CABLE PRESSURE TELEMETRY
MODUPRINTER FOR CENTRAL CONTROL CIRCUIT
METHOD OF OPERATION

1. GENERAL

1.01 This section describes the procedures to be followed for the operation and maintenance of the moduprinter used in the central control circuit of the Cable Pressure Telemetry System.

1.02 This section is reissued to revise adjustment for paper advance and paper skew.

2. METHOD

CHAMBER RELEASE PROCEDURE

2.01 Using Fig. 1 as a guide, perform the following operations.

(1) Extract the printer assembly from its enclosure until the back plate butts against the stops. In this position, the printer can hang freely.

(2) Grasping the paper bale assembly by the rear roller bar, swing up until the assembly is latched in the up position on the side plate.

(3) Swing the front plate and chamber assembly from under the lip of the locking bar in the predetermined arc.

(4) Unlatch the paper bale assembly by depressing the spring loaded catch, allowing the paper bale assembly to drop back far enough to permit the front plate assembly to fit into the two notches in the paper bale assembly. Relock the paper bale assembly by swinging forward.

2.02 The moduprinter is now exposed for ribbon or paper change, electrical checks, and manual adjustment of digits. When the required operations have been completed, proceed as follows.

(1) Allow the paper bale assembly to drop back to its rest position.

(2) Allow the front plate and chamber assembly to fall back down so it is parallel to the front edges of the side plates.

(3) Raise the paper bale assembly and engage the lip of the front plate cutout under the lip of the locking bar.

(4) Insert the printer assembly into its enclosure.

2.03 If desired, the chamber release operations may be performed with the printer assembly totally removed from the enclosure. This is accomplished by pulling the printer assembly out to the stops at the top front of the enclosure, then swinging it up and out to clear the stops. To replace the printer assembly, this procedure is reversed.

PAPER REPLACEMENT

2.04 To replace the paper in the moduprinter, proceed as follows.

(1) With paper bale assembly up, extract the paper shaft removing old core.

(2) Reload with new roll. See Fig. 2.

(3) Check that paper roll rotates freely on shaft.

Caution: This is essential for proper paper advance.

(4) Thread paper following path shown on Fig. 2. This will be facilitated by folding the leading edge of the paper into an arrow and then creasing up 2 inches behind the tip.

(5) With the paper extending through the cutout in the front plate and held taut, allow the paper bale assembly to drop into operating position.

(6) Check that the front plate properly engages the locking bar.

(7) Push the printer assembly back into the enclosure until the rubber rollers on the paper bale assembly are inside, exerting pressure to lock up the front plate solidly.

Note: The roller bar is adjustable. Ideally, it should project over the top of the side plate 1/16 inch when free of the enclosure.

(8) With the printer assembly in this position, manually depress and release the solenoid approximately 12 times. This will cause print and advance the paper to ensure that loading was correct.

PAPER ADVANCE AND PAPER SKEW

2.05 Visually check that paper advances with adequate separation between lines. (Adequate separation is defined as the amount of space needed for legibility of the printout.) If separation is inadequate, adjust the two eccentric bearings (screw adjustment bushings) that support the paper advance roller. See Fig. 2. Adjustment must be made with constant pressure on the paper bale assembly. Paper skew is checked and adjusted in the same manner.

Note: Bearings must be adjusted relative to one another, one on each side.

RIBBON CHANGE

2.06 To change a ribbon in the moduprinter, proceed as follows.

(1) With module chamber in open, or horizontal position as shown in Fig. 1 and 3, remove bobbin retaining knobs.

(2) Swing abrasive drive wheel against the smaller diameter bobbin. In order for the larger bobbin to clear the abrasive wheel, it may be necessary to manually decrease the windings on the smaller bobbin.

(3) Swing detent away from larger bobbin and remove.

(4) With larger bobbin removed, swing abrasive drive wheel to empty side.

(5) Remove remaining bobbin in same manner.

(6) Install new ribbon reversing the procedure of the preceding steps. Thread the ribbon as shown in Fig. 3.

(7) Manually depress the ribbon actuator several times to take up slack and to ensure that new ribbon is not snagged.

(8) With front plate back in operating position, place module chamber partly back in enclosure.

(9) Depress solenoid several times observing that ribbon bobbins are advancing.

ELECTRICAL CHECKS

2.07 The requirements for the count module are:

- Operating voltage: 24-26.4 Vdc
- Maximum speed: 40 Hz
- Print wheels ON time: minimum 12 ms, maximum 1 min
- Print wheels OFF time: minimum 12 ms

Caution: Due to the extremely fast response of the count modules, the driving circuitry must be selected with care. In particular, if switch contacts are used, especially snap switches, the bounce associated with the closures must be minimized to assure that the count module does not count stray bounce as data.

