METROLOGY BULLETIN

Measurement Science Department, Corona Division, Naval Surface Warfare Center — MAY 2006

In this issue:

King Nutronics 3613 Barometer Test Kit Safety Advisory

by Michael Doerr
(NSWC Corona, Code MS 33F)

Recently an incident occurred at an east coast calibration laboratory where a technician was using the King Nutronics model 3613 Barometer Test Kit in the vertical position to calibrate a barometer. Three pins are used to secure the pressure chamber of the 3613 to its base. These pins are not threaded and only slide into place. While increasing pressure, the technician heard the bottom pin fall out. Immediately the chamber fractured at the remaining two pinholes, allowing the Plexiglas chamber to become free from the base. Fortunately, the technician was not observing the TI indication at the time of failure and nobody was injured in this mishap.

Failure may occur if cracks or damage are present at the Plexiglas chamber pinholes. It is important to ensure that all three pins holding the chamber in place are secure prior to pressurizing the chamber.

During review of the incident, it also became clear that the relief valve normally used with the barometer test kit is not called out in the calibration procedures. The ICPs will be revised to mandate use of the pressure relief valve.

The 3613 Barometer Test Kit is used as a calibration standard in NA 17-20MP-77, 17-20MP-216, and 17-20VP-04. These procedures will be modified to mandate that the 3613-1-1 be used with relief valve (p/n 3613-8-11, refer to the manufacturers manual) installed in-line and set to 5 psig. A WARNING will be added to each of these procedures as a reminder to check that the pins are secure prior to beginning calibration. The WARNING will read as follows:

> "Inspect the Plexiglas chamber pin holes for obvious cracks or damage. Replace the chamber if obvious cracks or damage are found. Ensure that all three pins securing the test chamber are firmly in place prior to beginning calibration."

The point of contact on this issue is Michael Doerr, MS 33F, at (951) 273-5742, DSN 933-5742, or e-mail michael.doerr@navy.mil. ❖

All activities are invited to submit material of general interest to the Editor for publication. Please include your name, activity, and DSN and/or commercial phone number. Color and black and white drawings, graphs, and/or photographs will be accepted.

★ *Please circulate this Bulletin to all laboratory technicians and personnel.* ★

METROLOGY BULLETIN

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PUBLISHER — CSC/NSWC Corona Staff

For questions, comments, or suggestions concerning the Metrology Bulletin, please write to the address below:

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Naval Surface Warfare Center
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Corona, CA 92878-5000

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FAX #: DSN 933-5446, Commercial (951) 273-5446
E-mail: CRNA-METCAL@navy.mil

In This Issue...

Annual NCSL International Conference to be Held in Nashville, TN

by METBUL Staff

2006 NCSLI Workshop & Symposium
Nashville, TN August 6-10, 2006

The National Conference of Standards of Laboratories International (NCSLI) will holds it 2006 Conference at the Nashville Convention Center in Nashville, Tennessee. The conference will run from August 6 through 10, 2006. This years theme: *Metrology's Impact on Society*.

A NASCAR race can be won or lost due to minor variations in tire pressure or to fractions of an inch in vehicle height. A Nashville musician depends on the quality of sound in his electric guitar that is built from parts with exacting specifications.

Industrial metrology laboratories calibrate equipment used to determine whether a product is shipped to a customer or it must be returned for re-work. Legal Metrology programs ensure that the measurements associated with commerce are accurate and reliable.

All of these examples require a sound and cohesive metrology and quality system to be in place. Metrology practiced anywhere in the traceability chain, from the National Metrology Institute to a customer's location, affects critical decisions and improves the quality of life for everyone.

The conference will cover the following topics

Theoretical
- New or Improved Standards and Capabilities
- Measurement Uncertainties (GUM; Bayesian)
- Intrinsic Standards
- Advances in Measurement Disciplines
- Traceability Issues
- Standards & Calibrations at National Metrology Institutes

Applied
- Laboratory Automation
- Calibration Processes or Procedures
- Improvements or New Trends in Instrumentation
- Interlaboratory Comparisons
- Metrology applications in industry, government, Telecommunications, automotive, chemistry, space, and other specialized disciplines

Management/Quality
- ISO & ANSI Standards (ISO 900x, ISO/IEC 17025, ISO 17011, Z540-1, Z540-2, etc.)
- Metrology Management Information Systems
- Equipment Management
- Laboratory Accreditation and Quality Processes
- Metrology Education and Training
- National & Regional Measurement Systems

For more information on registration, a preview of this year's technical papers and sessions, or general information on the NCSLI Conference and organization, please visit their website at www.ncsli.org. ❖

Lab Safety Practices with Fluke Calibrators

by Chuck Quinn
(NSWC Corona, Code MS 31L)

Safe Use of the 5700A/5500A series Multimeter/Multifunction Calibrators is tantamount as these devices can output high voltages and currents, especially when used with the 5725A amplifier. Many Instrument Calibration Procedures and user practices are to use the OPR/STBY (operate/standby) key to turn off the output. That is an acceptable practice if the connections are not to be removed. However, when one is going to connect/remove the leads from the output connectors the safest method is press the RESET key.

The OPR/STBY key is located near the output jacks. If one were to bump the OPR/STBY key when connecting/removing connections they could turn on the output while they are exposing the leads and that could lead to electric shock. Many procedures have the technician increase the output of the calibrators (1V, 10V, 100V, then 1000V). This is good practice when an item is connected allowing you to approach higher outputs from a low level. Many times this leaves the calibrator ready to output at high levels. One accidental bump could lead to a possible life hazard shock. Good practice is to always use the RESET key to set these calibrators to a minimum output before connecting/disconnecting leads.

As we revise old procedures and write new procedures we will call for use the RESET key when connections are connected/removed.

The point of contact on this issue is Chuck Quinn, MS 31L, at (951) 273-5385, DSN 933-5385, or e-mail charles.quinn@navy.mil. ❖

Peak Power Meter Capability

By Bruce Bluteau
NAWCAD Pax

The Hewlett-Packard (Agilent) 8991AOPT003 Peak Power Analyzer with the 84812A and 84815A Peak Power Sensors are standards utilized at Depot and Field Calibration Activities for the calibration support of NAVAIR related RADAR, TACAN, IFF, and commercial test equipment. Laboratories have been experiencing high incidences of failures with the peak power sensors, and since many of these sensors are no longer procurable, inventory shortages and loss of capability have become a concern. The Hewlett-Packard (Agilent) 8991AOPT003 Peak Power Analyzer and associated peak power sensors are no longer procurable. Guaranteed support for these items has also expired; however, Agilent will continue to repair items as long as spare parts are available.

The NAVAIR METCAL program has determined that the peak power sensors being used with the 8991AOPT003 are being damaged due to excessive RF power. The sensors used with the 8991AOPT003 are capable of handling average RF power levels up to 23 dBm (200 mW). The program is implementing a 3-year sustainment plan to help extend the service life of the units until a replacement for the peak power meter and sensors can be identified. The sustainment plan consists of:

1. Returning all damaged peak power sensors for repair as soon as possible.
2. Deploying the 84813A with a type N(m) adapter attached.
3. Adding CAUTION statements to Instrument Calibration Procedures (ICPs) that list equipment in Section 2 that are capable of damaging the sensors.

NAVAIR FCA and Depot activities having any damaged 84812A and 84815A peak power sensors in their inventory should contact the NAVAIR METCAL Calibration Standards Manager for disposition instructions.

