



**Operating Instructions
ACM-200
Aircraft Cable Tension Meter**

The ACM-200 is shipped calibrated and ready to use on 1/16", 3/32", 1/8", 5/32", 3/16", and 1/4" diameter aircraft cables.

Before each use:

- Verify that the serial number on the instrument and the calibration chart match, as readings may vary among instruments.
- The pointer must be resting at 0 on the dial. If the pointer is not resting at 0, the calibration should be checked.
- Check that the calibration and certification are current.

OPERATION

1. Memory lock system must be "off." To set in the "off" position push the memory lock button down fully, so that the red flag is not showing (reference Figure 1).
2. Determine the diameter of the cable to be checked. For example, in Figure 1 the cable diameter to be tested is 3/32". Refer to the calibration chart on the back of the instrument and rotate the riser so the number 2 faces you and clicks into place. This automatically aligns the back of the riser with the two flanged reference pivots.
3. Open the closure bar by gently pushing it through the handle. This raises the reference pivots.
4. With the closure bar open, engage the meter onto the cable. Position the cable under the two reference pivots and over the top of the riser. Squeeze the handle back to the "closed" position.
5. With the meter now locked onto the cable, note where the pointer is on the dial. Refer to the calibration chart on the back of the instrument and locate the column for the cable diameter size you are testing. Then find the row in this column with the number closest to the one the pointer is on.
6. Follow this row all the way to the left until you come to a number in the "TENSION IN LBS" column—this number is the true tension of the cable.
7. For example, in Figure 1 the pointer indicates "30" on the dial. Locate the number 30 in the 3/32" column. Follow this row to the "TENSION IN LBS" column where you see the number 40. Thus, in this example the true cable tension is 40 lbs.

OPERATING INSTRUCTIONS FOR ACM-200 CABLE TENSION METER

| Model ACM-200 | | Serial No. | | | | |
|----------------------------------|---------------|---|--------------|---------------|---------------|--------------|
| If Cable Size is: | 1/16" RISER 1 | 3/32" RISER 2 | 1/8" RISER 2 | 5/32" RISER 3 | 3/16" RISER 3 | 1/4" RISER 4 |
| Actual Tension on Cable in LBS = | | | | | | |
| 20 | | | | | | |
| 30 | | | | | | |
| 40 | | | | | | |
| 50 | | | | | | |
| 60 | | | | | | |
| 70 | | | | | | |
| 80 | | | | | | |
| 90 | | | | | | |
| 100 | | | | | | |
| 120 | | | | | | |
| 140 | | | | | | |
| 160 | | | | | | |
| 180 | | | | | | |
| 200 | | | | | | |
| CAL. BY: _____ | | TENSITRON, INC. | | | | |
| Date: See Cal. Sticker | | 733 S. Bowen St., Longmont, CO 80501 | | | | |
| | | TEL: (303) 792-5965 FAX: (303) 792-5982 | | | | |