2.08 The requirements for the print solenoid are:

- Voltage: 24 Vdc
- Current: 1.0 A
- Duty cycle: 25%
- Inductance: approximately 20 mH
- Minimum ON time: 80 ms
- Minimum RELEASE time: 80 ms

Note: The print solenoid is supplied with diode arc suppression to protect the input circuitry.

2.09 When the basic control is installed and wired for separate print and reset, the print command must exist for a minimum of 80 ms and must not exceed 2 seconds. The printing will darken as the print command is lengthened due to the physical transfer of ink from the ribbon to the paper. For the highest possible line rate, the solenoid need not be fully relaxed before entering further data. Allow at least 10 ms for the platen to drop away from the contact with the printing wheels.

2.10 When the basic control is installed and wired for print and reset interlock, the minimum input command should be 80 ms. The duration of complete cycle for reset which follows automatically from this closure will be for:

- 40 Hz count modules: 300 ms*
- 80 Hz count modules: 200 ms*

*Plus the duration of the print command. During this time, data or count input signals should be cut off.

2.11 When a 115 Vac-24 Vdc power supply is not built in, proper functioning of this instrument depends on an adequate power supply with a line and load regulation consistent with the voltage tolerances given for the count modules. A maximum ripple of 100 mV is also essential, especially when the basic control is installed.

2.12 When the basic control is set for automatic print and reset, power interruption will arm the differentiator so when power is restored automatic reset of stored data will result. The reset is not so triggered when the two functions are separated.

MANUAL ADJUSTMENT OF DIGITS

2.13 Digits may be manually adjusted by moving the wheels normally in the direction of the front plate.

Caution: Do not attempt to move the wheels if modules are reversed; otherwise, the count modules will be damaged.