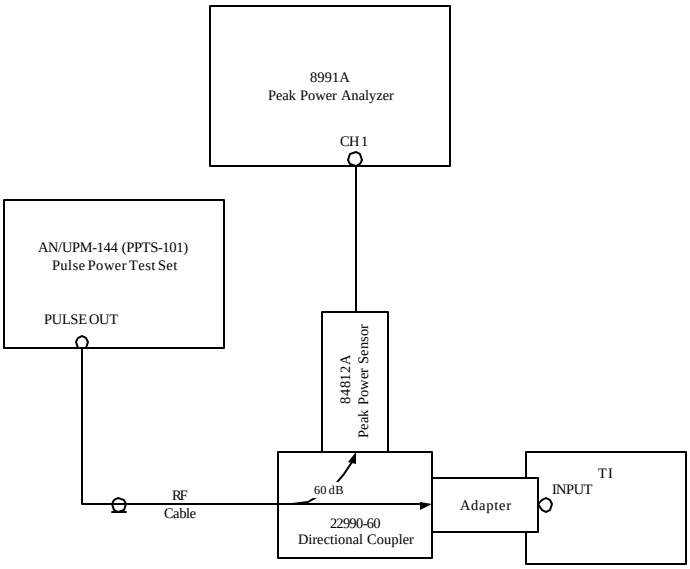
Mark Schlickbernd
NAVAIR Calibration Standards Oversight Manager
(301) 757-9155
mark.schlickbernd@navy.mil

The program procured the 8991AOPT003 with three sensor types; the 84812A, 84813A and 84815A. However, the 84813A was never deployed to the labs due to the lack of a frequency requirement above 18 GHz. The 84813A sensor is now going to be deployed with an N(m) adapter mounted to it. The peak power sensor with the adapter will be listed in the NCE as the 84813AOPTN and will be a substitute for the 84812A Peak Power Sensor. The 84813AOPTN can be utilized in any ICP that utilizes the 84812A. The 84813AOPTN will be listed in the METRL with the support ICPs for the 84812A. The METRL will instruct technicians to special calibrate the 84813AOPTN to the specifications of the 84812A.

CAUTION statements will be added to ICPs as they enter the ICP process for CPRs, Modernization, Add TI, and etc... Many of the ICPs are already in the process of being updated.

Many of the applications in which the peak power sensors are utilized require pulsed RF high power sources, for example the Republic Electronics AN/UPM-144 (PPTS-101) Pulse Power Test Set and the Unique Broadband Systems 2770 Pulsed RF Calibration Source. RF output power from these sources can exceed the damage level of the peak power sensors.

When the sensors are used with these high power sources, the RF power to the sensor is attenuated by the use of a characterized directional coupler or attenuator; consequently, protecting the sensor from an overload condition. The following generic diagram illustrates typical use of the peak power analyzer and sensor in NAVAIR ICPs.



In the test configuration above, the output coupling factor of the directional coupler is characterized at the test frequency to minimize the error contribution of the coupler. The EXTERNAL LOSS setting of the 8991AOPT003 would then be set to the characterized value so that the value displayed takes the coupling factor into consideration.

Measurement examples:

1. Suppose verification of the TIs pulsed RF power accuracy at 63.0 dBm (approximately 2000 W) at a frequency of 1 GHz is required, and the output coupling factor of the directional coupler was determined to be 60.0 dB at 1 GHz.

(Continued on page 5)

(Continued from page 4)

If the RF power output of the pulse power test set is adjusted for a TI indication of 63.0 dBm and the output coupling factor of the directional coupler is 60.0 dB, the actual power applied to the sensor input is 3 dBm (approximately 2 mW) as determined by the equation: TI indication – coupling factor = power @ sensor. 63 dB – 60 dB = 3 DBm. This level is well below the sensor damage level of 23 dBm (approximately 200 mW).

If you were to perform the same test with a 20 dB directional coupler with an output coupling factor of 20.0 dB, the pulsed RF power momentarily felt at the sensor diode input will be 43.0 dBm (approximately 20 W) this would definitely result in damage to the sensor. 63 dBm – 20 dB = 43 dBm.

In general, it is advisable to be aware of the potential for damage to standards or TIs in any test configuration. Follow the methodology exactly as written in the ICP.

Here are some tips to help prevent peak power sensor damage.

1. **Never** directly connect a peak power sensor input to the PULSE OUT of the Republic AN/UPM-144 (PPTS-101) Pulse Power Test Set.
2. **Never** directly connect a peak power sensor input to the HIGH POWER OUTPUT of the Unique Broadband Systems 2770 Pulsed RF Calibration Source.
3. **Never** use a directional coupler or attenuator that has an attenuation value less than the one specified in the ICP.
4. **Always** be mindful of the power level that is being applied to the peak power sensor input. Never apply a power level to the sensor above 20 dBm (approximately 100 mW). This value is 3 dB below the damage level giving added protection against overload.
5. Set RF power to OFF or STANDBY when connecting or disconnecting the peak power sensor from the test configuration.
6. If the signal being measured has a narrow pulse width, it may be difficult to see the 8991OPT003 display at long TIME BASE settings. Under the DISPLAY menu, set the CONNECT DOTS feature to ON and under the TIME BASE menu, set the TIME-BASE to 500 ns/div this will help determine if a signal is present.
7. If an ICP provides direction that puts a peak power sensor at risk for damage, contact Bruce Bluteau at (301) 342-7548 or e-mail bruce.bluteau@navy.mil, then document a Calibration Problem Report (CPR) against the ICP.

For any questions concerning this article, contact Bruce Bluteau at (301) 342-7548 or e-mail bruce.bluteau@navy.mil. ❖

New and Revised Calibration Procedures

by Jeff Walden
(NSWC Corona, Code MS 30)

A list of new and revised calibration procedures and guides issued since the previous issue of METBUL, is provided in Enclosure (3). ❖

Calendar of Upcoming Events

by METBUL Staff

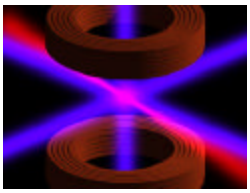
August 2006

06—10	**NCSL International— Serving the World of Measurement** Nashville, TN http://www.ncsli.org ❖

Experimental Atomic Clock Uses Ytterbium "Pancakes"

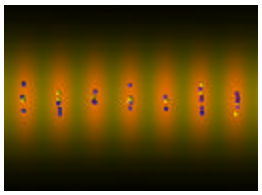
NIST Tech Beat
March 6, 2006

Scientists at the National Institute of Standards and Technology (NIST) working with Russian colleagues have significantly improved the design of optical atomic clocks that hold thousands of atoms in a lattice made of intersecting laser beams. The design, in which ytterbium atoms oscillate or "tick" at optical frequencies, has the potential to be more stable and accurate than today's best time standards, which are based on microwaves at much lower frequencies. More accurate time standards could improve communications, enhance navigation systems, and enable new tests of physical theories, among other applications.



NIST's new optical atomic clock uses two magnetic coils (red rings) and an optical lattice (red laser beam), as well as intersecting violet lasers to cool ytterbium atoms, slowing their motion.

