All instruments and equipment in the Firearms Unit shall be calibrated and maintained on a set schedule. Calibration and/or cleaning of equipment shall be conducted by a laboratory-approved vendor.

Maintenance and calibration records shall be maintained on all instruments and equipment. Records shall be kept in a log in the appropriate area of the Firearms Unit.

Equipment Type	Schedule
Comparison Microscopes	1, 8, 9
Stereo Microscopes	1
Balances	1, 2
Barrel/Overall Measuring Devices	2, 4
Calipers	2, 4
NIBIN Acquisition Unit	2, 9
Metric Weights Set	4, 5
Gauge Blocks	4
Indoor Range	6
Savage Range (snail trap)	10
Vertical Water Tank	6,7
Stage Micrometers	4

***** *The metric weights set is traceable to National Institute of Standards and Technology (NIST) standards.*

1. Cleaned annually by lab-approved vendor
2. Checked monthly and recorded in appropriate log book; to be done by 5th of every month
3. Out for calibration every 3 years by lab-approved vendor; sooner if damage occurs
4. Out for calibration every 5 years by lab-approved vendor; sooner if damage occurs
5. Checked annually in-house refer to GL-21
6. Surfaces in room/area cleaned for lead yearly by lab-approved vendor
7. Water changed monthly or as needed depending on use
8. Magnification checked bi-annually with stage micrometers
9. Run equipment-specific QC check when vendor upgrades software
10. Inspected and cleaned every 4 years by lab-approved vendor; sooner if damage occurs or increase in use.

Procedures for Various Checks:

<u>Balances</u>

1. For each balance, the analyst conducting the check will use the certified Metric Weights Set and weigh the 100g, 50g and 10g weights.
2. The acceptability criteria is +/- 5% of the listed weight. For reference; 100g (acceptable range: 95 - 105g), 50g (acceptable range 47.5 - 52.5g), 10g (acceptable range 9.5 – 10.5g).

Barrel/Overall Measuring Devices

1. This is performed for the purpose of collecting data for the annual uncertainty budget review.
2. Monthly, the analyst conducting the check will pull the firearms listed on the log page from the reference collection. The barrel length of each of these firearms will be measured on each PFT and then documents on the log page.
2. The expected measurement should be +/- the uncertainty measurement from the previous year's uncertainty budget for the device.

Calipers

1. The analyst conducting the check will use the caliper and measure the length of the .300", .500" and 1.000" certified gauge blocks located in the Firearms Unit.
2. The expected result should be +/- 0.005" of the length of the gauge block being measured.

NIBIN Acquisition

1. The analyst conducting the check will use the 9mm reference cartridge case located in the Firearms Unit and will acquire this cartridge case on each acquisition unit used for casework. The case number for this will be listed as Bench Test with the month and year.
2. The expected results of the correlation should show the Bench Test acquisition on the same candidate list as previously acquired bench tests.

For any of these checks, if the accepted results are not achieved, the Supervisor will be notified to determine the next steps. Until the instrument/measuring device successfully passes the check, it will not be used for casework.

References:

1. FA SOP-35 NIBIN Quality Control Check
2. FA SOP-39 Microscope Quality Control Check
3. Firearms Unit Uncertainty of Measurement Budget
4. FA QR-16 Firearms Unit Equipment List