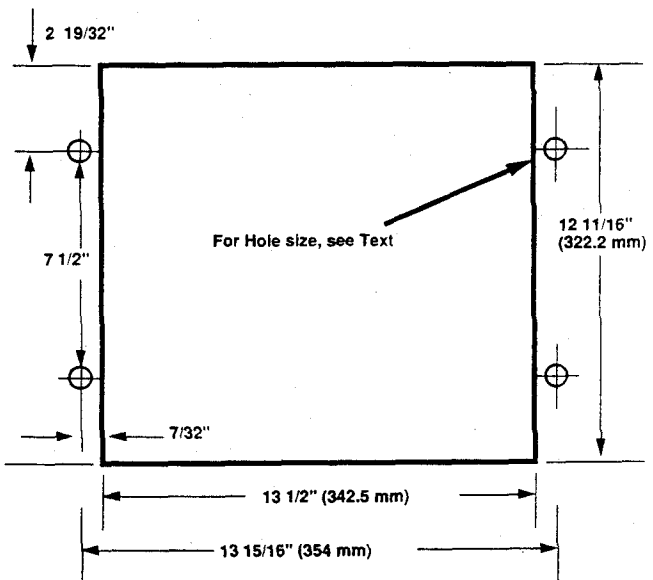
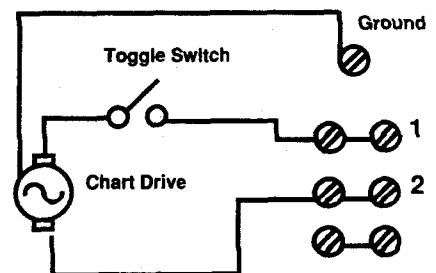


Figure 2 - Wiring Connections



PLACING THE THERMAL SENSING ELEMENT

Locate the thermal sensing bulb in the most agitated part of the medium to be measured and completely immerse it. (When U and Y type bulbs are used, note separation coupling between bulb and capillary). Be sure to immerse the element up to the separation coupling. Do not bend capillary to less than 1/2 inch radius and never bend it too close to the element bulb or element head. Pencil type bulbs must never be bent as this will affect instrument accuracy. U and Y type bulbs may be bent, but never to less than a two inch radius. Anchor the excess capillary securely to prevent vibration damage. These bulbs may be elevated up to 40 feet above the instrument without affecting calibration.

INSTRUMENT OPERATION

Prior to putting the instrument into service check it against an accurate test thermometer. As with any precision instrument, minor adjustments may be necessary after shipment and installation. If you are unfamiliar with how to perform this check, refer to the CHECKING TEMPERATURE and RE-ZEROING section of this document.

The element bulb senses the temperature of the medium in which it is immersed. The thermal sensing element, in response to temperature changes in the sensed medium, provides a strong positive force. A plunger in the element head, moving up or down in response to this force, positions mechanical linkage within the instrument, which, in turn, moves the indicating pen along the circular chart.

MAINTAINING YOUR RFT**CHECKING TEMPERATURE**

When checking and verifying your temperature, be sure to use a test thermometer of known accuracy. Position the test thermometer sensing bulb or probe adjacent to the thermal sensing bulb on the RFT. Wait for the temperature to stabilize, then compare the test thermometer reading with that of the RFT. IF the two readings do not agree, the RFT should be re-zeroed.

RE-ZEROING

Be sure that the process temperature is stable. Open instrument cover and loosen set screw S (see Figure 3). Zeroing is accomplished by turning hex shaft J with wrench provided. Lengthening shaft J (counterclockwise) raises pen indicated temperature, shortening shaft J (clockwise) lowers pen reading. Turn shaft J until the pen reading agrees with that of the test thermometer. Tighten the set screw S. Check the adjustment by allowing the temperature to stabilize and compare the readings. Repeat these steps if necessary.

PISTON-PAK THERMAL SENSING ELEMENT IDENTIFICATION

An element designation number is stamped on the bottom of the element head (see Figure 4). This is a coded description of the element specifications and should be used whenever a replacement element is ordered. The number appearing on the side of the element head is the element age code, which may be required in establishing warranty.

ORDERING/SPECIFYING THE PISTON-PAK SENSING ELEMENT

The sensing element is ordered separately from the RFT and requires its own matrix number. To determine the correct sensing element configuration for your instrument(s) and application, see Partlow Form 3028 "Mechanical Instrumentation Products Cross Reference and Pricing Guide."

ELEMENT REPLACEMENT

To change a thermal sensing element, start by removing screws D (Figure 5) and withdrawing the element from the instrument body. Then remove bulb from the medium. Install the new element and replace screws D. Insert the new element bulb into the medium being measured. Note: After the element has been replaced, check the temperature setting as re-zeroing may be necessary. If so, see the CHECKING TEMPERATURE section.