Described in two papers in the March 3 issue of *Physical Review Letters*,* the heart of the clock consists of about 1,000 pancake-shaped wells made of laser light and arranged in a single line, each containing about 10 atoms of the heavy metal ytterbium. The lattice design results in fewer systematic errors than optical atomic clocks using moving balls of cold atoms, and also offers advantages in parallel processing over other approaches using single charged atoms (ions). The optical lattice, created by an intense near-visible laser beam, is loaded by first slowing down the atoms with violet laser light and then using green laser light to further cool the atoms so that they can be captured. Scientists detect the atoms' "ticks" (518 quadrillion per second) by bathing them in yellow light at slightly different frequencies until they find the exact "resonant" frequency (or color) that the atoms absorb best.



The lattice of laser beams traps small numbers of ytterbium atoms in pancake-shaped "wells." A yellow laser excites the atoms so that they switch between lower (blue) and higher (yellow) energy levels.

Illustration credit: NIST

Previous lattice-based clocks have used atoms with odd-numbered atomic masses, which have a nuclear magnetic field that causes some additional complications. The new clock uses atoms with even-numbered atomic masses that have no net nuclear magnetic field but have been difficult to use in atomic clocks until now. The researchers found they could apply a small external magnetic field combined with yellow laser light to induce an otherwise "forbidden" oscillation between two energy levels in the atoms. The team reported an extremely precise resonance frequency with a strong signal that demonstrates the clock's potential for very high stability. The new approach is also applicable to other atoms with even-numbered atomic masses, such as strontium and calcium, which are under study at NIST and other research laboratories around the world.

The Russian guest researchers are affiliated with the Institute of Laser Physics of the Siberian Branch of the Russian Academy of Sciences and Novosibirsk State University, both in Novosibirsk, Russia. The work was supported in part by the National Research Council and Russian Fund for Basic Research.

* Z.W. Barber, C.W. Hoyt, C.W. Oates, L. Hollberg, A.V. Taichenachev and V. I. Yudin. 2006. Direct excitation of the forbidden clock transition in neutral 174Yb atoms confined to an optical lattice. *Physical Review Letters*. March 3.

** A.V. Taichenachev, V.I. Yudin, C.W. Oates, C.W. Hoyt, Z.W. Barber and L. Hollberg. Magnetic field-induced spectroscopy of forbidden optical transitions with application to lattice-based optical atomic clocks. *Physical Review Letters*. March 3. ❖

Requests for Measurement Science Department Publications

NOTE: Requests should not be ordered via MILSTRIP, as NSWC COR does not have the capability to process electronically transmitted MILSTRIP orders.

Requests for documentation and software listed in METRL or METPRO, and produced by the Measurement Science Department, should be directed to the appropriate NSWC Corona point of contact (POC) as indicated below. Requests may be submitted by correspondence to:

Commanding Officer
Corona Division (Attn: Name/Code)
Naval Surface Warfare Center
P.O. Box 5000
Corona, CA 92878-5000

Or call the NSWC Corona POC at the number listed below. Phone calls should be reserved for requests of an urgent nature.

- NAVAIR
  Sean Shehee, MS 11M
  (951) 273-4808
  DSN 933-4808
  sean.shehee@navy.mil
- NAVSEA
  Kathy A. Ingenhousz,, MS 22C
  (951) 273-5361
  DSN 933-5361
  kathleen.ingenhousz@navy.mil
- USMC Ground Systems
  Maxie A. Perdue, MS 13
  (951) 273-5764
  DSN 933-5764
  maxie.perdue@navy.mil
- SSP
  Eric D. Steele, MS 12F
  (951) 273-5750
  DSN 933-5750
  eric.d.steele@navy.mil
- FMS
  LaRon A. Scott, MS 14G
  (951) 273-5760
  DSN 933-5760
  laron.scott@navy.mil ❖

Changes to ICPs to Accommodate New Model Numbers

by Jeff Walden
(NSWC Corona, Code MS 30)

As test instruments (TIs) are identified, their calibration procedure requirements are analyzed. Many newly identified TIs can be calibrated utilizing an existing Instrument Calibration Procedure (ICP) without any changes required to the ICP. These TIs are listed in METRL with the approved ICP. The ICP will not be modified to add the new TI until it is revised for some other reason. Enclosure (1) is a listing of ICPs for which TIs have been added since the last issue of METBUL. ❖

Additions to METRL

by Jeff Walden
(NSWC Corona, Code MS 30)

As requirements become known, new Test Instruments (TIs) which require calibration are identified. The calibration requirements for these items are analyzed and calibration intervals are established. The data is then entered into the METRL database and will appear in the next published issue of METRL. Enclosure (2) is a listing of TIs which have been added since the last issue of METBUL. ❖

Instrument Calibration Procedure (ICP) Cancellations and Supersessions

by Julie Cunavelis
(NSWC Corona, Code MS 30B)

The following ICPs were cancelled or superseded during April 2006. Removal of these ICPs from the Metrology Requirements List (METRL), Section 4, resulted in changes to METPRO produced by the Measurement Science Directorate.

The point of contact on this issue is Julie Cunavelis, MS 30B, at (951) 273-4758, DSN 933-4758, or e-mail julie.cunavelis@navy.mil.

SUPERSEDED

ICP #	Workload	New ICP #
17-20AX-544L	General Electric 21C4114G6001, 21C4114G002, or 21C4114G003	17-20AX-544

CANCELLED

ICP #	Workload
17-20MX-213	LUCAS YDA320
17-20SX-150	Electric Power Equipment Company 93-164

❖

Navy METCAL Labels & Tags

by Jeff Davis
(NSWC Corona, Code MS 43)

Enclosure (5) provides ordering information for requisitioning Navy METCAL Labels and Tags. All orders should be coordinated through your local supply office.

Labels and Tags can be requisitioned via the internet by going to the "Navy Forms On-line" website at http://forms.daps.mil. Users can also determine the availability of Labels and Tags, as well as check on the status of previously placed orders at this same website.

The NSWC COR point of contact for issues relating to Labels and Tags is Jeff Davis, MS 43, DSN 933-5103, commercial (951) 273-5103, or e-mail jeffrey.a.davis1@.navy.mil. ❖

ICP Changes Resulting from CPR/ CTFR Submissions

by Sean Shehee (NSWC Corona, Code MS 11M), Keena Mancini (NSWC Corona, Code MS 22H), Lars Poling (NSWC Corona, Code MS 13J), Eric Steele (NSWC Corona, Code MS 12F) and LaRon Scott, (NSWC Corona, Code MS 14G)

The following is a list of Instrument Calibration Procedures (ICPs) that were published to incorporate corrections identified by Calibration Problem Reports (CPRs) or Calibration Trouble and Failure Reports (CTFRs).