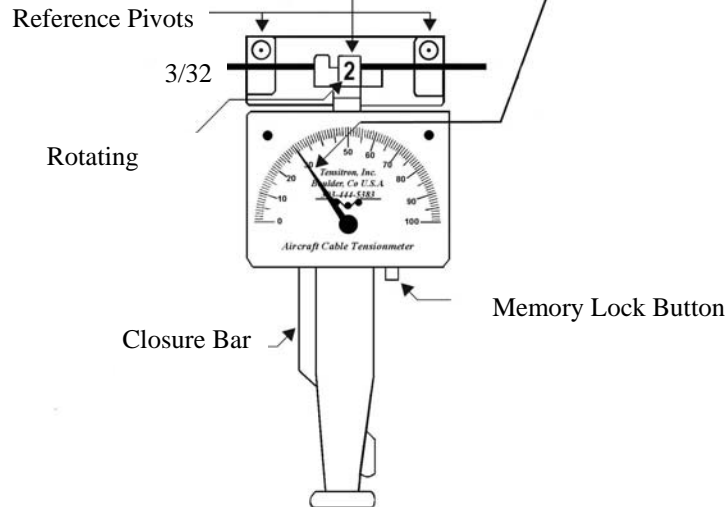


Figure 1

MEMORY/POINTER LOCK FEATURE

1. Use the memory lock to make a tension reading where the dial cannot be seen. Insert the ACM in the hidden area. Open meter and clip flanges over cable. Close meter securely. Push the memory lock button UP as far as possible, exposing the red flag. Remove the ACM from the cable and note the reading. To clear the reading and return the pointer to zero, push the memory lock button on top of the instrument fully down.
2. If the memory lock button is pushed up when meter is not in use, you may see the needle move from 1/2 to 1 1/2 dial increment lines. If the memory lock feature is used correctly very little of this motion is transferred to the actual readings taken. The full-scale accuracy will still be well within 4%.
3. Tension on aircraft cables may vary substantially with differences in temperature, stretching or manufacture. For greater accuracy it is recommended that several readings be taken at different locations on the cable and these readings averaged, to compensate for varying cable thicknesses.

When to recalibrate:

- a. Pointer does not reset at 0 with memory lock "off."
- b. Instrument has been dropped.
- c. For use on aircraft, the ACM-200 must be calibrated at intervals not to exceed 12 months.
Check that the calibration and certification are current.

RECALIBRATION

Tensitron provides immediate turnaround service(s) for its instruments needing repair and/or re-certification. All values tested are traceable to national standards and serviced instruments meet or exceed all civilian and military specifications. A certification form listing all calibration data and values is included with each instrument.

If recalibration is done in the “field”, follow the procedures below.

1. Photocopy the blank calibration chart, **Figure 2**, in preparation for gathering new values.
2. If pointer is not resting at the 0 position on the dial, unscrew the socket plug located on the bottom left of the instrument body. Using a small screwdriver, gently adjust the zero adjust screw until the pointer indicates 0. After adjustment apply torque-seal or paint to lock the screw head.
3. To simulate tension loads on cables, suspend a 5’ length of aircraft cable from overhead. Next, apply known weights to the bottom of your cable in the increments you wish to test. This type of calibration procedure is called a Dead Weight Calibration. **Note: Tension on a cable can be defined as the exact value of a suspended weight from the cable. For example, a 100 lb weight hanging freely from a cable will tension the cable to exactly 100 lbs.** Torque (in Newtons, inch lbs or foot lbs) refers to the rotational forces required to lift a known weight a predetermined distance. While torque values can be converted into tension values, **only the dead weight calibration system should be used.**
4. Determine the correct riser for the cable diameter to be tested by referring to the calibration chart. Rotate the riser so that the correct number or letter faces you and clicks into place. This automatically aligns the back of the riser with the two flanged reference pivots.
5. Insert the instrument onto the tensioned cable making certain that all three contact points (the two outer flanged reference pivots and the center riser) contact the cable.

| Model ACM-200 | | | Serial No. | | | |
|-----------------------|---|---------|------------|---------|---------|---------|
| If Cable Size is: | 1/16" | 3/32" | 1/8" | 5/32" | 3/16" | 1/4" |
| USE → | RISER 1 | RISER 2 | RISER 2 | RISER 3 | RISER 3 | RISER 4 |
| Actual Tension on | ← | ← | ← | ← | ← | ← |
| Cable in LBS = ↓ | | | | | | |
| 20 | | | | | | |
| 30 | | | | | | |
| 40 | | | | | | |
| 50 | | | | | | |
| 60 | | | | | | |
| 70 | | | | | | |
| 80 | | | | | | |
| 90 | | | | | | |
| 100 | | | | | | |
| 120 | | | | | | |
| 140 | | | | | | |
| 160 | | | | | | |
| 180 | | | | | | |
| 200 | | | | | | |
| TENSITRON, INC. | | | | | | |
| CAL. BY: | 733 S. Bowen St. - Longmont, CO 80501 | | | | | |
| Date: See Cal Sticker | TEL: (303) 702-1980 FAX: (303) 702-1982 | | | | | |

Figure 2

6. Note where the pointer is on the dial and enter the new value onto your calibration work sheet. We suggest taking several readings at different locations along your cable and averaging the results before entering the new value.
7. Repeat this process for each cable diameter and tension values, making certain that your new calibration chart has been signed, dated and attached to the instrument.
8. If tension value is considered “critical”, remove the cable from the aircraft and perform a dead weight calibration.

Note: If calibration results differ greatly from the original calibration, or if minimum or maximum values cannot be indicated on the instrument dial, return to Tensitron for service.

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