

Baca, Bernadette

From: (b)(6)@sce.com
Sent: Wednesday, June 10, 2009 9:48 AM
To: Reynoso, John
Subject: 3G002 work
Attachments: 3G002 Speed switch.pdf

John,

Only the speed switch was replaced; the speed probe checked out satisfactory.

6 ROW

NUCLEAR ORGANIZATION
UNITS 1, 2 AND 3

WORK PROCESS PROCEDURE
REVISION 23
ATTACHMENT 9

SO123-XX-5
PAGE 73 OF 78

RETEST REVIEW COMMITTEE OPERABILITY TEST REVIEW

SAMPLE

RETEST COMMITTEE REPORT

DATE: 061009

See attached list of Order

WCA / WCD / WAR / ORDER NUMBER

Order Listed Below

Order / MO	EQUIPMENT ID	WORK SCOPE	OP. TEST
800317683	S32420M6002	36002 CAL / INSTALL Sped Probe	SO23-3-3.23 AT 1 Section 2.3
800317574	S32420M6002	36002 TROUBLESHOOTING	SO23-3-7.23 AD 2 Section 2.3

The specified retest(s) as stated on the above WCA / WCD / WAR is (are) satisfactory for the work identified in the above listed Orders. (Use the attached checklist to ensure, as a minimum, the specified retest(s) are satisfactory).

YES NO

If NO, then specify retest additions and/or deletions. State the reason why the additional test is or is NOT required and ensure the WCA / WCD / WAR (both electronic and hard copy original) are updated to reflect the additional retest(s) or deletions.

Signature indicates concurrence with the retest specified on the WCA / WCD / WAR and/or retest additions / deletions as specified on this report.

Approved By:

(b)(6)

Ops. Representative:

Eng. Representative:

Engineering Representative approval requires PQS 253149 qualification.

Verified by: 1/6/09
Initial Date

Maint. Representative

(b)(6)

Additional representatives should sign and list their respective organization.

(b)(6)	(b)(6)

Document completion of this report in the WCA / WCD / WAR.

Order
800317683

3G002 Calib/Instl. Speed Probes & Switch

Work Plan:

1.0 Objective and Scope:

1.1 Calibrate Bench Test New Speed Switch and Install New Speed Probes

2.0 References:

2.1 Drawings & Procedures:

32342 Sh. 1

31640 Sh. 8

2.2 Personnel Qualifications for this work order is JTEST, Test A Functioning Journeyman

2.4 Associated orders.

800317574

3.0 Prerequisites:

3.1 Identify continuous use procedures.

3.2 Verify current REV's for all procedures and drawings.

3.3 Perform Positive Component Verification

IAW sections 6.10 - 6.12 of SO123-I-1.43.

4.0 Precautions:

4.1 Electrical safe work practices SO123-XVI-24

4.2 Component Classification is "CRITICAL A"

Speed Switch Calibration

5.0 Work Instructions:

5.1 Obtain a replacement Speed Switch Model ESSB-2AT.

5.1.1 Connect an oscillator output to relay "A1" (3HSE947) input terminals 11 and 1

5.1.2 Connect the 125 Vdc voltage supply lead to relay terminal 19 (+) and 20 (-); ensure correct polarity of connections

5.1.3 Connect ohmmeter to "NO" at terminals 5 and 6 of the "A1" device

5.1.4 Connect ohmmeter to "NO" at terminals 8 and 10 of the "A1" device

5.1.5 Verify power supply polarity, then power up and set output to approximately 125 Vdc

Calculation formula: (diesel rpm) x 1.6 = hz

5.1.6 Energize the previously installed oscillator such that the output is not less than, but approximately equal to 1.4 volts peak to peak at approximately 1440 hz (900 rpm)

5.1.7 Leave the relay in this condition until unit exhibits stable characteristics (approx. 2 Hours)

5.1.8 Reduce the oscillator frequency setting from 1440 hz to 160 hz

5.1.9 Verify that ohmmeter for "NC" is indicating closed and ohmmeter for "NO" is indicating open.

5.1.10 Obtain as found calibration data for speed switch contacts 8 and 10 by raising oscillator output frequency until engine speed relay contacts 8 and 10 operate; ohmmeter connected to "NO" indicates closed; expected = 240 hz +/- 10 hz

As found setting for "NO" contacts 8 and 10 = _____ hz

5.1.11 On increasing frequency, at approximately 240 hz +/- 10 hz, document operation/non-operation of the following:

5.1.12 Ohmmeter for "NC" continues to indicate closed

Sat Unsat

5.1.13 Ohmmeter for "NO" updates to now indicate closed

Sat Unsat

5.1.14 Obtain as found calibration data for speed switch contacts 5 and 6 by raising oscillator output frequency until contacts 5 and 6 operate, ohmmeter to connected to "NC" indicates open; Expected = 1392 hz +/- 10 hz

As found setting for "NC" contacts 5 and 6 = _____ hz.