Thank you for your participation in the CPR/CTFR program. The points of contact on this issue are:

- NAVAIR
  Sean Shehee, MS 11M
  (951) 273-4808
  DSN 933-4808
  sean.shehee@navy.mil
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  (951) 273-4340
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- USMC Ground Systems
  Lars Poling, MS 13J
  (951) 273-5459
  DSN 933-5459
  lars.poling@navy.mil
- SSP
  Eric Steele, MS 12F
  (951) 273-5750
  DSN 933-5750
  eric.d.steele@navy.mil
- FMS
  LaRon Scott, MS 14G
  (951) 273-5760
  DSN 933-5760
  laron.scott@navy.mil

ICP NUMBER	SPONSOR	CPR/CTFR
17-20AE-88	NAVSEA	OHA050653
17-20AG-483	NAVAIR	AKI051098
	NAVAIR	SDB051127
	NAVSEA	KBS050809
17-20AH-06	NAVAIR	CPB051283
17-20AH-79	NAVSEA	MAR051162
	SP	8663472
17-20AQ-110	NAVAIR	JFB050543
17-20AQ-116	NAVSEA	OBL960007
17-20AQ-158	SP	8661405
17-20AQ-412	SP	8663246
17-20AR-81	NAVAIR	SDP050043
	NAVSEA	OES050754
	SP	8623765
	SP	8663185
17-20AW-405	NAVAIR	JFB041067
	NAVAIR	PRL021128
	NAVAIR	PRL031647
17-20AW-424	NAVSEA	OHA050633
17-20AX-223	NAVAIR	PRL041216
	NAVAIR	PRL050302
17-20AX-320	NAVAIR	MAR051083
	NAVAIR	PCQ050166
17-20AX-544	NAVAIR	MAR051001
17-20AX-718	NAVAIR	MAR041595
	NAVAIR	MAR050211
17-20AX-832	NAVAIR	MAR051130
	NAVAIR	MAR060314
17-20AX-902	NAVAIR	DLQ050852
17-20GG-103	NAVAIR	MAR051131
	NAVSEA	MAR060286
17-20GG-127	USMC	TCM4699
17-20GW-57	NAVAIR	SDP050028
17-20GX-07	NAVAIR	AKL041885
	NAVAIR	BDQ060518
	NAVAIR	CPQ021020
	NAVAIR	MCC031000
	NAVAIR	QCQ050289
	NAVAIR	QLQ040929
17-20MD-142	SP	8664224
17-20ML-05	NAVSEA	KBS012127
	NAVSEA	KBS022442
	NAVSEA	KBS030224
17-20SX-91	NAVAIR	QLQ032105
	NAVAIR	QLQ041359
17-50A121	NAVAIR	NOL051272
CF-AE-003	USMC	AAM4972
CF-AN-002	USMC	TIM4857
CF-AQ-009	USMC	TBM4585
	USMC	TGM4948
CF-GG-001	USMC	TKM4957
CF-GG-002	USMC	TMC4699 ❖

Significant Calibration Interval Changes

by Dr. Dennis Jackson
(NSWC Corona, Code MS 40)

We continually review accumulated calibration data and, when supported by adequate statistical evidence, adjust the calibration interval of applicable test instruments. These changes are then published in METRL. In order to take advantage of the calibration cost savings possible when calibration intervals are significantly extended, and to avoid reliability problems when calibration intervals are significantly reduced, advance information of such extensions and reductions is reported in the Metrology Bulletin prior to publication in METRL. The same method is used when a particular instrument is reclassified from periodic calibration to No Calibration Required (NCR) and vice versa. NAVAIR activities shall implement interval changes issued by NSWC COR upon receipt, in accordance with COMNAVAIRFORINST 4790.2, Volume V, Chapter 19.5 and NAVAIR METCAL Program policy. Non-NAVAIR activities may want to change the recall date for such instruments already serviced by forwarding a replacement calibration label, which reflects the new submission date, to the customer activity. Each label should indicate the serial number of the individual instrument involved to ensure the integrity of labeling. If this procedure is not practicable, initiate the use of the adjusted interval at the time of resubmission.

Significant calibration interval change is defined as:

1. An extension of more than 25 percent
2. A decrease of more than 25 percent
3. A change from an interval or SR to NCR
4. A change from NCR to an interval or SR

A list of instruments that have had recent significant calibration interval revisions is provided in Enclosure (4). ❖

CHANGES TO ICPS TO ACCOMMODATE NEW MODEL NUMBERS

MODEL NUMBER	CAGE	DESCRIPTION	PROCEDURE
14200000	95750	INTERROGATOR T/S	17-20GX-116
REMARKS: SAME AS ANAPM349 (95750)			
6299AOPT009	28480	REGULATED DC POWER SUPPLY	17-20AH- 06
REMARKS: SAME AS 6299A (28480)			
8160A	28480	PROGRAMMABLE PULSE GENERATOR	17-20AG-555
8160AOPT001	28480	PROGRAMMABLE PULSE GENERATOR	17-20AG-555
8160AOPT020	28480	PROGRAMMABLE PULSE GENERATOR	17-20AG-555
93-1064	1DF57	AGRS	CF-SX-002
ANAPM349	95750	INTERROGATOR T/S	17-20GX-116
REMARKS: SAME AS 14200000 (95750)			
PM3000A	U6152	POWER ANALYZER	17-20AQ-433
TA140-144	31991	DC AMPLIFIER UNIT	17-20AW-442
TA220-3608	31991	DIGITAL OSCILLOGRAPHIC RECORDER	17-20AW-442
YDA320	31147	NOZZLE TESTMASTER-2	CF-MX-003

ADDITIONS TO METRL

MODEL NUMBER	CAGE	DESCRIPTION	INT
05-0009-9400	60998	MANDREL MICROMETER	31
REMARKS: TOL: +/- 0.001"			
0955-0098	62331	COAX DIRECTIONAL COUPLER	36
10010-10	31597	COAX DIRECTIONAL COUPLER	36
1003LDFE	08194	BI-DIRECTIONAL TORQUE WRENCH	12
REMARKS: TOL: +/- 4% IV CW 6% CCW			
112133	00341	COAX DIRECTIONAL COUPLER	36
11826276	19200	MUZZLE BREECH BORE GAGE	24
REMARKS: CAL @ NSWC CORONA "WPP" CAL LAB ONLY			
SHIP TO: COMMANDING OFFICER ATTN; NAVY STANDARDS LABORATORY BLD. 575, RECEIVING OFFICER CORONA DIVISION, NAVAL SURFACE WARFARE CENTER 2300 FIFTH STREET NORCO, CA. 92860-9154 PHONE: (951) 273-4604 DSN: 933-4604			
NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151			
123GT10182	26512	TEST FIXTURE	24
12598M2663	12598	COAX DIRECTIONAL COUPLER	36
13000883	19200	FEEDER SPACING GAGE	12
REMARKS: CAL @ NSWC CORONA "WPP" CAL LAB ONLY			
SHIP TO: COMMANDING OFFICER ATTN; NAVY STANDARDS LABORATORY BLD. 575, RECEIVING OFFICER CORONA DIVISION, NAVAL SURFACE WARFARE CENTER 2300 FIFTH STREET NORCO, CA. 92860-9154 PHONE: (951) 273-4604 DSN: 933-4604			
NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151			
1324AS275	99899	DIRECTIONAL COUPLER	36
13285268	U1902	PRESSURE GAGE	24
REMARKS: TOL: +/- 2% FS			
13285269	U1902	PRESSURE GAGE	24
REMARKS: TOL: +/- 2% FS			
138-645A	49374	MEASUREMENT ACCESSORY KIT	SR
1395AS1561	30003	MAIN CAM GAGE	12
REMARKS: CAL @ NSWC CORONA "WPP" CAL LAB ONLY			
SHIP TO: COMMANDING OFFICER ATTN; NAVY STANDARDS LABORATORY BLD. 575, RECEIVING OFFICER CORONA DIVISION, NAVAL SURFACE WARFARE CENTER 2300 FIFTH STREET NORCO, CA. 92860-9154 PHONE: (951) 273-4604 DSN: 933-4604			
NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151			
1395AS555	30003	CHECK FIXTURE CONVEYOR	12
REMARKS: SAME AS 1395AS555 (05606) AL @ NSWC CORONA "WPP" CAL LAB ONLY.			

