English Language Test Description

MIPR # M9545012MP24797
CDRL F001

for

Unit Under Test

UUT Nomenclature: Gun Control Logic SLEP, CCA
UUT Part Number: 00004A2206-1

from

Light Armored Vehicle - 25A2
(LAV-25A2)

ATE SYSTEM

AN/USM-657B – Third Echelon Test System (TETS-B)
AN/USM-717 – Virtual Instrument Portable Equipment Repair/Test (VIPER/T)

Developed by

U.S. Army RDECOM
Armament Research, Development and Engineering Center
Automated Test Systems Division
RDAR-WSF-A, Building 91
Picatinny, NJ 07806

Prepared By	Signature	Date Prepared	Date Submitted
Ryan Pickett		16 June 2015	

Approved By	Signature	Date Received	Date Approved
Thomas Bradford			
Richard Foyt			

ELTD REVISION SUMMARY

Revision Number	Date	Reason	Approved By – Date Approved
-	04 Mar 2016	ORIGINAL ISSUE	B. Nimmick 3/4/2016

Table of Contents

1.0 Reference Documents

1.1 Virtual Instrument Portable Equipment Repair/Test (VIPER/T)

IEEE Std 716-1989	IEEE Standard Common Abbreviated Test Language for All Systems
TM TBD-CD	VIPER/T IETM (Interactive Electronic Technical Manual)
System Design Document Doc # 7992008	VIPER/T AN/USM-717
VIPER/T P/N 7992021	VIPER/T CPM (Computer Programming Manual)

1.2 Third Echelon Test System (TETS-B)

TM 10530A-CD	TETS IETM (Interactive Electronic Technical Manual)
System Design Description	Third Echelon Test System (TETS)
Doc # 93006A0018	AN/USM-657
TETS P/N 93006A0026	TETS CPM (Computer Programming Manual)

1.3 Unit Under Test

UUT P/N: 00004A2206-1
UUT Nomenclature: Gun Control Logic SLEP, A1
UUT Type: SRU

DESCRIPTION	NUMBER	REVISION	DATE
Parts List	None		
LRU QA Specification	ES12869	D	11-27-2007
Circuit Card Assembly, Gun Control Logic SLEP, A1	00004A2206-1		
Schematic Diagram, Gun Control Logic SLEP, A1	00004A2206-1		

1.4 Reference Drawings

```
ID Schematic
```


13020A0001
(SYSTEM INTERCONN

```
W4 Schematic
```


13020A7401 (CABLE,
W4, SCHEMATIC).pd

2.0 English Language Test Description Steps

2.1 Common Procedures

2.1.1 UUT Power

```
Description:
28V Power is applied to J1-4 (HI) and J1-2 (LO) using DC4.

Connection Path is as follows:

From W4 P2-4 (UUT J1-4)            to W4 P1B-14C
From ID J2B-14C                    to ID A1J2.31
From ID A1P2.31                    to ID P10-87 (S101-6)
From ID P10-23 (S101-5)            to ID A1P2.4
From ID A1J2.4                     to ID A1J1.3
From ID A1P1.3                     to ID P1-10 (DC4-HI)

From W4 P2-2 (UUT J1-2)            to W4 P1B-4F
From ID J2B-4F                     to ID A1J1.11
From ID A1P1.11                    to GROUND
From GROUND                        to ID P1-11 (DC4-LO)
```

2.2 Interface ID

```
    Refer to Reference Drawings when diagnosing connection paths.

Step 1

Description:
Connect R111 (324 ohms) to Bus 5. Connect R109 (698 ohms) to Bus 6.
R109 and R111 are now in series between Bus 5 and 6. Connect DMM HI
to Bus 5. Connect DMM LO to Bus 6.Expected Resistance: 1022 ohms ±
5%

    Connection Path is as follows:
```

```
From ID P20-2 (DMM-HI)          to ID A1P15.49
From ID A1J15.49                to ID A1J8.28
From ID A1P8.28                 to ID P10-203 (S503-1)
From ID P10-137 (S503-7)        to ID A1P6.47
From ID A1J6.47                 to ID BUS 5

From ID P20-3 (DMM-LO)          to ID A1P15.50
From ID A1J15.50                to ID A1J8.26
From ID A1P8.26                 to ID P10-139 (S503-2)
From ID P10-170 (S503-8)        to ID A1P6.38
From ID A1J6.38                 to ID BUS 6

From ID BUS 5                   to ID A1J8.47
From ID A1P8.47                 to ID P10-73 (S301-48)
From ID P10-7 (S301-47)         to ID A1P7.23
From ID A1J7.23                 to ID A1J4.15
From ID A1P4.15                 to ID R111.1
From ID R111.2                  to ID A1P4.9
From ID A1J4.9                  to +28V

From ID BUS 6                   to ID A1J8.48
From ID A1P8.48                 to ID P10-171 (S301-50)
From ID P10-42 (S301-49)        to ID A1P7.24
From ID A1J7.24                 to ID A1J4.16
From ID A1P4.16                 to ID R109.1
From ID R109.2                  to ID A1P4.9
From ID A1J4.9                  to +28V
```

2.3 Safe to Turn On

```
Step 2

Description:
This step verifies continuity between J1-2 and J1-3 to determine
that the correct UUT is connected.  The DMM is used to measure the
resistance using limits of LT 10 ohms. This is due to the ID
internal wiring and VIPER/T switch path resistance.

    Connection Path is as follows:

From W4 P2-3 (UUT J1-3)         to W4 P1A-1E
From ID J2A-1E                  to ID A1J14.40
From ID A1P14.40                to ID P13-25 (S202-11)

From ID P12-59 (S202-1)         to ID A1P12.38
From ID A1J12.38                to ID A1J10.10
From ID A1P10.10                to ID P11-177 (S509-1)
From ID P11-18 (S509-3)         to ID A1P9.19
From ID A1J9.19                 to ID BUS 1

From ID P20-2 (DMM-HI)          to ID A1P15.49
From ID A1J15.49                to ID A1J8.28
From ID A1P8.28                 to ID P10-203 (S503-1)
From ID P10-77 (S503-3)         to ID A1P6.13
```

3

```
    From ID A1J6.13                       to ID BUS 1

    From ID P20-3 (DMM-LO)                to ID A1P15.50
    From ID A1J15.50                      to ID A1J7.38
    From ID A1P7.38                       to ID P10-130 (S301-23)
    From ID P10-229 (S301-24)             to ID A1P7.36
    From ID A1J7.36                       to GROUND
```

Step 3

Description:
This step verifies continuity between J1-2 and J1-19. The DMM is
used to measure the resistance using limits of LT 10 ohms. This is
due to the ID internal wiring and VIPER/T switch path resistance.

```
    Connection Path is as follows:

    From W4 P3-A10 (UUT J2-19)            to W4 P1A-3F
    From ID J2A-3F                        to ID A1J14.41
    From ID A1P14.41                      to ID P13-57 (S202-12)

    From ID P12-90 (S202-2)               to ID A1P12.36
    From ID A1J12.36                      to ID A1J10.12
    From ID A1P10.12                      to ID P11-242 (S509-2)
    From ID P11-18 (S509-3)               to ID A1P9.19
    From ID A1J9.19                       to ID BUS 1

    From ID P20-2 (DMM-HI)                to ID A1P15.49
    From ID A1J15.49                      to ID A1J8.28
    From ID A1P8.28                       to ID P10-203 (S503-1)
    From ID P10-77 (S503-3)               to ID A1P6.13
    From ID A1J6.13                       to ID BUS 1

    From ID P20-3 (DMM-LO)                to ID A1P15.50
    From ID A1J15.50                      to ID A1J7.38
    From ID A1P7.38                       to ID P10-130 (S301-23)
    From ID P10-229 (S301-24)             to ID A1P7.36
    From ID A1J7.36                       to GROUND
```

Step 4

Description:
This step verifies continuity between J1-2 and J1-23. The DMM is
used to measure the resistance using limits of LT 10 ohms. This is
due to the ID internal wiring and VIPER/T switch path resistance.

```
    Connection Path is as follows:

    From W4 P2-23 (UUT J1-23)             to W4 P1B-13E
    From ID J2B-13E                       to ID A1J12.31
    From ID A1P12.31                      to ID P12-57 (S202-13)

    From ID P12-59 (S202-1)               to ID A1P12.38
    From ID A1J12.38                      to ID A1J10.10
```

```
     From ID A1P10.10                    to ID P11-177 (S509-1)
     From ID P11-18 (S509-3)            to ID A1P9.19
     From ID A1J9.19                     to ID BUS 1

     From ID P20-2 (DMM-HI)             to ID A1P15.49
     From ID A1J15.49                    to ID A1J8.28
     From ID A1P8.28                     to ID P10-203 (S503-1)
     From ID P10-77 (S503-3)            to ID A1P6.13
     From ID A1J6.13                     to ID BUS 1


     From ID A1J15.50                    to ID A1J7.38
     From ID A1P7.38                     to ID P10-130 (S301-23)
     From ID P10-229 (S301-24)          to ID A1P7.36
     From ID A1J7.36                     to GROUND
```

```
Step 5
```

```
Description:
This step verifies continuity between J1-2 and J1-24.  The DMM is
used to measure the resistance using limits of LT 10 ohms. This is
due to the ID internal wiring and VIPER/T switch path resistance.

     Connection Path is as follows:

     From W4 P2-24 (UUT J1-24)          to W4 P1B-13F
     From ID J2B-13F                     to ID A1J12.32
     From ID A1P12.32                    to ID P12-88 (S202-14)

     From ID P12-90 (S202-2)            to ID A1P12.36
     From ID A1J12.36                    to ID A1J10.12
     From ID A1P10.12                    to ID P11-242 (S509-2)
     From ID P11-18 (S509-3)            to ID A1P9.19
     From ID A1J9.19                     to ID BUS 1

     From ID P20-2 (DMM-HI)             to ID A1P15.49
     From ID A1J15.49                    to ID A1J8.28
     From ID A1P8.28                     to ID P10-203 (S503-1)
     From ID P10-77 (S503-3)            to ID A1P6.13
     From ID A1J6.13                     to ID BUS 1

     From ID P20-3 (DMM-LO)             to ID A1P15.50
     From ID A1J15.50                    to ID A1J7.38
     From ID A1P7.38                     to ID P10-130 (S301-23)
     From ID P10-229 (S301-24)          to ID A1P7.36
     From ID A1J7.36                     to GROUND
```

```
Step 6
```

```
Description:
This step verifies resistance between J1-4 and J2-8.  The DMM is
used to measure the resistance using LL = 2E4 and UL = 8E4.

     Connection Path is as follows:
```

```
From ID P20-2 (DMM-HI)            to ID A1P15.49
From ID A1J15.49                  to ID A1J7.44
From ID A1P7.44                   to ID P10-99 (S301-4)
From ID P10-226 (S301-3)          to ID A1P7.13
From ID A1J7.13                   to ID J2B-14C
From W4 P1B-14C                   to W4 P2-4 (UUT J1-4)


From ID P20-3 (DMM-LO)            to ID A1P15.50
From ID A1J15.50                  to ID A1J8.26
From ID A1P8.26                   to ID P10-139 (S503-2)
From ID P10-12 (S503-4)           to ID A1P6.23
From ID A1J6.23                   to ID BUS 2


From ID BUS 2                     to ID A1J9.29
From ID A1P9.29                   to ID P11-17 (S509-4)
From ID P11-242 (S509-2)          to ID A1P10.12
From ID A1J10.12                  to ID A1J12.36
From ID A1P12.36                  to ID P12-90 (S202-2)


From ID P12-29 (S202-32)          to ID A1P12.41
From ID A1J12.41                  to ID J2B-9F
From W4 P1B-9F                    to W4 P3-B4 (UUT J2-8)
```

Step 7

Description:
This step verifies isolation between J2-8 and J1-2. The DMM is used
to measure the resistance using limits of GT 3E4 ohms.


```
    Connection Path is as follows:

From ID P20-2 (DMM-HI)            to ID A1P15.49
From ID A1J15.49                  to ID A1J8.28
From ID A1P8.28                   to ID P10-203 (S503-1)
From ID P10-77 (S503-3)           to ID A1P6.13
From ID A1J6.13                   to ID BUS 1


From ID BUS 1                     to ID A1J9.19
From ID A1P9.19                   to ID P11-18 (S509-3)
From ID P11-242 (S509-2)          to ID A1P10.12
From ID A1J10.12                  to ID A1J12.36
From ID A1P12.36                  to ID P12-90 (S202-2)


From ID P12-29 (S202-32)          to ID A1P12.41
From ID A1J12.41                  to ID J2B-9F
From W4 P1B-9F                    to W4 P3-B4 (UUT J2-8)


From ID P20-3 (DMM-LO)            to ID A1P15.50
From ID A1J15.50                  to ID A1J7.38
From ID A1P7.38                   to ID P10-130 (S301-23)
From ID P10-229 (S301-24)         to ID A1P7.36
From ID A1J7.36                   to GROUND
```

Step 8

Description:
This step verifies isolation between J2-9 and J1-2. The DMM is used
to measure the resistance using limits of LL = 11000 and UL = 20000
ohms.

```
        Connection Path is as follows:

        From W4 P3-B3 (UUT J2-9)          to W4 P1A-2E
        From ID J2A-2E                    to ID A1J14.39
        From ID A1P14.39                  to ID P13-56 (S202-9)

        From ID P12-59 (S202-1)           to ID A1P12.38
        From ID A1J12.38                  to ID A1J10.10
        From ID A1P10.10                  to ID P11-177 (S509-1)
        From ID P11-18 (S509-3)           to ID A1P9.19
        From ID A1J9.19                   to ID BUS 1

        From ID P20-2 (DMM-HI)            to ID A1P15.49
        From ID A1J15.49                  to ID A1J8.28
        From ID A1P8.28                   to ID P10-203 (S503-1)
        From ID P10-77 (S503-3)           to ID A1P6.13
        From ID A1J6.13                   to ID BUS 1

        From ID P20-3 (DMM-LO)            to ID A1P15.50
        From ID A1J15.50                  to ID A1J7.38
        From ID A1P7.38                   to ID P10-130 (S301-23)
        From ID P10-229 (S301-24)         to ID A1P7.36
        From ID A1J7.36                   to GROUND
```

2.4 Module 1 – Power Supply/Analog Tests

Description:
This Module will initiate several tests to determine that the
expected voltage levels are present at the appropriate points.

Refer to **Reference Drawings** when diagnosing connection paths.

Step 101

Description:
This step will verify that the board supply voltage is present at
the J2-8 Test Point. This verifies that the input circuitry to the
IC regulator is functional. The DMM will be used to measure the test
voltage. The expected voltage is 25.3 +/- 0.5V

```
        Connection Path is as follows:

        See "UUT Power"

        From W4 P3-B4 (UUT J2-8)          to W4 P1B-9F
        From ID J2B-9F                    to ID A1J12.41
        From ID A1P12.41                  to ID P12-29 (S202-32)
```

```
        From ID P12-90 (S202-2)              to ID A1P12.36
        From ID A1J12.36                     to ID A1J10.12
        From ID A1P10.12                     to ID P11-242 (S509-2)
        From ID P11-18 (S509-3)              to ID A1P9.19
        From ID A1J9.19                      to ID BUS 1

        From ID P20-2 (DMM-HI)               to ID A1P15.49
        From ID A1J15.49                     to ID A1J8.28
        From ID A1P8.28                      to ID P10-203 (S503-1)
        From ID P10-77 (S503-3)              to ID A1P6.13
        From ID A1J6.13                      to ID BUS 1

        From ID P20-3 (DMM-LO)               to ID A1P15.50
        From ID A1J15.50                     to ID A1J7.38
        From ID A1P7.38                      to ID P10-130 (S301-23)
        From ID P10-229 (S301-24)            to ID A1P7.36
        From ID A1J7.36                      to GROUND


Step 102


Description:
This step will verify that the +15V output from the on board
regulator IC is within specification. The DMM will be used to
measure the test voltage. The expected voltage is 15.0 +/- 0.5V.

        Connection Path is as follows:

        See "UUT Power"

        From W4 P3-B3 (UUT J2-9)             to W4 P1A-2E
        From ID J2A-2E                       to ID A1J14.39
        From ID A1P14.39                     to ID P13-56 (S202-9)

        From ID P12-59 (S202-1)              to ID A1P12.38
        From ID A1J12.38                     to ID A1J10.10
        From ID A1P10.10                     to ID P11-177 (S509-1)
        From ID P11-18 (S509-3)              to ID A1P9.19
        From ID A1J9.19                      to ID BUS 1

        From ID P20-2 (DMM-HI)               to ID A1P15.49
        From ID A1J15.49                     to ID A1J8.28
        From ID A1P8.28                      to ID P10-203 (S503-1)
        From ID P10-77 (S503-3)              to ID A1P6.13
        From ID A1J6.13                      to ID BUS 1

        From ID P20-3 (DMM-LO)               to ID A1P15.50
        From ID A1J15.50                     to ID A1J7.38
        From ID A1P7.38                      to ID P10-130 (S301-23)
        From ID P10-229 (S301-24)            to ID A1P7.36
        From ID A1J7.36                      to GROUND


Step 103
```

Description:
This step will check for supply voltage at J1-5. The DMM will be
used to measure the voltage. The expected voltage is 25.3 +/- 0.5V.

        Connection Path is as follows:

        See "UUT Power"

        From W4 P2-5 (UUT J1-5)   to W4 P1B-14F
        From ID J2B-14F   to ID A1J12.29
        From ID A1P12.29   to ID P12-24 (S202-7)

        From ID P12-59 (S202-1)   to ID A1P12.38
        From ID A1J12.38   to ID A1J10.10
        From ID A1P10.10   to ID P11-177 (S509-1)
        From ID P11-18 (S509-3)   to ID A1P9.19
        From ID A1J9.19   to ID BUS 1

        From ID P20-2 (DMM-HI)   to ID A1P15.49
        From ID A1J15.49   to ID A1J8.28
        From ID A1P8.28   to ID P10-203 (S503-1)
        From ID P10-77 (S503-3)   to ID A1P6.13
        From ID A1J6.13   to ID BUS 1

        From ID P20-3 (DMM-LO)   to ID A1P15.50
        From ID A1J15.50   to ID A1J7.38
        From ID A1P7.38   to ID P10-130 (S301-23)
        From ID P10-229 (S301-24)   to ID A1P7.36
        From ID A1J7.36   to GROUND

Step 104

Description:
This step will check for supply voltage at J1-6. The DMM will be
used to measure the voltage. The expected voltage is 25.3 +/- 1.0V.

        Connection Path is as follows:

        See "UUT Power"

        From W4 P2-6 (UUT J1-6)   to W4 P1B-13D
        From ID J2B-13D   to ID A1J12.30
        From ID A1P12.30   to ID P12-56 (S202-8)

        From ID P12-90 (S202-2)   to ID A1P12.36
        From ID A1J12.36   to ID A1J10.12
        From ID A1P10.12   to ID P11-242 (S509-2)
        From ID P11-18 (S509-3)   to ID A1P9.19
        From ID A1J9.19   to ID BUS 1

        From ID P20-2 (DMM-HI)   to ID A1P15.49
        From ID A1J15.49   to ID A1J8.28
        From ID A1P8.28   to ID P10-203 (S503-1)
        From ID P10-77 (S503-3)   to ID A1P6.13

```
        From ID A1J6.13                         to ID BUS 1

        From ID P20-3 (DMM-LO)                   to ID A1P15.50
        From ID A1J15.50                         to ID A1J7.38
        From ID A1P7.38                          to ID P10-130 (S301-23)
        From ID P10-229 (S301-24)                to ID A1P7.36
        From ID A1J7.36                          to GROUND
```

2.5 Module 2 – Digital Tests

```
Description:
This Module will utilize the Digital Test System (Teradyne) to
execute several sequences of digital test bursts to exercise and
test the full functionality of the board.  Digital test patterns
will stimulate the inputs of the design and drive specific outputs.
The output states will be monitored during the digital test burst
application.  Additional analog tests will verify the FET output
stage.

Refer to **Reference Drawings** when diagnosing connection paths.


Step 201


Description:
This step will exercise digital patterns generated using LASAR
simulation software. The patterns will exercise UUT pins in such a
way that all functional behavior is tested. The correspondence
between UUT pins and the DTS Logic Channels is as follows.


        Inputs:
                J1-20 to     DTS CH0
                J1-30 to     DTS CH1
                J1-31 to     DTS CH2
                J1-34 to     DTS CH3
                J1-36 to     DTS CH4
                J1-37 to     DTS CH5
                J1-10 to     DTS CH6
                J1-11 to     DTS CH7
                J1-14 to     DTS CH16
                J1-15 to     DTS CH17
                J1-16 to     DTS CH18
                J1-18 to     DTS CH19
                J1-38 to     DTS CH20
                J1-39 to     DTS CH21
                J1-26 to     DTS CH22


        Outputs:
                J1-1  to     DTS CH23
                J1-21 to     DTS CH24
                J1-22 to     DTS CH25
                J1-27 to     DTS CH26
                J1-13 to     DTS CH28
                J1-29 to     DTS CH30
                J1-32 to     DTS CH31
```

```
           J2-1  to    DTS CH40
           J2-2  to    DTS CH41
           J2-3  to    DTS CH42
           J2-4  to    DTS CH43
           J2-5  to    DTS CH44
           J2-6  to    DTS CH45
           J2-7  to    DTS CH46
           J2-10 to    DTS CH47
           J2-11 to    DTS CH48
           J2-12 to    DTS CH49
           J2-13 to    DTS CH50
           J2-14 to    DTS CH51
           J2-15 to    DTS CH52
           J2-16 to    DTS CH53
           J2-17 to    DTS CH54
           J2-18 to    DTS CH55
           J2-20 to    DTS CH56


   Connection Path is as follows:

   See "UUT Power"

   From ID P1-1 (DC1-HI)              to ID A1P1.1
   From ID A1J1.1 (+5V)              to ID A1U1.1
   From ID A1J1.1 (+5V)              to ID A1U1.13
   From ID A1J1.1 (+5V)              to ID A1U2.1
   From ID A1J1.1 (+5V)              to ID A1U2.13
   From ID A1J1.1 (+5V)              to ID A1U3.1
   From ID A1J1.1 (+5V)              to ID A1U3.13
   From ID A1J1.1 (+5V)              to ID A1U4.1
   From ID A1J1.1 (+5V)              to ID A1U5.1
   From ID A1J1.1 (+5V)              to ID A1U6.1
   From ID A1J1.1 (+5V)              to ID A1U7.1
   From ID A1J1.1 (+5V)              to ID A1U8.1
   From ID A1J1.1 (+5V)              to ID A1C1.1
   From ID A1J1.1 (+5V)              to ID A1C3.1
   From ID A1J1.1 (+5V)              to ID A1C5.1
   From ID A1J1.1 (+5V)              to ID A1C7.1
   From ID A1J1.1 (+5V)              to ID A1C8.1
   From ID A1J1.1 (+5V)              to ID A1C9.1
   From ID A1J1.1 (+5V)              to ID A1C10.1
   From ID A1J1.1 (+5V)              to ID A1C11.1
   From ID P1-2 (DC1-LO)              to ID A1P1.9
   From ID A1J1.9                    to GROUND
   From ID P1-4 (DC2-HI)              to ID A1P2.2
   From ID A1J2.2 (+15V)             to ID A1U1.16
   From ID A1J2.2 (+15V)             to ID A1U2.16
   From ID A1J2.2 (+15V)             to ID A1U3.16
   From ID A1J2.2 (+15V)             to ID A1C2.1
   From ID A1J2.2 (+15V)             to ID A1C4.1
   From ID A1J2.2 (+15V)             to ID A1C6.1
   From ID P1-5 (DC2-LO)              to ID A1P1.10
   From ID A1J1.10                   to GROUND
   From ID A1C1.2                    to GROUND
```

11

```
From ID A1C2.2                      to GROUND
From ID A1C3.2                      to GROUND
From ID A1C4.2                      to GROUND
From ID A1C5.2                      to GROUND
From ID A1C6.2                      to GROUND
From ID A1C7.2                      to GROUND
From ID A1C8.2                      to GROUND
From ID A1C9.2                      to GROUND
From ID A1C10.2                     to GROUND
From ID A1C11.2                     to GROUND
From ID A1U1.8                      to GROUND
From ID A1U2.8                      to GROUND
From ID A1U3.8                      to GROUND
From ID A1U4.8                      to GROUND
From ID A1U5.8                      to GROUND
From ID A1U6.8                      to GROUND
From ID A1U7.8                      to GROUND
From ID A1U8.8                      to GROUND
From ID P7-24 (DTS GCH 40)          to ID A1P5.3
From ID A1J5.3                      to GROUND
From ID P6-64 (DTS GCH 7)           to ID A1P5.1
From ID A1J5.1                      to GROUND

From W4 P2-20 (UUT J1-20)            to W4 P1A-9C
From ID J2A-9C                      to ID A1J10.49
From ID A1P10.49                    to ID P11-174 (S301-164)
From ID P11-204 (S301-163)          to ID A1P10.46
From ID A1J10.46                    to ID A1U1.2
From ID A1U1.3                      to ID A1J5.49
From ID A1P5.49                     to ID P6-25 (DTS CH0)

From W4 P2-30 (UUT J1-30)            to W4 P1A-9B
From ID J2A-9B                      to ID A1J10.47
From ID A1P10.47                    to ID P11-141 (S301-166)
From ID P11-44 (S301-165)           to ID A1P10.44
From ID A1J10.44                    to ID A1U1.4
From ID A1U1.5                      to ID A1J5.50
From ID A1P5.50                     to ID P6-26 (DTS CH1)

From W4 P2-31 (UUT J1-31)            to W4 P1A-10C
From ID J2A-10C                     to ID A1J10.45
From ID A1P10.45                    to ID P11-142 (S301-168)
From ID P11-76 (S301-167)           to ID A1P10.42
From ID A1J10.42                    to ID A1U1.6
From ID A1U1.7                      to ID A1J5.47
From ID A1P5.47                     to ID P6-27 (DTS CH2)

From W4 P2-34 (UUT J1-34)            to W4 P1A-10B
From ID J2A-10B                     to ID A1J10.43
From ID A1P10.43                    to ID P11-15 (S301-170)
From ID P11-14 (S301-169)           to ID A1P10.40
From ID A1J10.40                    to ID A1U1.10
From ID A1U1.9                      to ID A1J5.48
From ID A1P5.48                     to ID P6-28 (DTS CH3)
```

12

```
From W4 P2-36 (UUT J1-36)          to W4 P1A-10A
From ID J2A-10A                    to ID A1J10.41
From ID A1P10.41                   to ID P11-80 (S301-172)
From ID P11-79 (S301-171)          to ID A1P10.38
From ID A1J10.38                   to ID A1U1.12
From ID A1U1.11                    to ID A1J5.45
From ID A1P5.45                    to ID P6-29 (DTS CH4)


From W4 P2-37 (UUT J1-37)          to W4 P1A-11C
From ID J2A-11C                    to ID A1J10.39
From ID A1P10.39                   to ID P11-208 (S301-174)
From ID P11-47 (S301-173)          to ID A1P10.36
From ID A1J10.36                   to ID A1U1.15
From ID A1U1.14                    to ID A1J5.46
From ID A1P5.46                    to ID P6-30 (DTS CH5)


From W4 P2-10 (UUT J1-10)          to W4 P1A-11B
From ID J2A-11B                    to ID A1J10.37
From ID A1P10.37                   to ID P11-209 (S301-176)
From ID P11-143 (S301-175)         to ID A1P10.34
From ID A1J10.34                   to ID A1U2.2
From ID A1U2.3                     to ID A1J5.43
From ID A1P5.43                    to ID P6-31 (DTS CH6)


From W4 P2-11 (UUT J1-11)          to W4 P1A-11A
From ID J2A-11A                    to ID A1J10.35
From ID A1P10.35                   to ID P11-48 (S301-178)
From ID P11-175 (S301-177)         to ID A1P10.32
From ID A1J10.32                   to ID A1U2.4
From ID A1U2.5                     to ID A1J5.44
From ID A1P5.44                    to ID P6-32 (DTS CH7)


From W4 P2-14 (UUT J1-14)          to W4 P1A-12E
From ID J2A-12E                    to ID A1J10.33
From ID A1P10.33                   to ID P11-81 (S301-180)
From ID P11-78 (S301-179)          to ID A1P10.30
From ID A1J10.30                   to ID A1U2.6
From ID A1U2.7                     to ID A1J5.41
From ID A1P5.41                    to ID P6-24 (DTS CH16)


From W4 P2-15 (UUT J1-15)          to W4 P1A-12D
From ID J2A-12D                    to ID A1J10.31
From ID A1P10.31                   to ID P11-243 (S301-182)
From ID P11-178 (S301-181)         to ID A1P10.28
From ID A1J10.28                   to ID A1U2.10
From ID A1U2.9                     to ID A1J5.42
From ID A1P5.42                    to ID P6-23 (DTS CH17)


From W4 P2-16 (UUT J1-16)          to W4 P1A-12C
From ID J2A-12C                    to ID A1J10.29
From ID A1P10.29                   to ID P11-83 (S301-184)
From ID P11-210 (S301-183)         to ID A1P10.26
From ID A1J10.26                   to ID A1U2.12
```

```
From ID A1U2.11                        to ID A1J5.39
From ID A1P5.39                        to ID P6-22 (DTS CH18)


From W4 P2-18 (UUT J1-18)              to W4 P1A-12B
From ID J2A-12B                        to ID A1J10.27
From ID A1P10.27                       to ID P11-82 (S301-186)
From ID P11-49 (S301-185)              to ID A1P10.24
From ID A1J10.24                       to ID A1U2.15
From ID A1U2.14                        to ID A1J5.40
From ID A1P5.40                        to ID P6-21 (DTS CH19)


From W4 P2-38 (UUT J1-38)              to W4 P1A-12A
From ID J2A-12A                        to ID A1J10.25
From ID A1P10.25                       to ID P11-51 (S301-188)
From ID P11-114 (S301-187)             to ID A1P10.22
From ID A1J10.22                       to ID A1U3.2
From ID A1U3.3                         to ID A1J5.37
From ID A1P5.37                        to ID P6-20 (DTS CH20)


From W4 P2-39 (UUT J1-39)              to W4 P1A-13F
From ID J2A-13F                        to ID A1J10.23
From ID A1P10.23                       to ID P11-179 (S301-190)
From ID P11-145 (S301-189)             to ID A1P10.20
From ID A1J10.20                       to ID A1U3.4
From ID A1U3.5                         to ID A1J5.38
From ID A1P5.38                        to ID P6-19 (DTS CH21)


From W4 P2-26 (UUT J1-26)              to W4 P1A-13E
From ID J2A-13E                        to ID A1J10.21
From ID A1P10.21                       to ID P11-148 (S301-192)
From ID P11-50 (S301-191)              to ID A1P10.18
From ID A1J10.18                       to ID A1U3.6
From ID A1U3.7                         to ID A1J5.35
From ID A1P5.35                        to ID P6-18 (DTS CH22)


From W4 P2-1 (UUT J1-1)                to W4 P1A-13A
From ID J2A-13A                        to ID A1U4.3
From ID J2A-13A                        to ID A1R12.1
From ID A1R12.2                        to ID A1J1.2 (+15V)
From ID A1U4.2                         to ID A1J5.36
From ID A1P5.36                        to ID P6-17 (DTS CH23)


From W4 P2-21 (UUT J1-21)              to W4 P1A-13B
From ID J2A-13B                        to ID A1U4.5
From ID J2A-13B                        to ID A1R13.1
From ID A1R13.2                        to ID A1J1.2 (+15V)
From ID A1U4.4                         to ID A1J5.33
From ID A1P5.33                        to ID P6-16 (DTS CH24)


From W4 P2-22 (UUT J1-22)              to W4 P1A-13C
From ID J2A-13C                        to ID A1U4.7
From ID J2A-13C                        to ID A1R14.1
From ID A1R14.2                        to ID A1J1.2 (+15V)
From ID A1U4.6                         to ID A1J5.34
```

14

```
From ID A1P5.34                         to ID P6-15 (DTS CH25)


From W4 P2-27 (UUT J1-27)               to W4 P1A-13D
From ID J2A-13D                         to ID A1U4.9
From ID J2A-13D                         to ID A1R15.1
From ID A1R15.2                         to ID A1J1.2 (+15V)
From ID A1U4.10                         to ID A1J5.31
From ID A1P5.31                         to ID P6-14 (DTS CH26)


From W4 P2-13 (UUT J1-13)               to W4 P1A-14E
From ID J2A-14E                         to ID A1U5.5
From ID A1U5.4                          to ID A1J5.29
From ID A1P5.29                         to ID P6-12 (DTS CH28)


From W4 P2-29 (UUT J1-29)               to W4 P1B-1F
From ID J2B-1F                          to ID A1U5.9
From ID A1U5.10                         to ID A1J5.27
From ID A1P5.27                         to ID P6-10 (DTS CH30)


From W4 P2-32 (UUT J1-32)               to W4 P1B-1E
From ID J2B-1E                          to ID A1U5.11
From ID A1U5.12                         to ID A1J5.28
From ID A1P5.28                         to ID P6-9 (DTS CH31)


From W4 P3-A1 (UUT J2-1)                to W4 P1B-1D
From ID J2B-1D                          to ID A1U6.3
From ID A1U6.2                          to ID A1J5.25
From ID A1P5.25                         to ID P7-56 (DTS CH40)


From W4 P3-B1 (UUT J2-2)                to W4 P1B-1C
From ID J2B-1C                          to ID A1U6.5
From ID A1U6.4                          to ID A1J5.26
From ID A1P5.26                         to ID P7-55 (DTS CH41)


From W4 P3-A2 (UUT J2-3)                to W4 P1B-1B
From ID J2B-1B                          to ID A1U6.7
From ID A1U6.6                          to ID A1J5.23
From ID A1P5.23                         to ID P7-54 (DTS CH42)


From W4 P3-B2 (UUT J2-4)                to W4 P1B-1A
From ID J2B-1A                          to ID A1U6.9
From ID A1U6.10                         to ID A1J5.24
From ID A1P5.24                         to ID P7-53 (DTS CH43)


From W4 P3-A3 (UUT J2-5)                to W4 P1B-2F
From ID J2B-2F                          to ID A1U6.11
From ID A1U6.12                         to ID A1J5.21
From ID A1P5.21                         to ID P7-52 (DTS CH44)


From W4 P3-B3 (UUT J2-6)                to W4 P1B-2C
From ID J2B-2C                          to ID A1U6.14
From ID A1U6.15                         to ID A1J5.22
From ID A1P5.22                         to ID P7-51 (DTS CH45)
```

15

```
From W4 P3-A4 (UUT J2-7)          to W4 P1B-2B
From ID J2B-2B                    to ID A1U7.3
From ID A1U7.2                    to ID A1J5.19
From ID A1P5.19                   to ID P7-50 (DTS CH46)

From W4 P3-B5 (UUT J2-10)         to W4 P1B-2A
From ID J2B-2A                    to ID A1U7.5
From ID A1U7.4                    to ID A1J5.20
From ID A1P5.20                   to ID P7-49 (DTS CH47)

From W4 P3-A6 (UUT J2-11)         to W4 P1B-3C
From ID J2B-3C                    to ID A1U7.7
From ID A1U7.6                    to ID A1J5.17
From ID A1P5.17                   to ID P7-48 (DTS CH48)

From W4 P3-B6 (UUT J2-12)         to W4 P1B-3B
From ID J2B-3B                    to ID A1U7.9
From ID A1U7.10                   to ID A1J5.18
From ID A1P5.18                   to ID P7-47 (DTS CH49)

From W4 P3-A7 (UUT J2-13)         to W4 P1B-3A
From ID J2B-3A                    to ID A1U7.11
From ID A1U7.12                   to ID A1J5.15
From ID A1P5.15                   to ID P7-46 (DTS CH50)

From W4 P3-B7 (UUT J2-14)         to W4 P1B-4C
From ID J2B-4C                    to ID A1U7.14
From ID A1U7.15                   to ID A1J5.16
From ID A1P5.16                   to ID P7-45 (DTS CH51)

From W4 P3-A8 (UUT J2-15)         to W4 P1B-4B
From ID J2B-4B                    to ID A1U8.3
From ID A1U8.2                    to ID A1J5.13
From ID A1P5.13                   to ID P7-44 (DTS CH52)

From W4 P3-B8 (UUT J2-16)         to W4 P1B-4A
From ID J2B-4A                    to ID A1U8.5
From ID A1U8.4                    to ID A1J5.11
From ID A1P5.11                   to ID P7-43 (DTS CH53)

From W4 P3-A9 (UUT J2-17)         to W4 P1B-5C
From ID J2B-5C                    to ID A1U8.7
From ID A1U8.6                    to ID A1J5.9
From ID A1P5.9                    to ID P7-42 (DTS CH54)

From W4 P3-B9 (UUT J2-18)         to W4 P1B-5B
From ID J2B-5B                    to ID A1U8.9
From ID A1U8.10                   to ID A1J5.7
From ID A1P5.7                    to ID P7-41 (DTS CH55)

From W4 P3-B10 (UUT J2-20)        to W4 P1B-5A
From ID J2B-5A                    to ID A1U8.11
From ID A1U8.12                   to ID A1J5.5
From ID A1P5.5                    to ID P7-40 (DTS CH56)
```

Step 202

Description:
This step will exercise digital patterns generated using LASAR
simulation software. The patterns will exercise UUT pins in such a
way that all functional behavior of the FET outputs is tested. The
correspondence between UUT pins and the DTS Logic Channels is as
follows.

```
     Inputs:
          J1-20 to    DTS CH0
          J1-30 to    DTS CH1
          J1-31 to    DTS CH2
          J1-34 to    DTS CH3
          J1-36 to    DTS CH4
          J1-37 to    DTS CH5
          J1-10 to    DTS CH6
          J1-11 to    DTS CH7
          J1-14 to    DTS CH16
          J1-15 to    DTS CH17
          J1-16 to    DTS CH18
          J1-18 to    DTS CH19
          J1-38 to    DTS CH20
          J1-39 to    DTS CH21
          J1-26 to    DTS CH22

     Output:
          J1-28 AND J1-9 to DTS CH27
```

In this step, there are two FET drive outputs that require
additional circuitry, as their logical high voltages are
approximately 36VDC, while their low outputs oscillate as a square
wave between 10V and 2.5V at 2.885 kHz. Two FETs have been added to
the ID (with protection and passive components) to stabilize and
scale these two outputs to acceptable logic levels. The design of
this circuitry provides one output, as the logical AND of the two
FET drive outputs J1-28 and J1-9. This is fed to DTS CH27.

```
     Connection Path is as follows:

     See "UUT Power"

     From ID P1-1 (DC1-HI)              to ID A1P1.1
     From ID A1J1.1 (+5V)               to ID A1U1.1
     From ID A1J1.1 (+5V)               to ID A1U1.13
     From ID A1J1.1 (+5V)               to ID A1U2.1
     From ID A1J1.1 (+5V)               to ID A1U2.13
     From ID A1J1.1 (+5V)               to ID A1U3.1
     From ID A1J1.1 (+5V)               to ID A1U3.13
     From ID A1J1.1 (+5V)               to ID A1U4.1
     From ID A1J1.1 (+5V)               to ID A1U5.1
     From ID A1J1.1 (+5V)               to ID A1U6.1
     From ID A1J1.1 (+5V)               to ID A1U7.1
```

```
From ID A1J1.1 (+5V)              to ID A1U8.1
From ID A1J1.1 (+5V)              to ID A1C1.1
From ID A1J1.1 (+5V)              to ID A1C3.1
From ID A1J1.1 (+5V)              to ID A1C5.1
From ID A1J1.1 (+5V)              to ID A1C7.1
From ID A1J1.1 (+5V)              to ID A1C8.1
From ID A1J1.1 (+5V)              to ID A1C9.1
From ID A1J1.1 (+5V)              to ID A1C10.1
From ID A1J1.1 (+5V)              to ID A1C11.1
From ID P1-2 (DC1-LO)             to ID A1P1.9
From ID A1J1.9                    to GROUND
From ID P1-4 (DC2-HI)             to ID A1P2.2
From ID A1J2.2 (+15V)             to ID A1U1.16
From ID A1J2.2 (+15V)             to ID A1U2.16
From ID A1J2.2 (+15V)             to ID A1U3.16
From ID A1J2.2 (+15V)             to ID A1C2.1
From ID A1J2.2 (+15V)             to ID A1C4.1
From ID A1J2.2 (+15V)             to ID A1C6.1
From ID P1-5 (DC2-LO)             to ID A1P1.10
From ID A1J1.10                   to GROUND
From ID A1C1.2                    to GROUND
From ID A1C2.2                    to GROUND
From ID A1C3.2                    to GROUND
From ID A1C4.2                    to GROUND
From ID A1C5.2                    to GROUND
From ID A1C6.2                    to GROUND
From ID A1C7.2                    to GROUND
From ID A1C8.2                    to GROUND
From ID A1C9.2                    to GROUND
From ID A1C10.2                   to GROUND
From ID A1C11.2                   to GROUND
From ID A1U1.8                    to GROUND
From ID A1U2.8                    to GROUND
From ID A1U3.8                    to GROUND
From ID A1U4.8                    to GROUND
From ID A1U5.8                    to GROUND
From ID A1U6.8                    to GROUND
From ID A1U7.8                    to GROUND
From ID A1U8.8                    to GROUND
From ID P7-24 (DTS GCH 40)        to ID A1P5.3
From ID A1J5.3                    to GROUND
From ID P6-64 (DTS GCH 7)         to ID A1P5.1
From ID A1J5.1                    to GROUND

From W4 P2-20 (UUT J1-20)         to W4 P1A-9C
From ID J2A-9C                    to ID A1J10.49
From ID A1P10.49                  to ID P11-174 (S301-164)
From ID P11-204 (S301-163)        to ID A1P10.46
From ID A1J10.46                  to ID A1U1.2
From ID A1U1.3                    to ID A1J5.49
From ID A1P5.49                   to ID P6-25 (DTS CH0)
From W4 P2-30 (UUT J1-30)         to W4 P1A-9B
From ID J2A-9B                    to ID A1J10.47
From ID A1P10.47                  to ID P11-141 (S301-166)
```

18

```
From ID P11-44 (S301-165)          to ID A1P10.44
From ID A1J10.44                   to ID A1U1.4
From ID A1U1.5                     to ID A1J5.50
From ID A1P5.50                    to ID P6-26 (DTS CH1)

From W4 P2-31 (UUT J1-31)          to W4 P1A-10C
From ID J2A-10C                    to ID A1J10.45
From ID A1P10.45                   to ID P11-142 (S301-168)
From ID P11-76 (S301-167)          to ID A1P10.42
From ID A1J10.42                   to ID A1U1.6
From ID A1U1.7                     to ID A1J5.47
From ID A1P5.47                    to ID P6-27 (DTS CH2)

From W4 P2-34 (UUT J1-34)          to W4 P1A-10B
From ID J2A-10B                    to ID A1J10.43
From ID A1P10.43                   to ID P11-15 (S301-170)
From ID P11-14 (S301-169)          to ID A1P10.40
From ID A1J10.40                   to ID A1U1.10
From ID A1U1.9                     to ID A1J5.48
From ID A1P5.48                    to ID P6-28 (DTS CH3)

From W4 P2-36 (UUT J1-36)          to W4 P1A-10A
From ID J2A-10A                    to ID A1J10.41
From ID A1P10.41                   to ID P11-80 (S301-172)
From ID P11-79 (S301-171)          to ID A1P10.38
From ID A1J10.38                   to ID A1U1.12
From ID A1U1.11                    to ID A1J5.45
From ID A1P5.45                    to ID P6-29 (DTS CH4)

From W4 P2-37 (UUT J1-37)          to W4 P1A-11C
From ID J2A-11C                    to ID A1J10.39
From ID A1P10.39                   to ID P11-208 (S301-174)
From ID P11-47 (S301-173)          to ID A1P10.36
From ID A1J10.36                   to ID A1U1.15
From ID A1U1.14                    to ID A1J5.46
From ID A1P5.46                    to ID P6-30 (DTS CH5)

From W4 P2-10 (UUT J1-10)          to W4 P1A-11B
From ID J2A-11B                    to ID A1J10.37
From ID A1P10.37                   to ID P11-209 (S301-176)
From ID P11-143 (S301-175)         to ID A1P10.34
From ID A1J10.34                   to ID A1U2.2
From ID A1U2.3                     to ID A1J5.43
From ID A1P5.43                    to ID P6-31 (DTS CH6)

From W4 P2-11 (UUT J1-11)          to W4 P1A-11A
From ID J2A-11A                    to ID A1J10.35
From ID A1P10.35                   to ID P11-48 (S301-178)
From ID P11-175 (S301-177)         to ID A1P10.32
From ID A1J10.32                   to ID A1U2.4
From ID A1U2.5                     to ID A1J5.44
From ID A1P5.44                    to ID P6-32 (DTS CH7)

From W4 P2-14 (UUT J1-14)          to W4 P1A-12E
```

```
From ID J2A-12E                     to ID A1J10.33
From ID A1P10.33                    to ID P11-81 (S301-180)
From ID P11-78 (S301-179)           to ID A1P10.30
From ID A1J10.30                    to ID A1U2.6
From ID A1U2.7                      to ID A1J5.41
From ID A1P5.41                     to ID P6-24 (DTS CH16)


From W4 P2-15 (UUT J1-15)           to W4 P1A-12D
From ID J2A-12D                     to ID A1J10.31
From ID A1P10.31                    to ID P11-243 (S301-182)
From ID P11-178 (S301-181)          to ID A1P10.28
From ID A1J10.28                    to ID A1U2.10
From ID A1U2.9                      to ID A1J5.42
From ID A1P5.42                     to ID P6-23 (DTS CH17)


From W4 P2-16 (UUT J1-16)           to W4 P1A-12C
From ID J2A-12C                     to ID A1J10.29
From ID A1P10.29                    to ID P11-83 (S301-184)
From ID P11-210 (S301-183)          to ID A1P10.26
From ID A1J10.26                    to ID A1U2.12
From ID A1U2.11                     to ID A1J5.39
From ID A1P5.39                     to ID P6-22 (DTS CH18)


From W4 P2-18 (UUT J1-18)           to W4 P1A-12B
From ID J2A-12B                     to ID A1J10.27
From ID A1P10.27                    to ID P11-82 (S301-186)
From ID P11-49 (S301-185)           to ID A1P10.24
From ID A1J10.24                    to ID A1U2.15
From ID A1U2.14                     to ID A1J5.40
From ID A1P5.40                     to ID P6-21 (DTS CH19)


From W4 P2-38 (UUT J1-38)           to W4 P1A-12A
From ID J2A-12A                     to ID A1J10.25
From ID A1P10.25                    to ID P11-51 (S301-188)
From ID P11-114 (S301-187)          to ID A1P10.22
From ID A1J10.22                    to ID A1U3.2
From ID A1U3.3                      to ID A1J5.37
From ID A1P5.37                     to ID P6-20 (DTS CH20)


From W4 P2-39 (UUT J1-39)           to W4 P1A-13F
From ID J2A-13F                     to ID A1J10.23
From ID A1P10.23                    to ID P11-179 (S301-190)
From ID P11-145 (S301-189)          to ID A1P10.20
From ID A1J10.20                    to ID A1U3.4
From ID A1U3.5                      to ID A1J5.38
From ID A1P5.38                     to ID P6-19 (DTS CH21)


From W4 P2-26 (UUT J1-26)           to W4 P1A-13E
From ID J2A-13E                     to ID A1J10.21
From ID A1P10.21                    to ID P11-148 (S301-192)
From ID P11-50 (S301-191)           to ID A1P10.18
From ID A1J10.18                    to ID A1U3.6
From ID A1U3.7                      to ID A1J5.35
From ID A1P5.35                     to ID P6-18 (DTS CH22)
```

```
       From W4 P2-28 (UUT J1-28)          to W4 P1B-4E
       From ID J2B-4E                     to ID A1D1.A
       From ID A1D1.K                     to ID A1Q1.1
       From ID A1D1.K                     to ID A1CR2.K
       From ID A1D1.K                     to ID A1R20.1

       From W4 P2-9 (UUT J1-9)            to W4 P1B-5E
       From ID J2B-5E                     to ID A1Q2.1
       From ID J2B-5E                     to ID A1CR3.K
       From ID J2B-5E                     to ID A1R21.1

       From W4 P2-8 (UUT J1-8)            to W4 P1B-6E
       From ID J2B-6E                     to ID A1Q2.3
       From ID J2B-6E                     to ID A1R22.1
       From ID J2B-6E                     to ID A1CR3.A
       From ID J2B-6E                     to ID A1R21.2
       From ID J2B-6E                     to ID A1R23.1
       From ID A1R23.2                    to ID J2B-8E
       From ID A1R23.2                    to ID A1R24.1
       From ID A1R23.2                    to ID A1C12.1
       From ID A1C12.2                    to GROUND
       From ID A1R24.2                    to GROUND
       From ID A1R22.2                    to GROUND
       From ID A1J1.3                     to ID A1Q1.2
       From ID A1Q1.3                     to ID A1Q2.2
       From ID A1Q1.3                     to ID A1CR2.A
       From ID A1Q1.3                     to ID A1R20.2
       From W4 P1B-8E                     to W4 P1A-14D
       From ID J1A-14D                    to ID A1U5.3
       From ID A1U5.2                     to ID A1J5.32
       From ID A1P5.32                    to ID P6-13 (DTS CH27)
```

```
Step 203
```

```
Description:
This step will verify the correct bootstrap behavior of the two FET
outputs, J1-28 (FET1) and J1-9 (FET2), with respect to J1-8 (D60T).
It is not sufficient to look at a single channel, or single voltage
in isolation. Therefore, this step will measure the V-POS and V-NEG
voltages of J1-28, J1-9, and J1-8 in the Logic 0 state, and
calculate the following:

     FET1-V-POS -  D60T-V-POS
     FET1-V-NEG -  D60T-V-NEG
     FET2-V-POS -  D60T-V-POS
     FET2-V-NEG -  D60T-V-NEG


The circuit will then be put into the Logic 1 state, where FET1-VDC,
FET2-VDC, and D60T-VDC are measured.
In the Logic 0 state, the 4 differences should be 0V +/- 0.5V.
Additionally, the entire circuit must be floating above ground, with
J1-8 swinging between 10V +/- 0.5V and 2.5V +/- 0.5V. In the Logic 1
state, the two FET outputs must be above 35 VDC, and the D60T output
```

must be above 24.5V. All 9 criteria must be met for this step to
pass. A failure of one or more indicates a 555 or Charge Pump Analog
failure.
     Connection Path is as follows:

See "UUT Power"

```
From W4 P2-28 (UUT J1-28)          to W4 P1B-4E
From ID J2B-4E                     to ID A1D1.A
From ID A1D1.K                     to ID A1Q1.1
From ID A1D1.K                     to ID A1CR2.K
From ID A1D1.K                     to ID A1R20.1

From W4 P2-9 (UUT J1-9)            to W4 P1B-5E
From ID J2B-5E                     to ID A1Q2.1
From ID J2B-5E                     to ID A1CR3.K
From ID J2B-5E                     to ID A1R21.1

From W4 P2-8 (UUT J1-8)            to W4 P1B-6E
From ID J2B-6E                     to ID A1Q2.3
From ID J2B-6E                     to ID A1R22.1
From ID J2B-6E                     to ID A1CR3.A
From ID J2B-6E                     to ID A1R21.2
From ID J2B-6E                     to ID A1R23.1
From ID A1R23.2                    to ID J2B-8E
From ID A1R23.2                    to ID A1R24.1
From ID A1R23.2                    to ID A1C12.1
From ID A1C12.2                    to GROUND
From ID A1R24.2                    to GROUND
From ID A1R22.2                    to GROUND
From ID A1J1.3                     to ID A1Q1.2
From ID A1Q1.3                     to ID A1Q2.2
From ID A1Q1.3                     to ID A1CR2.A
From ID A1Q1.3                     to ID A1R20.2
From W4 P1B-8E                     to W4 P1A-14D
From ID J1A-14D                    to ID A1U5.3
From ID A1U5.2                     to ID A1J5.32
From ID A1P5.32                    to ID P6-13 (DTS CH27)
```

3.0 Functional Flow Chart (FFC)