Caution: The inside mechanism(s), particularly the inside of the element housing, should never be oiled. However, if the instrument is subject to corrosion or gunking conditions, the mechanical linkage should be sprayed periodically with corrosion inhibiting CRC 2-26, 3-36, or 5-56. Use only CRC 2-26, 3-36 or 5-56 as other lubricants may cause build up and sticking of internal parts. Also note that the latch handle assembly should never be lubricated with any chemical. On older style units, the latch assembly can be lubricated with graphite only, if necessary. CRC 2-26 may be purchased from Partlow in a 15 oz. container (part #63600401). CRC 5-56 may be purchased locally from any hardware or automotive store.

Figure 3 - Re-Zeroing

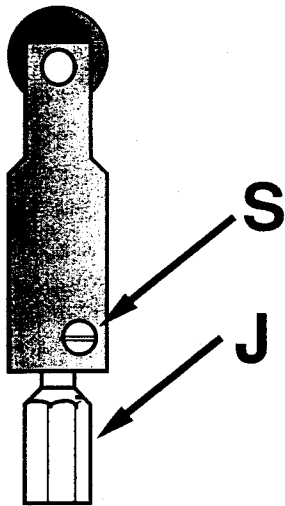


Figure 4 - Sensing Element ID

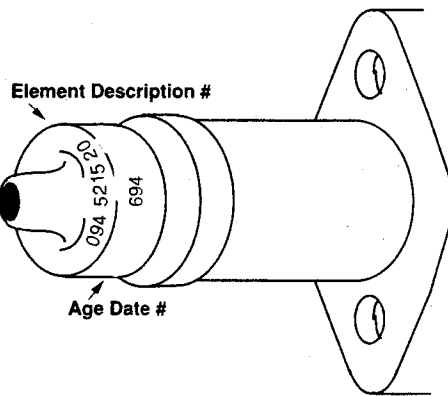
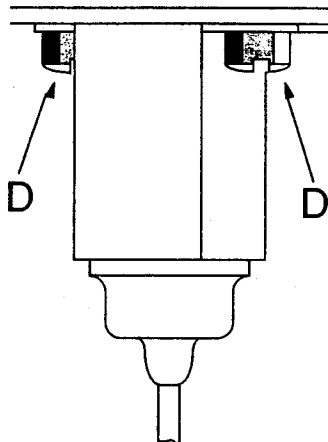