ADDITIONS TO METRL

MODEL NUMBER	CAGE	DESCRIPTION	INT

SHIP TO:
COMMANDING OFFICER
ATTN; NAVY STANDARDS LABORATORY
BLD. 575, RECEIVING OFFICER
CORONA DIVISION, NAVAL SURFACE WARFARE CENTER
2300 FIFTH STREET
NORCO, CA. 92860-9154
PHONE: (951) 273-4604 DSN: 933-4604

NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL
TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151

1395AS565 30003 CK FIXTURE SPROCKET UP/LOW 12
REMARKS: SAME AS 1395AS565 (05606)
CAL @ NSWC CORONA "WPP" CAL LAB ONLY

SHIP TO:
COMMANDING OFFICER
ATTN; NAVY STANDARDS LABORATORY
BLD. 575, RECEIVING OFFICER
CORONA DIVISION, NAVAL SURFACE WARFARE CENTER
2300 FIFTH STREET
NORCO, CA. 92860-9154
PHONE: (951) 273-4604 DSN: 933-4604

NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL
TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151

1395AS569 30003 CK FIX APROCKET ACCESS 12
REMARKS: SAME AS 1395AS569 (05606)
CAL @ NSWC CORONA "WPP" CAL LAB ONLY

SHIP TO:
COMMANDING OFFICER
ATTN; NAVY STANDARDS LABORATORY
BLD. 575, RECEIVING OFFICER
CORONA DIVISION, NAVAL SURFACE WARFARE CENTER
2300 FIFTH STREET
NORCO, CA. 92860-9154
PHONE: (951) 273-4604 DSN: 933-4604

NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL
TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151

1395AS620 30003 CK FIX SPROCKET PIN 12
REMARKS: SAME AS 1395AS620 (05606)
CAL @ NSWC CORONA "WPP" CAL LAB ONLY

SHIP TO:
COMMANDING OFFICER
ATTN; NAVY STANDARDS LABORATORY
BLD. 575, RECEIVING OFFICER
CORONA DIVISION, NAVAL SURFACE WARFARE CENTER
2300 FIFTH STREET
NORCO, CA. 92860-9154
PHONE: (951) 273-4604 DSN: 933-4604

NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL
TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151

1395AS624 30003 CHECKING FIX SPROCKET CONVEYOR 12
REMARKS: SAME AS 1395AS624 (05606)
CAL @ NSWC CORONA "WPP" CAL LAB ONLY

ADDITIONS TO METRL

MODEL NUMBER	CAGE	DESCRIPTION	INT
SHIP TO: COMMANDING OFFICER ATTN; NAVY STANDARDS LABORATORY BLD. 575, RECEIVING OFFICER CORONA DIVISION, NAVAL SURFACE WARFARE CENTER 2300 FIFTH STREET NORCO, CA. 92860-9154 PHONE: (951) 273-4604 DSN: 933-4604 NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151			
1395AS628	30003	CK FIX SPROCKET LOAD/UNLOAD	12
REMARKS: SAME AS 1395AS628 (05606) CAL @ NSWC CORONA "WPP" CAL LAB ONLY			
SHIP TO: COMMANDING OFFICER ATTN; NAVY STANDARDS LABORATORY BLD. 575, RECEIVING OFFICER CORONA DIVISION, NAVAL SURFACE WARFARE CENTER 2300 FIFTH STREET NORCO, CA. 92860-9154 PHONE: (951) 273-4604 DSN: 933-4604 NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151			
1395AS667	30003	TRANSFER/TURNAROUND UNIT	12
REMARKS: SAME AS 1395AS667 (05606) CAL @ NSWC CORONA "WPP" CAL LAB ONLY			
SHIP TO: COMMANDING OFFICER ATTN; NAVY STANDARDS LABORATORY BLD. 575, RECEIVING OFFICER CORONA DIVISION, NAVAL SURFACE WARFARE CENTER 2300 FIFTH STREET NORCO, CA. 92860-9154 PHONE: (951) 273-4604 DSN: 933-4604 NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151			
1395AS673	30003	CK FIX AMMUNITION CONVEYOR	12
REMARKS: SAME AS 1395AS673 (05606) CAL @ NSWC CORONA "WPP" CAL LAB ONLY			
SHIP TO: COMMANDING OFFICER ATTN; NAVY STANDARDS LABORATORY BLD. 575, RECEIVING OFFICER CORONA DIVISION, NAVAL SURFACE WARFARE CENTER 2300 FIFTH STREET NORCO, CA. 92860-9154 PHONE: (951) 273-4604 DSN: 933-4604 NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151			
1433-02	0PK96	DECADE BOX	36
REMARKS: TOL: +/- .01 + 2 MILLIOHMS			
146-132	S3257	GROOVE MICROMETER	36
REMARKS: TOL: +/- 0.004"/ +/- 10 MICROMETER			
1501200	16478	CWI NARROWBAND NOISE T/S	12
REMARKS: SAME AS MK666MOD1 (16478)			
1501MRMHSS	08194	TORQUE WRENCH	15
REMARKS: TOL: +/- 4% IV; SAME AS 1501MRMH. SS IS SINGLE SCALE			

ADDITIONS TO METRL

MODEL NUMBER	CAGE	DESCRIPTION	INT
1504300	16478	CWI NARROWBAND NOISE T/S	12
REMARKS: SAME AS MK666 MOD2 (16478)			
16U42554-1	81755	EPU FREQUENCY SENSING MONITOR T/S	07
1732AS590	13672	50 CAL COMBINATION	12
REMARKS: CAL @ NSWC CORONA "WPP" CAL LAB ONLY			
SHIP TO:			
COMMANDING OFFICER			
ATTN; NAVY STANDARDS LABORATORY			
BLD. 575, RECEIVING OFFICER			
CORONA DIVISION, NAVAL SURFACE WARFARE CENTER			
2300 FIFTH STREET			
NORCO, CA. 92860-9154			
PHONE: (951) 273-4604 DSN: 933-4604			
NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL			
TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151			
209217	82877	END PLAY FIXTURE	SR
REMARKS: CAL INDIVIDUAL COMPONENTS			
217F938	05606	BACKLASH GAGE	12
REMARKS: CAL @ NSWC CORONA "WPP" CAL LAB ONLY			
SHIP TO:			
COMMANDING OFFICER			
ATTN; NAVY STANDARDS LABORATORY			
BLD. 575, RECEIVING OFFICER			
CORONA DIVISION, NAVAL SURFACE WARFARE CENTER			
2300 FIFTH STREET			
NORCO, CA. 92860-9154			
PHONE: (951) 273-4604 DSN: 933-4604			
NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL			
TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151			
226	73792	FEELER GAGE	48
REMARKS: TOL: CAL TO TOLERANCE LIMITS IN STEP 4.1.5.6			
2337-0-014	06097	ILLUMINANCE PROJECTOR	12
REMARKS: CAL AT NSL I			
25-0027-02	60998	FEELER GAGE	48
REMARKS: TOL: CAL TO TOLERANCE LIMITS IN STEP 4.1.5.6			
26104C	05392	DIAL INDICATOR	12
REMARKS: SAME AS 5210-00-243-964 (05392) TOL: +/- 0.001"			
28959F	95411	ACCELEROMETER CALIBRATOR	12
REMARKS: NAVAIR ASSETS AND NAVAIR DEPOT LEVEL CAL ONLY: SEE CPAR MONTHLY REPORT (NAVAIR 17-35CPAR-1) FOR INTERIM APPROVED CALIBRATION METHOD			
28A	75188	FEELER GAGE	48
REMARKS: TOL: CAL TO TOLERANCE LIMITS IN STEP 4.1.5.6			
29A	75188	FEELER GAGE	48
REMARKS: TOL: CAL TO TOLERANCE LIMITS IN STEP 4.1.5.6			
30354-0058	17885	FORCE GAGE	09
REMARKS: TOL: +/-1%; RNG: 0 TO 250 LB			
4150	15887	PARTICLE COUNTER	06
5210-00-243-964	05392	DIAL INDICATOR	12
REMARKS: SAME AS 26104C (05392) TOL: +/- 0.001"			
53-185-015	3N292	HEIGHT MICROMETER	12
REMARKS: TOL: +/- 0.0001"			
53E150312-1	76301	GUN SYSTEM TEST SET	04
REMARKS: NAVAIR ASSETS AND NAVAIR DEPOT LEVEL CAL ONLY: SEE CPAR MONTHLY REPORT (NAVAIR 17-35CPAR-1) FOR INTERIM APPROVED CALIBRATION METHOD			
599-270-25-2	09058	OUTSIDE MICROMETER	24
REMARKS: TOL: +/- 0.0003 INCH			
604AS892-1	53553	TURBINE FLOWMETER	12
REMARKS: RANGE: 2.5 TO 25 GAL/MIN; TOL: +/- 0.25 IV			
6299AOPT009	28480	REGULATED DC POWER SUPPLY	36
REMARKS: SAME AS 6299A (28480)			
64-005	03914	TORQUE SCREWDRIVER	09
REMARKS: TOL: +/- 6% IV CW (20 TO 100% FS)			

ADDITIONS TO METRL

MODEL NUMBER	CAGE	DESCRIPTION	INT
64-502	03914	TORQUE WRENCH	18
REMARKS: TOL: +/- 4% IV			
700	3Y702	PHISICIANS SCALE	36
REMARKS: TOL: +/- 1 DIV			
70-791	03914	FEELER GAGE	48
REMARKS: TOLERANCE LIMITS IN STEP 4.1.5.6			
716003	19204	LINK/DELINKER	12
REMARKS: CAL @ NSWC CORONA "WPP" CAL LAB ONLY			
SHIP TO: COMMANDING OFFICER ATTN; NAVY STANDARDS LABORATORY BLD. 575, RECEIVING OFFICER CORONA DIVISION, NAVAL SURFACE WARFARE CENTER 2300 FIFTH STREET NORCO, CA. 92860-9154 PHONE: (951) 273-4604 DSN: 933-4604			
NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151			
72-7270	376C1	DECADE BOX	12
REMARKS: TOL: +/- 1.0% IV			
7274771	19204	FIXTURE ASSEMBLY	24
REMARKS: CAL @ NSWC CORONA "WPP" CAL LAB ONLY			
SHIP TO: COMMANDING OFFICER ATTN; NAVY STANDARDS LABORATORY BLD. 575, RECEIVING OFFICER CORONA DIVISION, NAVAL SURFACE WARFARE CENTER 2300 FIFTH STREET NORCO, CA. 92860-9154 PHONE: (951) 273-4604 DSN: 933-4604			
NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151			
7458598	97499	PLAIN CYLINDER PLUG GAGE	36
REMARKS: SAME AS 7458598 (19205) & (62679) CAL @ NSWC CORONA "WPP" CAL LAB ONLY			
SHIP TO: COMMANDING OFFICER ATTN; NAVY STANDARDS LABORATORY BLD. 575, RECEIVING OFFICER CORONA DIVISION, NAVAL SURFACE WARFARE CENTER 2300 FIFTH STREET NORCO, CA. 92860-9154 PHONE: (951) 273-4604 DSN: 933-4604			
NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151			
7657-197	06315	TORQUE WATCH	24
REMARKS: TOL: +/- 3% IV			
7799699	19205	TEST BOLT GAGE	12
REMARKS: CAL @ NSWC CORONA "WPP" CAL LAB ONLY			
SHIP TO: COMMANDING OFFICER ATTN; NAVY STANDARDS LABORATORY BLD. 575, RECEIVING OFFICER CORONA DIVISION, NAVAL SURFACE WARFARE CENTER 2300 FIFTH STREET NORCO, CA. 92860-9154 PHONE: (951) 273-4604 DSN: 933-4604			
NAVAIR GUN GAGE PROGRAM: CONTACT NAVAIR METCAL TEAM-4 FOR AUTHORIZATION @ (301) 757-9154/9151 DSN: 757-9154/9151			

ADDITIONS TO METRL

MODEL NUMBER	CAGE	DESCRIPTION	INT
80670-2	82340	CONTROLLER TEST SET	06
80673-2	82340	PLATFORM ELECTRONIC TEST SET	12
8712	99899	ELECTROMAGNETIC RADIATION SURVEY METER	SR
REMARKS: CAL WITH 8721D (99899); CAL AT NSL I			
8721D	99899	ELECTRIC FIELD PROBE	36
REMARKS: CAL AT NSL I; CAL WITH 8712 (99899)			
8901BOPT021	28480	MODULATION ANALYZER	30
92070	54487	DUMMY LOAD	24
REMARKS: 0.7 - 18 GHZ MAX VSWR 1:20			
9250	U7387	HYDRAULIC TESTING RIG	SR
REMARKS: CAL GAGES ONLY			
9707MK3	U6454	PRESSURE GAGE	06
REMARKS: CAL: +/- 100 PSI @ 2800 TO 3500 PSI +/- 150 PSI REMAINDER OF SCALE			
98210A	07781	ELECTRONIC REFRIGERANT SCALE	06
REMARKS: TOL: +/- 0.01KG OR +/- 0.1% READING WHICHEVER IS GREATER			
991D	53126	ACCELEROMETER	12
REMARKS: NAVAIR ASSETS AND NAVAIR DEPOT LEVEL CAL ONLY: SEE CPAR MONTHLY REPORT (NAVAIR 17-35CPAR-1) FOR INTERIM APPROVED CALIBRATION METHOD			
AF13024LM1-1	072E5	BRAKE PRESSURE TESTER ASSEMBLY	06
REMARKS: TOL: +/- 0.5% FS			
AFG320	80009	ARBITARY FUNCTION GENERATOR	12
AH1100	4J977	CAPACITANCE STANDARD	12
REMARKS: CAL AT NSL I			
BMA580	23042	STEP ATTENUATOR	36
REMARKS: VSWR: 1.2:1 DC-0.5GHZ, 1.3:1 0.5-1GHZ, 1.5:1 1-2GHZ; INSERTION LOSS: 0.6DB DC-0.5GHZ, 0.75DB 0.5-1.0GHZ, 1.3DB 1.0-2.0GHZ; ACCURACY: +/- 0.2DB DC-0.5GHZ @ 0-10DB, +/-0.75DB DC-0.5GHZ @11-80DB, +/-0.3DB 0.5-1GHZ @ 0-10DB, +/-0.75DB 0.5-1GHZ @11-80DB, +/-0.4DB 1.0-2GHZ @ 0-10DB,+/-1.25DB 1.0-2GHZ @11-80DB			
C15292	01014	BONDING METER	35
REMARKS: SAME AS T477W (01014)			
CCR2000	3UGR4	CONFORMAL COATING REMOVAL WS	NCR
CRT4	88869	INDUCTIVE DIVIDER	48
EMS30-331D	89022	DC POWER SUPPLY	09
REMARKS: CAL METERS ONLY; TOL: +/- 2% FS			
F1130	49374	THERMISTOR MOUNT	36
F1428	93459	HIGH POWER TERMINATION	24
REMARKS: TOL: FREQ DC TO 1.5 GHZ, MAX VSWR-1.10.			
FB307D	55719	FEELER GAGE	48
REMARKS: TOL: CAL TO TOLERANCE LIMITS IN STEP 4.1.5.6			
I410	89536	CLAMP-ON AMMETER	12
REMARKS: TOL: +/- 3.5% IV +0.5A			
IQ150	91224	THERMOMETER	SR
REMARKS: USER CHECK BEFORE EACH USE.			
PCS200A	06097	PHOTOMETRY CALIBRATION SYSTEM	SR
REMARKS: CAL AS A SYSTEM AT NSL I			
PMF147A	55719	DIAL CALIPER	12
REMARKS: TOL: +/- 0.001"			
QDRIVER2	28356	TORQUE WRENCH	09
REMARKS: TOL: +/- 6% IV CW			
R2600C	31211	COMMUNICATION SYSTEM ANALYZER	08
REMARKS: NAVAIR ASSETS AND NAVAIR DEPOT LEVEL CAL ONLY: SEE CPAR MONTHLY REPORT (NAVAIR 17-35CPAR-1) FOR INTERIM APPROVED CALIBRATION METHOD			
R7.11111.11KRC	29504	DECADE RESISTOR	12
REMARKS: TOL: +/-0.01% READING + 2 MILLIOHMS			
RD15LM	85973	BENCH SCALE	06
REMARKS: TOL: +/- 0.3 GRAMS			
SA23-3PVPRWBO	64467	PRESSURE GAGE	24
REMARKS: TOL: 1% FS			
SA24-3CGPRWBX	64467	COMPOUND GAGE	24
REMARKS: TOL: 1% FS			
SA24-3PPPRBBX	64467	PRESSURE GAGE	24
REMARKS: TOL: 1% FS			
SP2001	85973	BALANCE SCALE	06
REMARKS: TOL: +/- 0.1 GRAM			