5.1.15 On increasing frequency, at approximately 1392 hz +/- 10 hz, document operation/non-operation of the following:

5.1.16 Ohmmeter for "NC" updates to now indicate open

Sat Unsat

5.1.17 Ohmmeter for "NO" continues to indicate closed

[] Sat [] Unsat

Note:

The following steps, for calibration adjustment, can be marked N/A if as-found values are within acceptance criteria

5.2 Perform the following if Speed Switch needs to be adjusted:

5.2.1 Remove the relay metal plate by unscrewing the 2 #4-20 screws. Before making any adjustments, carefully study the potentiometer locations on the unit to locate the correct potentiometer

5.2.2 Remove the #8-32 screw over the correct potentiometer; the potentiometer configuration is 20 turn rotation units with over travel on either end; if a 'click' is heard and no adjustment affect is observed, then rotate the potentiometer in the opposite direction

5.2.3 Potentiometer adjustments should be done very carefully; upon completion of adjustments replace seal screws and metal plate

5.2.4 The side of the relay is marked to indicate the applicable potentiometer identification letter and factory set hz for each switch number; clockwise rotation of potentiometer raises the set point hertz; the reset point hertz will also be raised.

<<Relay Calibration Steps (found out of tolerance)>>

Calculation formula: (diesel rpm) x 1.6 = hz.

5.2.5 Calibrate contacts 8 and 10 by raising oscillator output frequency until engine speed switch contacts 8 and 10 operate, ohmmeter to "NO" indicates closed, at 240 hz +/- 10 hz

As left setting for "NO" contacts 8 and 10 = _____ hz
(230 - 250 hz)

As left calibration frequency magnitude = _____ vac

5.2.6. Lower frequency to reset speed switch, then raise frequency to 240 hz +/- 10 hz, two more times to verify correct operation of speed switch contacts;

5.2.7 On increasing frequency, verify that the following occurs at 240 hz +/- 10 hz; re-perform previous step as required

5.2.8 Ohmmeter for "NC" continues to indicate closed.

Sat Unsat

5.2.9 Ohmmeter for "NO" updates to now indicate closed.

Sat Unsat

5.2.10 Calibrate contacts 5 and 6 by increasing oscillator output frequency until engine speed switch contacts 5 and 6 operate, ohmmeter to connected to "NC" indicates open, at 1392 hz +/- 10 hz.

As left setting for "NC" contacts 5 and 6 = _____ hz.
(1382 - 1402 Hz)

As left calibration frequency magnitude = _____ Vac

5.2.11 Lower frequency to reset speed switch, then raise frequency to 1392 hz +/- 10 hz two more times to verify correct operation of speed switch contacts

5.2.12 On increasing frequency, verify that the following occurs at 1392 hz +/- 10 hz; re-perform previous step as required

5.2.13 Ohmmeter for "NO" continues to indicate closed

Sat Unsat

5.2.14 Ohmmeter for "NC" updates to now indicate open

Sat Unsat

Initial _____ Date ____/____/____

5.3 Disconnect test equipment

5.4 Record Speed Switch Serial number Below.

SN# _____

Discuss any noted discrepancies with supervisor and generate a NOTIFICATION if applicable

5.5 Obtain Engine and Governor Speed Probes.

5.6 Remove Engine And Governor Probes

5.7 Replace with New Probes

<<Procedure SO23-II-11.156>>

5.8 Perform steps called out:

5.8.1 Engine speed probe (G1), steps 6.2.2 thru 6.2.5

5.8.2 Governor speed probe (A3), steps 6.2.2 thru 6.2.5

N/A as found for new probes

Initial _____ Date ____/____/____

Speed Switch Removal and Replacement

5.9 At 3L160 Panel, De-term A1 Speed Switch, Safe Off wiring and Remove Switch IAW SO123-II-15.3

5.10 Replace New A1 Switch and Re-Term IAW SO123-II-15.3

PERFORMED BY _____ Date: ____/____/____

PEER CHECK

PERFORMED BY _____ Date: ____/____/____

5.11 [] FME considerations for routine test work, IAW SO123-I-1.18

5.11.1 Prior to securing panel doors, ensure that all materials, M&TE, test leads, and tools have been removed

5.11.2 Additionally, ensure any debris such as cable tie trimmings, metallic fragments, wire markers, broken possum tags, or wire trimmings, that may be present in the work space, have been removed

5.11.3 Secure all panel covers and doors that were disturbed for work access

5.11.4 [] FME requirements performed

Initial _____ Date ____/____/____

6.0 Post Maintenance Testing

PMT Speed Probes And Speed Switch operation will be verified during OPS Diesel Run

7.0 Supervisor has debriefed craft assigned to this work activity, and has verified that work has been satisfactorily completed

7.1 Supervisor concurs that the work authorization may be Released

Performed By _____ Date ____/____/____
Supervisor

7.2 Work Authorization Released

Performed By _____ Date: ____/____/____

Order
800317574

Troubleshoot 3G002 Trip

1.0 Objective and Scope

1.1 Troubleshoot 3G002 Trip IAW the Maintenance Engineer Support Requested in the SO123-XV-2 attachment 5.

2.0 References

2.1 Drawings

- 33515-2
- 33639-3
- E/D 32342-1 thru 6
- E/D 32343-1
- E/D 32344-1 and 2
- E/D 32346-1
- E/D 33374
- E/D 33375
- W/D 33638-1 thru 11

2.2 Procedures

- SO123-XV-2
- SO123-XVI-24
- SO123-II-15.3

2.3 Related Orders

None

2.4 Personnel Qualifications Standards of the workers involved in activities of this order requires evaluation by Supervision. Ref SO123-XXI-1.11.13, att. 34, pages 73,74,75.

[] FJTEST, Test A Functioning Journeyman

Performed by _____ date ____/____/____
Supervisor

3.0 Prerequisites

- 3.1 Identify continuous use procedures.
- 3.2 Verify all procedures and drawings are current including latest REV.s.
- 3.3 Perform positive component verification IAW SO123-I-1.43, sections 6.10 - 6.12.

4.0 Precautions

4.1 Standardized Electrical Safe Work Practices are to be utilized during the performance of this work order. Refer to SO123-XVI-24.

4.2 Component Classification is "CRITICAL A"

Component Classification Acknowledged []

*** CAUTION ***

Voltage is present during energized testing and/or
troubleshooting.

5.0 Work instructions

Note:

All wires temporarily altered for test or repair purposes, shall be documented IAW SO123-II-15.3. Wire Restorations shall be independently verified tight, see SO123-I-4.59 for requirements. Use caution to avoid disturbing wiring or devices adjacent to the target work area.

<<< Troubleshooting >>>

5.1 USE troubleshooting procedure SO23-XV-2, to investigate Trip Problem of 3G002.
(Document all alterations IAW SO123-I-15.3.)

5.2 DOCUMENT "Initial Problem Statement". Review with supervisor and request supervision to complete work plan.

Performed by _____ date ____/____/____
Supervisor

5.3 FILL out attachment 5, Risk Assessment and obtain approval prior to developing troubleshooting plan IAW SO23-XV-2.

Initial _____ Date ____/____/____

5.4 FILL out attachment 5, "Troubleshooting Plan" and obtain supervisor approval for each troubleshooting plan.

[] Record any deficiencies found in the work done section.

Initial _____ Date ____/____/____

5.5 OBTAIN supervisor approval for repair plan.

Performed by _____ Date ____/____/____
Supervisor

5.6 PERFORM repairs as specified by supervisor approvals.

Initial _____ Date ____/____/____

6.0 Post Maintenance Testing

RTS performed by OPS procedures.

7.0 Restoration/Post Work Activities

7.1 Perform circuit restoration.

- All circuits restored
- All M and TE removed

Performed By _____ Date ____/____/____
Peer Check _____
Verified By _____ Date ____/____/____

7.2 Document any repair actions in the MO work done section.
Make repairs IAW SO123-I-4.59 series. Complete restoration IAW
SO123-II-15.3.

- 3G002 Restoration Complete

Performed By _____ Date ____/____/____
Peer Check _____
Verified By _____ Date ____/____/____

SO123-I-1.18

<< FME Considerations for Routine Test Work >>

Prior to securing panel doors or covers, ensure that all
materials, M&TE, test leads, and tools have been removed.

Additionally, ensure any debris such as ty-wrap trimmings,
metallic fragments, wire markers, broken possum tags, or wire
trimmings, that may be present in the work space, have been
removed.

FME Requirements Performed

7.3 Supervisor has debriefed craft assigned to this work
activity, and has verified that work has been completed.
Supervisor concurs that the work authorization may be released.

Performed By: _____ Date: ____/____/____
Supervisor Witness Point