Figure 5 - Replacing Element



DIMENSIONAL DRAWING

Figure 6 - Dimensional Drawing

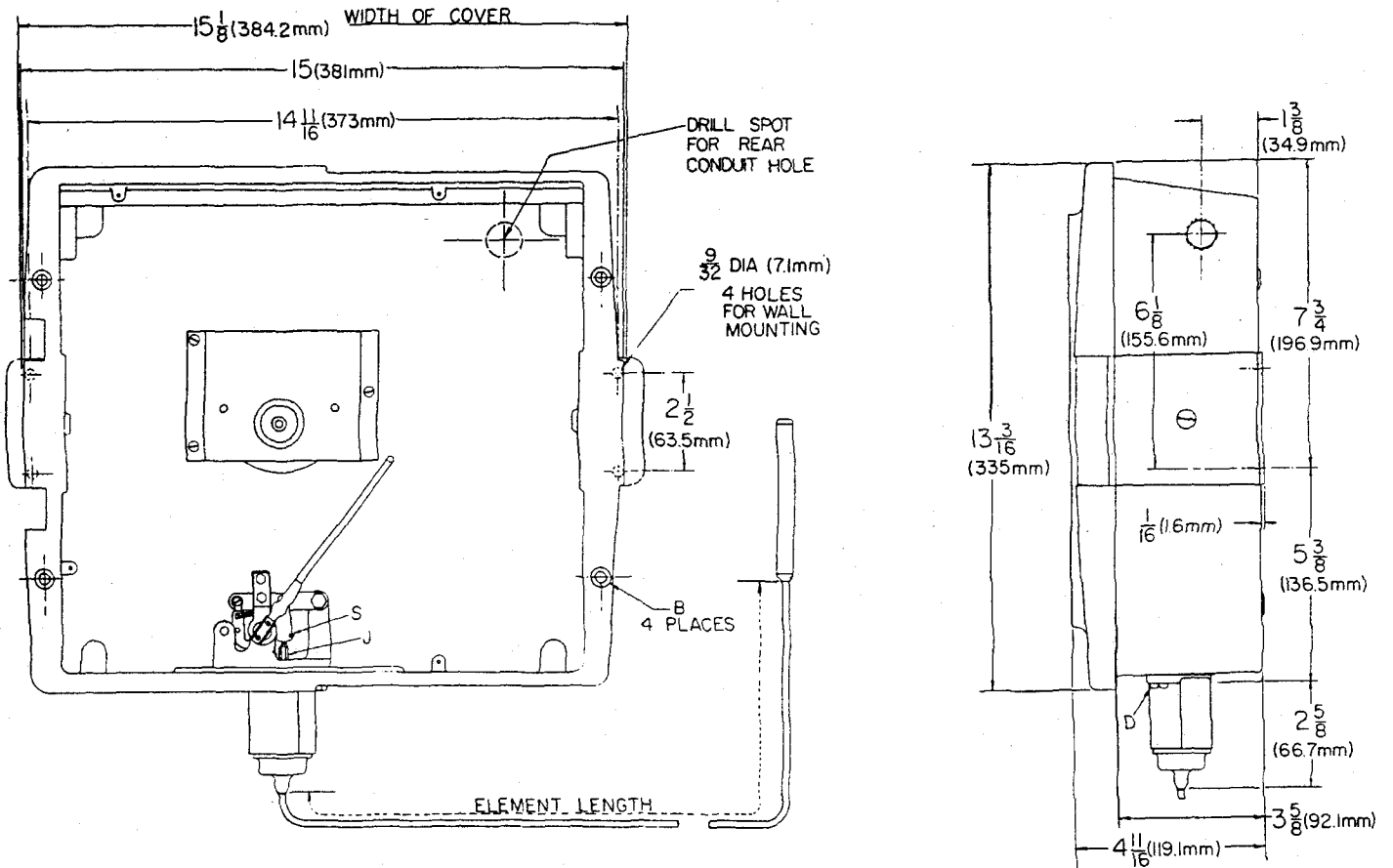
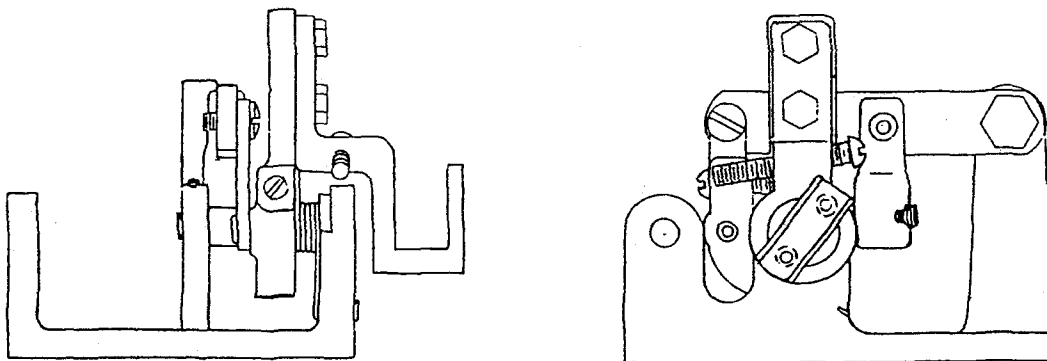


Figure 7 - Mechanism Drawing



Left Side View

Front View

EXPLODED ILLUSTRATION AND PARTS LIST

1. Case Assembly **64415101**
Includes: Case, Ground Plane, Latch Bracket, Mounting Brackets with Screws, Hinge Pins and Plates, Hub Strip Hinge

2. Cover Assembly **SP50007603**
One Piece Cover

3. Mechanism Assembly **10068505**
Includes: Push Rod, Pen Arm and Ink Cartridge

4. Main Lever Assembly **64414801**
Includes: Main Lever with Push Rod Cap, Push Rod, Set Screw

5. Pen Arm Kit **64402201**
Includes: Arm, Cartridge and Screws.
Cartridge - Red (Sold in multiples of 5) **60500403**

6. Chart Hub Name Strip (For CCW Chart Rotation) **RFS12**

7. Chart Nut and Flange Kit (Note Application)
Includes Hub Nut, Retainer Clip, Flange Assembly
For Stand Mounted Drives CCW **64415201**
For Platen Mounted Drives CCW **64415202**

For Stand Mounted Spring Mounted Drives with Turrets, only Nut and Clip are included **64415204**

8. Platen Assembly **SP10067701**
For Spring Wound or Electrical Drives, Stand or Platen Mounted

9. Chart Drive
Contact Factory for re-order. Specify Time Base, Voltage Cycle, and Stand or Platen mounted device being replaced.