ADDITIONS TO METRL

MODEL NUMBER	CAGE	DESCRIPTION	INT
ST1013	71791	PROTRACTOR BLADE ANGLE	06
REMARKS: SAME AS PE105 (59025) & 40D5447 (98750)			
TE602FUE	55719	TORQUE WRENCH	30
REMARKS: TOL: +/- 4% IV			
TWF675A	76377	TORQUE WRENCH	09
REMARKS: TOL: +/- 3% FS			
VM235S497	07342	PHASE ANGLE VOLTMETER	05
REMARKS: NAVAIR ASSETS AND NAVAIR DEPOT LEVEL CAL ONLY: SEE CPAR MONTHLY REPORT (NAVAIR 17-35CPAR-1) FOR INTERIM APPROVED CALIBRATION METHOD			

NEW AND REVISED CALIBRATION PROCEDURES ISSUED

PROCEDURE	DATE	MODEL	CAGE	DESCRIPTION
17-20AC-49	5/1/2006	2500A	4J977	CAPACITANCE BRIDGE
17-20AE-88	5/1/2006	VARIOUS TRUE RMS VOLTMETERS		
17-20AF-168	5/1/2006	9390-6000-34	31160	EXACTIME GPS TIME CODE & FREQ GENERATOR
		ET6000RB1	31160	EXACTIME GPS TIME AND FREQ GENERATOR
17-20AG-302	5/1/2006	143S611	23338	FUNCTION GENERATOR
17-20AG-483	5/1/2006	8114AOPT001	28480	PULSE GENERATOR
17-20AG-491	5/1/2006	8663A	28480	SYNTHESIZED SIGNAL GENERATOR
		8663AOPT002,915,H06	1LQK8	SYNTHESIZED SIGNAL GENERATOR
17-20AG-528	5/1/2006	PG502	80009	PULSE GENERATOR
17-20AG-555	5/1/2006	8160A	28480	PROGRAMMABLE PULSE GENERATOR
		8160AOPT001	28480	PROGRAMMABLE PULSE GENERATOR
		8160AOPT020	28480	PROGRAMMABLE PULSE GENERATOR
17-20AH-06	5/1/2006	VARIOUS DC POWER SUPPLIES AND VOLTAGE CALIBRATOR		
17-20AH-79	5/1/2006	VARIOUS DC POWER SUPPLIES		
17-20AP-56	5/1/2006	KW480	15292	CLAMP-ON WATTMETER
17-20AQ-110	5/1/2006	1410	13650	FREQUENCY RESPONSE ANALYZER
		1410-02	06141	FREQUENCY RESPONSE ANALYZER
		1410-05M25	06141	FREQUENCY RESPONSE ANALYZER
		1410AR	06141	FREQUENCY RESPONSE ANALYZER
		1410AR1	06141	FREQUENCY RESPONSE ANALYZER
17-20AQ-116	5/1/2006	8030A	89536	DIGITAL MULTIMETER
		8030AAG	89536	DIGITAL MULTIMETER
		8030AOPT001	89536	DIGITAL MULTIMETER
		8030AOPT003	89536	DIGITAL MULTIMETER
		8040A	89536	DIGITAL MULTIMETER
		8040AOPT001	89536	DIGITAL MULTIMETER
		8040AOPT003	89536	DIGITAL MULTIMETER
17-20AQ-158	5/1/2006	VARIOUS DIGITAL MULTIMETERS		
17-20AQ-412	5/1/2006	012-0884-00	80009	OUTPUT CABLE ASSY
		015-0310-01	80009	COMPARATOR HEAD
		015-0311-01	80009	PULSE HEAD
		CG5001	80009	CALIBRATION GENERATOR
		CG551AP	80009	CALIBRATION GENERATOR
		CG551APOPT01	80009	CALIBRATION GENERATOR
17-20AQ-433	5/1/2006	PM3000A	U6152	POWER ANALYZER
17-20AQ-439	5/1/2006	878	08098	LCR METER
		878A	08098	LCR METER
17-20AR-81	5/1/2006	MT165E	54605	HI-POT TESTER
		ST106E	54605	SURGE COMPARISON HIPOT TESTER
		ST106H	54605	SURGE COMPARISON HIPOT TESTER
		ST112E	54605	SURGE COMPARISON HIPOT TESTER
		ST112H	54605	SURGE COMPARISON HIPOT TESTER
17-20AW-405	5/1/2006	8753DOPT010-1CP	28480	NETWORK ANALYZER
17-20AW-424	5/1/2006	199	89536	SCOPEMETER
		199AN	89536	OSCILLOSCOPE
		199B	89536	OSCILLOSCOPE
		199C	89536	OSCILLOSCOPE
		199CAN	89536	OSCILLOSCOPE
17-20AW-442	5/1/2006	TA140-144	31991	DC AMPLIFIER UNIT
		TA220-3608	31991	DIGITAL OSCILLOGRAPHIC RECORDER
17-20AX-223	5/1/2006	1142AS100	06455	ELECTRICAL POWER PLANT T/S
		1142AS100-1	06455	ELECTRICAL POWER PLANT T/S
		64A89E1	82386	ELECTRICAL POWER PLANT T/S
		A7000	06455	POWER PLANT ELECTRICAL DUMMY LOAD
		C331-1000	82386	ELECTRONIC POWER PLANT TEST SYSTEM
		DA675MSM	50545	POWER PLANT ELECTRICAL DUMMY LOAD
		DA675MSM	06455	POWER PLANT ELECTRICAL DUMMY LOAD
		GPT9TYPEMLB1	82386	ELECTRONIC POWER PLANT T/S

NEW AND REVISED CALIBRATION PROCEDURES ISSUED

PROCEDURE	DATE	MODEL	CAGE	DESCRIPTION
17-20AX-320	5/1/2006	ANAPM289A	78022	SIGNAL DATA CONV T/S
17-20AX-544	5/1/2006	21C4114G001	81893	ELECTRONIC COMP TEST
		21C4114G002	81893	ELECTRONIC COMP TEST
		21C4114G003	81893	PWR MGMT SYS T/S
17-20AX-718	5/1/2006	788410-2	73030	AFCS COMPUTER BENCH T/S
		788410-3	73030	AFCS COMPUTER BENCH T/S
17-20AX-832	5/1/2006	MK1035ARC131	37695	MANITENANCE KIT
17-20AX-902	5/1/2006	2947	09553	RADIO T/S
		2947A	51190	RADIO TEST SET
17-20AX-927	5/1/2006	802025098100	12255	COUNTERMEASURES T/S
		ANALM283	80058	COUNTERMEASURES TEST SET
17-20GG-103	5/1/2006	1801C	34280	SWEEP/SIGNAL GENERATOR
		1801C50	34280	SWEEP/SIGNAL GENERATOR
17-20GG-127	5/1/2006	8644A	28480	SYNTHESIZED SIGNAL GENERATOR
		8644B	28480	SYNTHESIZED SIGNAL GENERATOR
17-20GW- 57	5/1/2006	8592B	28480	SPECTRUM ANALYZER
		8592D	28480	SPECTRUM ANALYZER
17-20GX- 07	5/1/2006	510406-1	80249	INTERROGATOR SET T/S
		510406-2	80249	INTERROGATOR SET T/S
		ANAPM268	80249	INTERROGATOR SET T/S
		ANAPM268A	80249	INTERROGATOR SET T/S
17-20GX- 97	5/1/2006	4035500-0501	06845	TRANSPONDER T/S
		ANAPM378	06845	TRANSPONDER T/S
17-20GX-108	5/1/2006	37534-40001-20	97384	JOINT SERVICE ELECTRONIC COMBAT TESTER
		ANUSM670	97384	JOINT SERVICE ELECTRONIC COMBAT TESTER
17-20GX-116	5/1/2006	14200000	95750	INTERROGATOR T/S
		ANAPM349	95750	INTERROGATOR T/S
17-20MD-142	5/1/2006	VARIOUS BORE MEASUREMENT DEVICES		
17-20MF- 46	5/1/2006	VARIOUS CABLE TENSIOMETERS		
17-20ML- 05	5/1/2006	VARIOUS TRANSITS JIG OR SURVEYING TYPES		
17-20SX- 91	5/1/2006	A501	81893	LINE MAINTENANCE TEST KIT
17-50A121	5/1/2006	VARIOUS RF FILTERS		
17-50A127	5/1/2006	101990	06659	AIRCRAFT ENGINE COMPONENT TEST STAND
		AF37T21	30003	AIRCRAFT ENGINE COMPONENT TEST STAND
17-50A325	5/1/2006	8920A	28480	RF COMMUNICATIONS SET
CF-AE-003	5/1/2006	3711M	1ES16	CLAMP-ON GROUND RESISTANCE METER
CF-AN-002	5/1/2006	3940	88865	BANDPASS FILTER
CF-AQ-009	5/1/2006	53310AOPT001,030	28480	MODULATION DOMAIN ANALYZER
CF-AX-002	5/1/2006	MW9070NVOPT0973J	63380	OPTICAL TIME DOMAIN REFLECTOMETER
CF-GG-001	5/1/2006	68347BOPT02A,11,16	20944	SYNTHESIZED SIGNAL GENERATOR
		68347M	20944	SYNTHESIZED SIGNAL GENERATOR
CF-GG-002	5/1/2006	8644A	28480	SYNTHESIZED SIGNAL GENERATOR
		8644B	28480	SYNTHESIZED SIGNAL GENERATOR
CF-MX-003	5/1/2006	YDA320	31147	NOZZLE TESTMASTER-2
CF-SX-002	5/1/2006	93-1064	1DF57	AGRS

SIGNIFICANT CALIBRATION INTERVAL CHANGES

MODEL NUMBER	CAGE	DESCRIPTION	PREVIOUS INTERVAL	NEW INTERVAL
1395AS624	05606	CHECKING FXT SPROCKET SHAFT CONVEYOR	NCR	12

NAVY METCAL LABELS AND TAGS

TITLE	COLOR	WIDTH/LENGTH	NAVSEA #	COG—NSN	UI
CALIBRATED	Black on White	1-3/8 x 1-1/8	4734/8	1l—0116-LF-009-4700	BX
		1-3/8 x 1-1/8 (flap)	4734/9	1l—0116-LF-009-4800	BX
		7/8 x 5/8	4734/10	1l—0116-LF-009-4900	BX
		5/8 x 3/8	4734/11	1l—0116-LF-009-5000	BX
CALIBRATED -	Red/White	1-3/8 x 1-1/8	4734/12	1l—0116-LF-009-5100	BX
REFER TO REPORT		7/8 x 5/8	4734/13	1l—0116-LF-009-5200	BX
SPECIAL CALIBRATION	Black/Yellow	3-1/8 x 4-1/4 (tag)	4734/6	1l—0116-LF-018-5100	BX
		1-3/8 x 1-1/8	4734/14	1l—0116-LF-009-5300	BX
		2 x 3	4734/15	1l—0116-LF-009-5400	BX
		7/8 x 5/8	4734/16	1l—0116-1LF009-5500	BX
INACTIVE	Green/White	1-3/8 x 1-1/8	4734/17	1l—0116-LF-009-5600	BX
REJECTED	Black/Red	3-1/8 x 6-1/4 (tag)	4734/7	1l—0116-LF-009-4600	BX
		1-3/8 x 1-1/8	4734/18	1l—0116-LF-009-5700	BX
USER CALIBRATION	Black/White	1-1/4 x 7/16	4734/19	1l—0116-LF-009-5800	BX
WARNING—CLEANED	Black/Green	2 x 3	4734/20	1l—0116-LF-009-5900	BX
FOR OXYGEN SERVICE					
CALIBRATION STANDARD	Black/Blue	1-1/4 (diam)	4734/21	1l—0116-LF-009-6000	BX
		11/16 (diam)	4734/22	1l—0116-LF-009-6100	BX
CLEANED FOR	Black/Green	1 x 3/4 (oval)	4734/23	1l—0116-LF-009-6200	BX
OXYGEN SERVICE					
USE COUNTER-CLOCKWISE	Red/White	1 x 1/2	4734/24	1l—0116-LF-009-6300	BX
ONLY					
USE CLOCKWISE ONLY	Red/White	1 x 1/2	4734/25	1l—0116-LF-009-6400	BX
CALIBRATION	Orange/White	1-3/8 x 1-1/8	4734/26	1l—0116-LF-009-6500	BX
NOT REQUIRED		7/8 x 5/8	4734/27	1l—0116-LF-009-6600	BX
CALIBRATION VOID IF	Black/White	2 x 11/16	4734/28	1l—0116-LF-009-6700	BX
SEAL BROKEN		3/4 (diam)	4734/29	1l—0116-LF-009-6800	BX