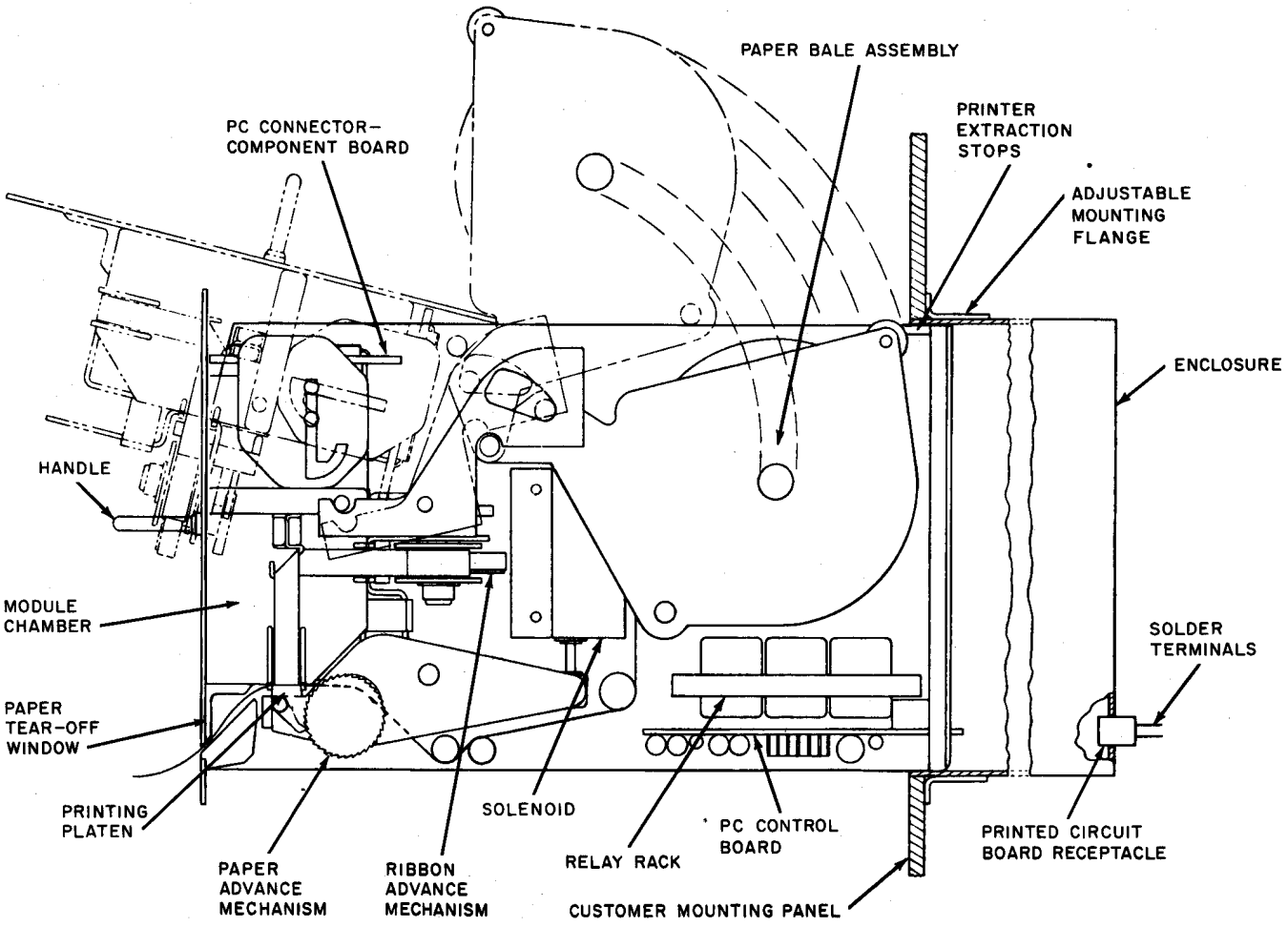

Fig. 1—Component Parts

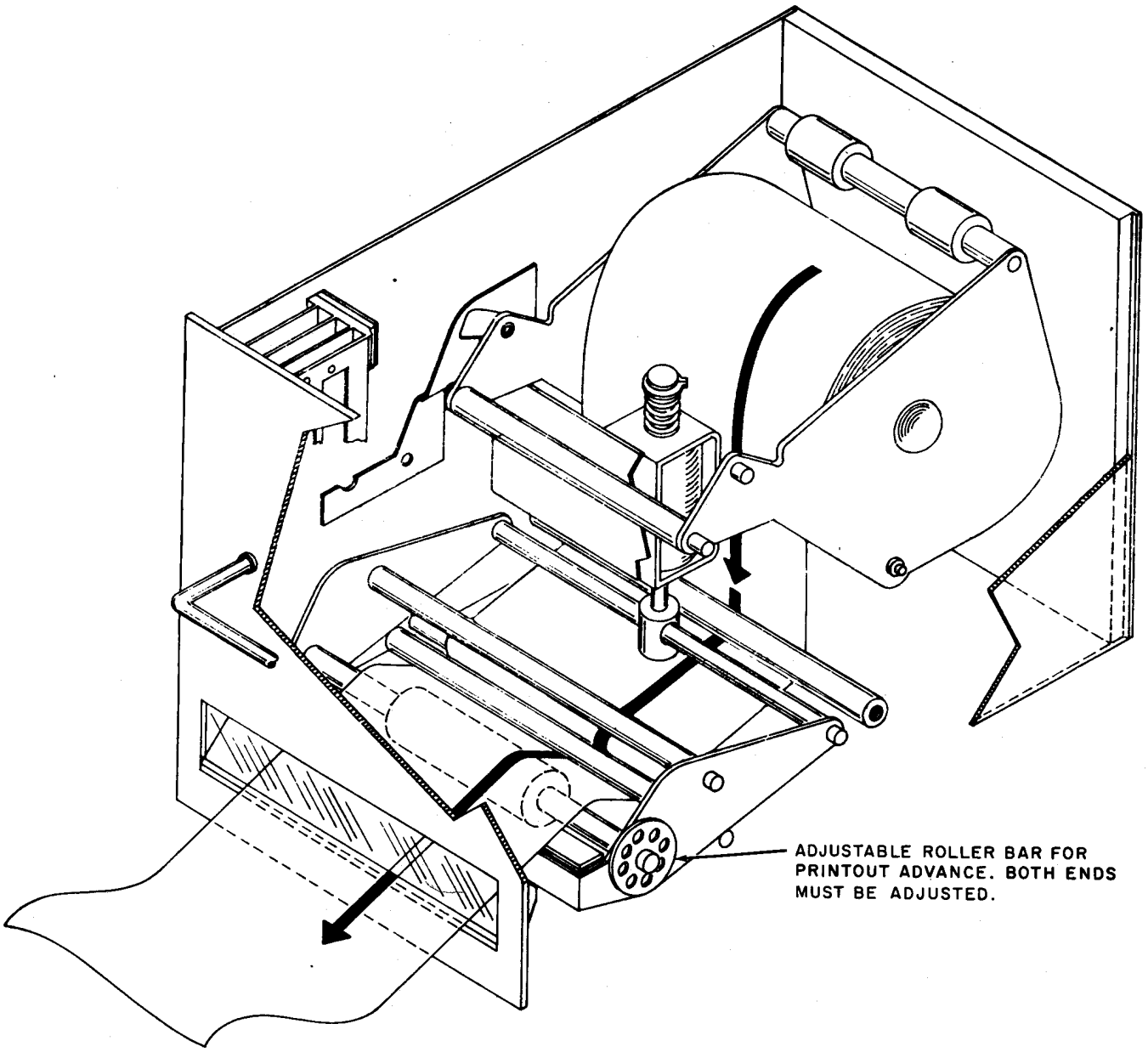

Fig. 2—Paper Path

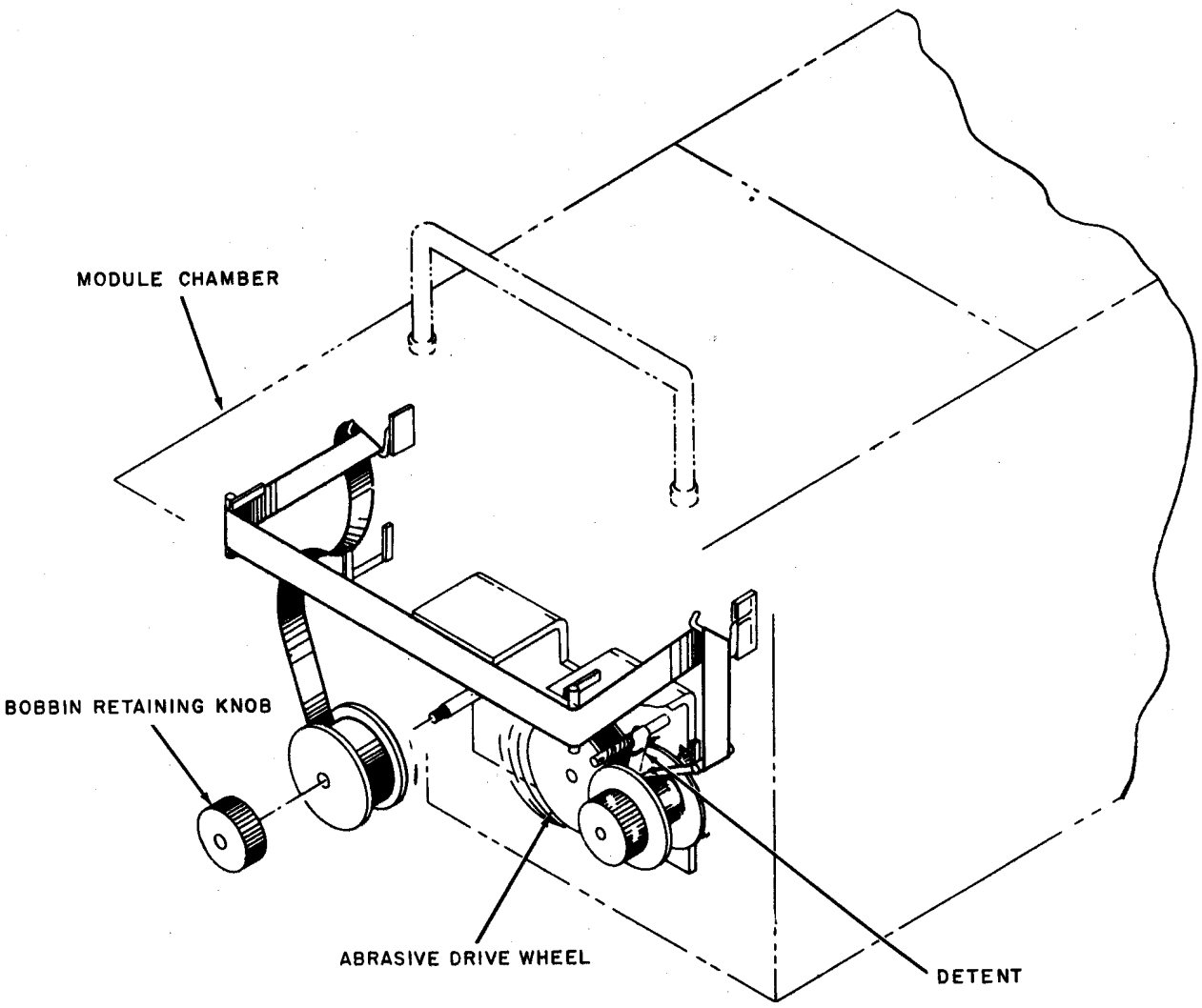

Fig. 3—Ribbon Path and Replacement