10. Chart Drive Mounting Stand (Not required for Platen Mounted Drives)
Includes: Clamp Plate, Fasteners

For all Electric Stand Mounted **64415601**

For 24, 48 Hour, 7 Day Spring Wound CCW **64415602**

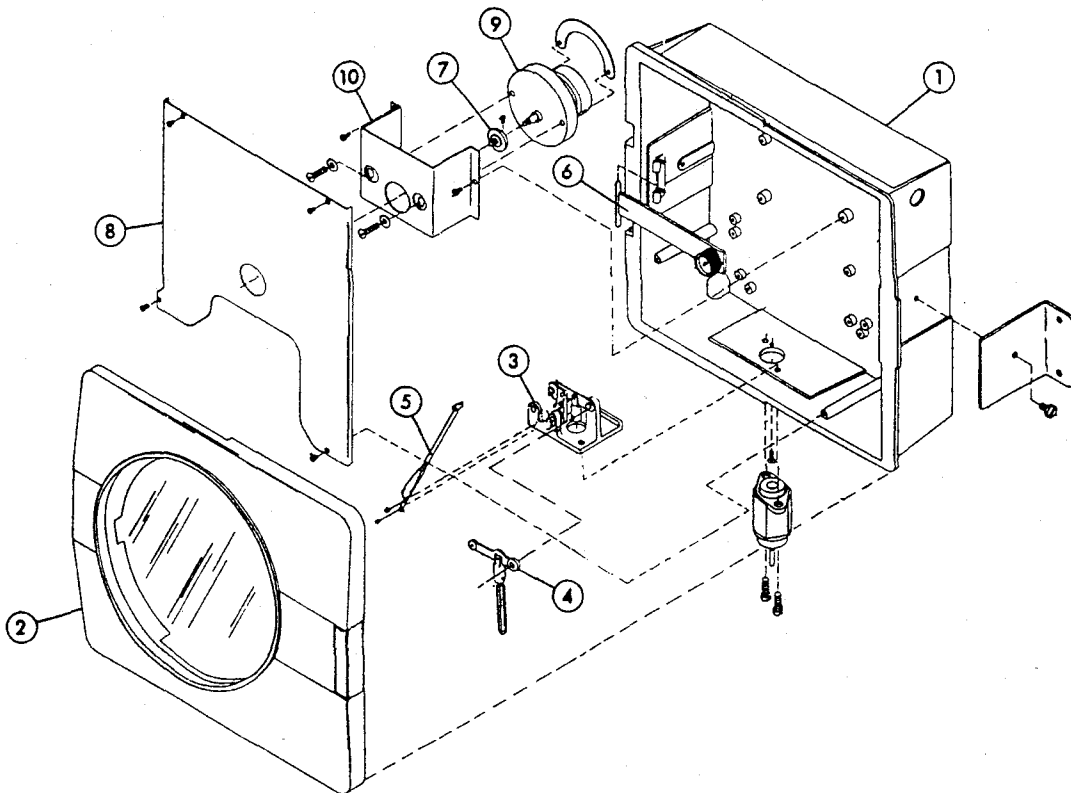
For 14, 31 Day Spring Wound CCW **64415603**

For other Spring Wound with Turret on Drive **64415604**

Not Shown

A. Terminal Block
Includes: Terminal Block, Insulators, Misc. Hardware
For 3 Positions **64415001**
For 6 Positions **64415002**
For 9 Positions **64415003**
For 12 Positions **64415004**
For 14 Positions **64415005**

B. Hardware Kit **64415701**
Includes: All Body Fasteners and Element Flange Screws (may include fasteners not required for specific models).



WARRANTY

These products are sold by The Partlow Corporation ("Partlow") under the warranties set forth in the following paragraph. Such warranties are extended only with respect to a purchase of these products, as new merchandise, directly from Partlow or from a Partlow distributor, representative or reseller, and are extended only to the first buyer thereof who purchases them other than for the purpose of resale.

These products are warranted to be free from functional defects in materials and workmanship at the time the products leave the Partlow factory, and to conform at that same time to the specifications set forth in the relevant Partlow instrumentation sheet, sheets, manual or manuals for such products.

Partlow's sole and exclusive obligation and buyer's sole and exclusive remedy under the above warranties is limited to repairing or replacing, at Partlow's option free of charge, the products which are reported in writing to Partlow at its main office - The Partlow Corporation, 2 Campion Road, New Hartford, New York 13413 or FAX MAIL 1-315-797-0403 and which if so advised by Partlow, are returned with a statement of the observed deficiency to the designated facility during normal business hours, transportation charges prepaid and which upon examination by Partlow are found not to comply with the above warranties. PARTLOW SHALL NOT BE LIABLE FOR ANY INCIDENTAL DAMAGES, CONSEQUENTIAL DAMAGES, SPECIAL DAMAGES, OR ANY OTHER DAMAGES, COSTS OR EXPENSES, EXCEPTING ONLY THE COST OR EXPENSE OF REPAIR OR REPLACEMENT AS ABOVE DESCRIBED.

THERE ARE NO EXPRESSED OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE WARRANTIES HEREIN ABOVE SET FORTH. PARTLOW MAKES NO WARRANTY OR MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCTS.



**Form Number 3020
Published April 1990
Updated March 1991**

Represented/Distributed By: