Instruction Leaflet **IL01906008E** Effective March 2011

Instructions for Testing Magnum DS Digitrips with the MTK2000 Test Kit

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⚠ WARNING

DO NOT ATTEMPT TO INSTALL OR PERFORM MAINTENANCE ON EQUIPMENT WHILE IT IS ENERGIZED. DEATH OR SEVERE PERSONAL INJURY CAN RESULT FROM CONTACT WITH ENERGIZED EQUIPMENT. ALWAYS VERIFY THAT NO VOLTAGE IS PRESENT BEFORE PROCEEDING WITH THE TASK AND ALWAYS FOLLOW GENERALLY ACCEPTED SAFETY PROCEDURES. EATON IS NOT LIABLE FOR THE MIS-APPLICATION OR MIS-INSTALLATION OF ITS PRODUCTS.

⚠ IMPORTANT

THE USER IS CAUTIONED TO OBSERVE ALL OF THE RECOMMENDATIONS, WARNINGS AND CAUTIONS RELATING TO THE SAFETY OF PERSONNEL AND EQUIPMENT, AS WELL AS ALL GENERAL AND LOCAL HEALTH AND SAFETY LAWS, CODES AND PROCEDURES. THE RECOMMENDATIONS AND INFORMATION CONTAINED HEREIN ARE BASED ON EATON'S EXPERIENCE AND JUDGEMENT, BUT SHOULD NOT BE CONSIDERED TO BE ALL-INCLUSIVE OR COVERING EVERY APPLICATION OR CIRCUMSTANCE WHICH MAY ARISE. IF ANY QUESTIONS ARISE, CONTACT EATON FOR FURTHER INFORMATION OR INSTRUCTIONS.

⚠ WARNING

DO NOT TEST THE TRIP UNIT WHILE THE BREAKER IS IN THE "CONNECTED" POSITION. BREAKER MUST BE RACKED TO THE "TEST" POSITION, OR REMOVED FROM THE SWITCHGEAR CELL.

Section 1: Introduction

1.1 General Information

The MTK200 Trip Unit Test is used to test and verify the pickup levels and time delay settings of a breaker's trip unit. Scheduled testing of the circuit breaker's trip unit will help to ensure proper operation of the breaker and will lead to safer and more efficient performance.

520 Digitrip Units: The MTK2000 Trip Unit Test it supports the 520 curves accept the short delay I^2T and ground I^2T.

1150 Digitrip Units: The MTK 2000 Trip Unit Test Kit does not support the Long Delay I^4T Short Delay Flat curve, or any of the IEC curves or the IEEE curves.

Figure 1. MTK2000 Test Kit

Section 2: MTK2000 / Breaker Information

2.1 MTK2000 Controls

The following are the identifications and functions of the MTK2000 controls. Any time these are referred to in the following portions of this publication they will be in **bold type** as shown in the following definitions

Power — Turns **power** on and off to the MTK2000.

Phase Select — Permits checking of all phase input circuits on the Magnum breaker. **Phase Select** can be pressed at any time prior to performing a test. Since all feed into a common pickup and timing circuit, it is only necessary to use one phase to test all the solid-state circuitry functions. Current is applied through the selected phase and returns to MTK2000 via the neutral element. It is only necessary to use one circuit function (e.g., Long Delay) to verify that each phase (A, B and C) performs similarly. The **Phase Select** button is also used as an accelerator when scrolling through numerical entry fields and can be used to delete characters when entering the breaker name.

Test Select — Cycles the MTK2000 through the steps of testing, including date input and the various tests. (See **Flowchart at back of document**)

Start — **Test Select** and **Start** both change menus, but when **Start** is pushed it will cause action.

Cancel — When pressed, takes the MTK2000 back to the beginning of the test sequence, it is also used to move to previous field when entering text data. (See **Flowchart at back of document**). Pressing **Cancel** twice will take the MTK2000 back to the main screen.

Up Arrow — Increments value.

Down Arrow — Decrements value.

2.2 Digitrip Long Time Function

Testing of the Trip Unit must be performed with the Trip Unit properly installed in the breaker. The Long Time function has a memory circuit with a reset time of 36 times the Long Delay Time. The thermal memory jumper may need to be relocated to disable the thermal memory. This jumper is shipped from the factory in the "active" position. (Reference Section 2.3, MTK2000 Breaker Cables) If a trip function LED on the Trip Unit is lit prior to a test, press the Trip Reset pushbutton on the Trip Unit. When bench testing a breaker wired for zone interlock applications, MDS shorting plug 8779C02G06 should be installed. (Reference Section 2.3. MTK2000 Breaker Cables)

2.3 MTK2000 Breaker Cables

The MTK2000 MDS Breaker Cable is used to connect the MTK2000 to the breaker's trip unit. Before the MDS 14 pin MTK2000 plug is inserted into the Digitrip verify the Long Time Memory (LTM) jumper is in the inactive position, or it is removed. If it is in the active position, it must be removed or returned to the inactive position before the adapter connector can be inserted. It is important to note that all tests must be performed with the LTM jumper in the "inactive" position.

Note: A physical jumper is used with 520 – 520MC Digitrips.

The 1150 is set differently than the 520 Digitrips; there is no LTM jumper, the "Long Memory" function must be set to off.

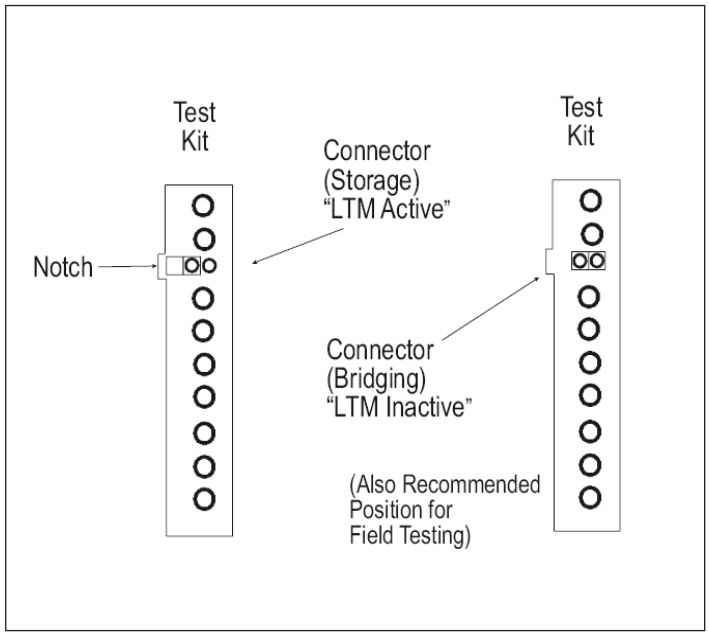


Figure 2. Magnum Test Port

2.4 Zone Interlock Shorting Plug

The Zone Interlock Shorting Plug for the Magnum breaker (8779C02G06) is required when the breaker is removed from the switchgear cell for testing. The Shorting Plug must be installed on the breaker secondary contacts to defeat zone-interlock wiring.

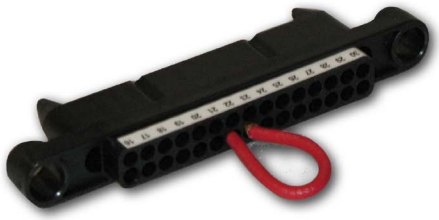


Figure 3. ZSI Shorting Plug

Review the picture below for the installation of the Magnum Shorting plug.

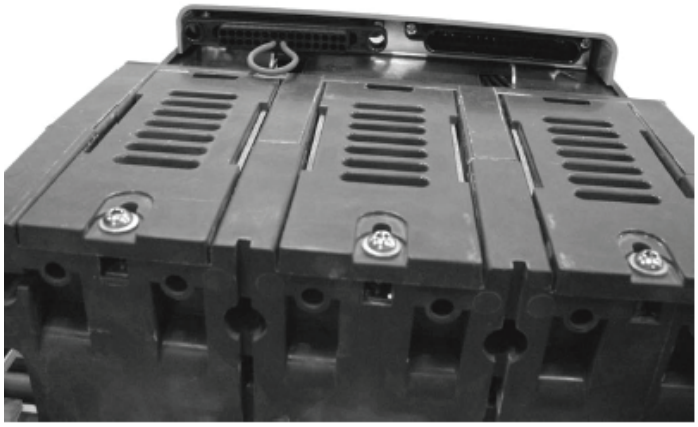


Figure 4. Magnum Shorting Plug

Note: If the ZSI shorting plug is not in the circuit the ground fault time test will go instantaneously. The short delay time test will go instantaneously.

2.5 Circuit Breaker Information

2.5.1 MTK2000 Tolerance Bands

The Long Delay Pickup point is normally set in the Digitrip at 110% of the Long Delay Setting. The tolerance is ±5% of 110%. Long Delay Times of the Trip Unit are top of band. The tolerance is +0% /-30% of the Long Delay Time Setting. Short Delay Pickup, Instantaneous, and Ground Fault Pickup values are mid-band, which have ±10% tolerance. Short Delay Time and Ground Time require curve for band tolerance.

2.5.2 Digitrip Test Guidelines

Testing of the Trip Unit must be performed with the Trip Unit properly installed in the breaker. The Long Time function has a memory circuit with a reset time of 36 times the Long Delay Time. The thermal memory jumper may need to be relocated to disable the thermal memory. This jumper is shipped from the factory in the "active" position. (Reference Section 2.3, MTK2000 Breaker Cables) If a trip function LED on the Trip Unit is lit prior to a test, press the Trip Reset pushbutton on the Trip Unit. When bench testing a breaker wired for zone interlock applications, MDS shorting plug 8779C02G06 should be installed (Reference Section 2.3, MTK2000 Breaker Cables).

Section 3: MTK2000 Setup

3.1 General Information

Place the MTK2000 on a stable surface prior to testing. The handle can be rotated for ease of viewing and operation by pressing the buttons on the sides of the handle and rotating the handle to the desired angle (see Flowchart at back of document). When powering on, the MTK2000 will run a self diagnosis before displaying the Home Screen (see Flowchart at back of document).

3.2 Hardware Connections

Insert the power supply into a standard 120V outlet and plug the opposite end into the MTK2000. Plug the breaker cable into the MTK2000 and insert the grooved end into the breaker trip unit. Check the long time memory jumper position before plugging connector into test port.

3.3 Storing Test Results

The MTK2000 is capable of storing data obtained from multiple tests on the included SD Card. These results can be downloaded to a computer via the communication cable included in the kit or by importing the data directly from the SD Card. This data is saved automatically to the MTK2000 as each test is performed. Once the memory is full, the MTK2000 automatically begins to write over the first test in memory. Because calibration data is also stored on the card, it is crucial to the operation of the MTK2000 that the information on the SD Card is never removed.

It is important to press the **Cancel** button twice after performing all tests on one trip unit before proceeding to the next trip unit so that a new breaker name can be entered.

3.4 Powering Up the MTK2000

Press **Power** on the MTK2000. Once the kit powers on, the self-diagnosis has been completed and the kit is ready to test the trip unit. Upon power up and following self-diagnosis, the MTK2000 will display the Home Screen. Press **Test Select**.

3.5 Setting the Date & Time

Reference Flow Chart for this section in order to understand how to modify the System Setting for the MTK2000, press the **Down Arrow** immediately after the MTK2000 displays the Home Screen. The Home Screen will read "System Settings –> Date & Time". Press **Start** to modify the date. Use the **Up Arrow** and **Down Arrow** to modify values in each selection and press **Test Select** to proceed. Once completed press **Cancel** to return to the Systems Configuration menu. Pressing **Cancel** once more will return the MTK2000 to the Home Screen.

3.6 Communication Settings

Reference Flow Chart for this section in order to understand how to modify the System Setting for the MTK2000, press the **Down Arrow** immediately after the MTK2000 displays the Home Screen. Once "System Settings –> Date & Time" is displayed, press the **Down Arrow** to verify "Communications" is displayed.

Press **Start** to modify these settings. Use the **Up Arrow** and **Down Arrow** to modify values in each selection and press **Test Select** to proceed. Once completed press **Cancel** to return to the Systems Configuration menu. Pressing **Cancel** once more will return the MTK2000 to the Home Screen.

Section 4: Testing the MDS 520 Digitrip Models

4.1 Legend for MTK2000 testing with 520 Digitrips

g= entered ground value setting

GF= Ground Setting

i(A)= the entered instantaneous value setting

I(A)= the output current value for the MTK2000

$\mathbf{I_g}$(A)= $\mathbf{I_n}$ x **g**

$\mathbf{I_i}$(A)= $\mathbf{I_n}$ x **i**

$\mathbf{I_m}$(A)= $\mathbf{I_r}$ x **m**

$\mathbf{I_{mult}}$(A)= $\mathbf{I_r}$ x **mult**

$\mathbf{I_n}$(A)= rated plug value (must match sensor rating, $\mathbf{I_s}$)

$\mathbf{I_r}$ = (A) $\mathbf{I_n}$ x **r**

$\mathbf{I_s}$(A)= $\mathbf{I_r}$ x **s**

INST= Instantaneous

LDS= Long Delay Setting

LDT= Long Delay Time@6xlr

mm= limit for Maintenance mode reduction levels

mult= multiplying factor

MMODE= Maintenance Mode

n= Rating Plug Value

r= entered Long Delay Setting

R= the actual time the Digitrip tripped during the test

s= entered "Short Delay Setting" value setting

SDS= Short Delay Setting

SD= Short Delay Setting

SDT= Short Delay Time

T= entered time value for the MTK2000

$\mathbf{T_g}$= entered time value for the "Ground Time"

$\mathbf{T_r}$= entered time value for the "Long Delay Time @6xlr"

$\mathbf{T_s}$= entered time value for the "Short Delay Time"

4.2 Entering Breaker Name

The MTK2000 is capable of storing test results as each test is performed. For this reason, it is important to label the breakers subject to test in the MTK2000 memory. When prompted for breaker name on the display screen press Start then use the **Up Arrow** and **Down Arrow** to change the character and **Start** button to advance to the next character. The **Cancel** button can be pressed to move to the previous field. The **Phase Select** button, when pressed, performs the delete function. Once the entry is complete, press the **Test Select** button to proceed.

It is important to press the **Cancel** button twice to return to the Home Screen after performing all tests on one breaker before proceeding to the next breaker so that a new breaker name can be entered.

4.3 Setting the Rating Plug

Press **Start** to set the rating plug value on the MTK2000 by using the scroll up and down button. Press **Test Select** button when complete.

4.4 Setting the Frequency

Press **Start** to set the frequency value on the MTK2000 by using the scroll **Up and Down Arrow**. Press **Test Select** button when complete.

4.5 ZSI Shorting Plug

The MTK2000 will ask if the ZSI Shorting Plug is installed, please validate if it is installed (Reference Section 2.4 Zone Interlock Shorting Plug), if the correct answer is not shown, press **Start** then scroll the **up and down arrows** to find the correct answer. Once the correct answer is shown press **Test Select**.

Note: If the shorting plug is present the short delay time and ground fault time can be calculated by the MTK 2000.

If the shorting plug is not present and the answer to this query is "Yes"; both the Short Delay Time and Ground Time test will "Fail" on the MTK2000.

If the shorting plug is not present and the answer to this query is "No"; both the Short Delay Time and Ground Time test will be a "Pass" on the MTK2000.

4.6 Self Calibrate

This should be done for every MAGNUM breaker

Press **Start**

Once the calibration is complete the MTK2000 will say "Calibration Complete" press **Test Select** to Return.

4.7 Long Delay Setting

4.7.1 MDS 520 Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip.

- Set the desired test value for the "Long Delay Setting" dial.
- Set values for the "Short Delay Setting" dial to the maximum value.
- Set values for the "Ground Setting" Dial to the maximum value.
- Set for the "Instantaneous" dial to "OFF".

While performing MTK2000 testing, please validate the LTM jumper is in the "inactive" position. Reference Section 2.3 MTK2000 Breaker Cables.

4.7.2 MTK2000

"LONG DELAY TEST" should be shown on the screen if not press **Test Select** until "LONG DELAY TEST" is on screen. Press **Start**.

The MTK2000 display is specifying that values need to be set, these values were set in the Digitrip Instructions. Press **Start**.

Set "r" value on the MTK2000 display to match the Digitrip's "Long Delay Setting" dial by scrolling the **up and down arrows**.

Once value is set press **Start** on MTK2000, the test kit begins to generate current. Begin to press the Up Arrow until the "Unit Status" LED on the Digitrip begins to flash quickly. This should occur at the Long Delay pickup current level. Once the pickup current value is found press the **Start** button. A message of "TEST TERMINATED ->PASSED" or "TEST TERMINATED ->FAILED" will appear on the MTK2000 display. The current level is the Long Delay Pickup Value, this is the value where the trip unit will **Start** timing for Long Delay (overload protection).

Note: If the **Start** button is not pressed, the test times out after 40 seconds.

Note: The rate of the Status LED flashing will slow to normal when the current is lowered below the pickup setting.

4.8 Long Delay Time

4.8.1 MDS 520 Digitrip Models

If any of the red LED's are blinking press "Reset" on Digitrip.

Do not change the "Long Delay Setting" dial.

Set the desired test value for the "Long Delay Time @6xIr" dial.

4.8.2 MTK2000

After the "LONG DELAY TEST" pick up current is found press **Test Select** on the MTK2000.

Note: If **Test Select** is hit more than once, the MTK will skip the next test sequence. The only way to return to the time test is to redo the Long Delay pick up current test.

The next value that needs to be set on the MTK2000 display is "mult" the multiplier setting for the "Long Delay Time @6xIr". (The standard multiplier is 6 hence the statement "@6xIr". If the multiplier is changed lower than 6 the LD Time value goes up, if you raise the multiplier higher the LD Time value goes down. When you leave the multiplier as 6, the TR value and the LDT value stay the same.)

Press **Test Select** on MTK2000.

Set "Tr" value on the MTK2000 display to match the Digitrip's "Long Delay Time @6xIr" dial by scrolling the **up and down arrows**.

Once value is set press **Start** on MTK2000.

A message of "LONG DELAY PASSED" or "LONG DELAY FAILED" will appear on the MTK2000 display.

4.9 Short Delay Settings

4.9.1 MDS 520 Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip.

- Do not change the "Long Delay Setting" dial.
- Set value on the "Long Delay Time @6xIr" dial to the maximum value.
- Set the desired test value for the "Short Delay Setting" dial.
- Set value on the "Short Delay Time" dial to ".1" sec.
- Set value on the "Instantaneous" dial to "OFF".

4.9.2 MTK2000

Press **Test Select** until "SHORT DELAY TEST" name comes up. Press **Start**.

The MTK2000 display is specifying that values need to be set, these values were set in the Digitrip Instructions. Press **Start**.

Set the "s" value on the MTK2000 display to match the Digitrip's "Short Delay Setting" dial by scrolling the **up and down arrows**.

Once value is set press **Start** on MTK2000.

A message of "TRIP CURRENT FOUND –> PASSED" or "TRIP CURRENT FOUND –> FAILED" will appear on the MTK2000 display.

4.10 Short Delay Time Settings

4.10.1 MDS 520 Digitrip Models

If red light is blinking press "Reset" on Digitrip.

Set the desired test value for the "Short Delay Time" dial.

Note: Since this MTK2000 does not support the I^2t curves the maximum no values are supported by the MTK2000 past .5.

4.10.2 MTK2000

After the "SHORT DELAY TEST" current is found press **Test Select** until "SHORT DELAY (at 1.5xs)" comes up on the MTK2000 display.

Note: If **Test Select** is hit more than once, the MTK will skip the next test sequence. The only way to return to the time test is to redo the Is Short Delay pick-up current test.

Set the "Ts" value on the MTK2000 display to match the Digitrip's "Short Delay Time" dial by scrolling the **up and down arrows**.

Once value is set press **Start** on MTK2000.

A message of "SHORT DELAY PASSED" or "SHORT DELAY FAILED" will appear on the MTK2000 display.

Note: If test is failing please reference Section 2.3 MTK2000 Breaker Cables

4.11 Ground Settings

4.11.1 MDS 520 Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip.

- Set values for the "Short Delay Setting" dial to the maximum value.
- Set the desired test value for the "Ground Setting" dial.

4.11.2 MTK2000

Press **Test Select** until "GROUND FAULT TEST" comes up on the MTK2000. Press **Start**.

Set the "g" value on the MTK2000 display to match the Digitrip's "Ground Setting" dial by scrolling the **up and down arrows**.

Once value is set press **Start** on MTK2000.

Note: The "g" value must not go above 1200Amps, please keep this in mind when rating plugs are above 1200Amps.

A message of "TRIP CURRENT FOUND –> PASSED" or "TRIP CURRENT FOUND –> FAILED" will appear on the MTK2000 display.

4.12 Ground Time Settings

4.12.1 MDS 520 Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip.

Set the desired test value for the "Ground Time" dial.

4.12.2 MTK2000

After the "GROUND FAULT TEST" current is found press **Test Select** until "GF Delay" comes up on the MTK2000 display.

Note: If **Test Select** is hit more than once, the MTK will skip the next test sequence. The only way to return to the time test is to redo the Ig Ground current Pick-up test.

Set the "Tg" value on the MTK2000 display to match the Digitrip's "Ground Time" dial by scrolling the **up and down arrows**.

Once value is set press **Start** on MTK2000.

A message of "GROUND FAULT PASSED" or "GROUND FAULT FAILED" will appear on the MTK2000 display.

Note: If test is failing please reference Section 2.3 MTK2000 Breaker Cables

4.13 Instantaneous Settings (If Applicable)

4.13.1 MDS 520 Digitrip Models

If red light is blinking press "Reset" on Digitrip.

- Set value on the Long Delay dial to maximum.
- Set value on the Long Delay Time dial to maximum.
- Set value on the Short Delay Setting dial to M1.
- Set value on the Short Delay Time dial to maximum.
- Set the desired test value for the Instantaneous dial.

4.13.2 MTK2000

Press **Test Select** until "INSTANTANEOUS TEST" comes up on the MTK2000. Press **Start.**

The MTK2000 display is specifying that values need to be set, these values were set in the Digitrip Instructions. Press **Start**.

Set the "i" value on the MTK2000 display to match the Digitrip's "Instantaneous" settings by scrolling the **up and down arrows**.

Once value is set press **Start** on MTK2000.

A message of "TRIP CURRENT FOUND –> PASSED" or "TRIP CURRENT FOUND –> FAILED" will appear on the MTK2000 display.

4.14 Instantaneous Time Settings

4.14.1 MDS 520 Digitrip Models

If any of the red LEDs are blinking on Digitrip press Reset.

4.14.2 MTK2000

After the "INSTANTANEOUS TEST" current is found press **Test Select** until "INSTANT MAX TIME" comes up on the MTK2000 display.

Note: If **Test Select** is hit more than once, the MTK will skip the next test sequence. The only way to return to the time test is to redo the Ii current test.

Press **Start** and the MTK2000 will return the Instantaneous trip time.

A message of "INSTANTANEOUS PASSED" or "INSTANTANEOUS FAILED" will appear on the MTK2000 display.

Note: If test is failing please reference Section 2.3 MTK2000 Breaker Cables.

4.15 Maintenance Mode Setting

4.15.1 MDS520 Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip.

- Set Maintenance Mode dial "On"
- Set R value on the dial below the Maintenance Mode "On" Dial.
- Set value on the Long Delay dial to maximum.
- Set value on the Long Delay Time dial to maximum.
- Set value on the Short Delay Setting dial to maximum.

4.15.2 MTK2000

Press **Test Select** until "MAINTENANCE MODE TEST" comes up on the MTK2000. Press **Start**.

The MTK2000 display is specifying that values need to be set, these values were set in the Digitrip Instructions. Press **Start**.

Set the "R" value on the MTK2000 display to match the Digitrip's Maintenance Mode R values by scrolling the **up and down arrows**.

Note: If you are not sure which R value is needed the next menu will allow the multiplier value to be set.

Press **Test Select** for "MMODE TRIP SET" menu, the "mm" value can be adjusted up or down to give you the R value desired for testing.

Once value is set press **Start** on MTK2000.

A message of "TRIP CURRENT FOUND –> PASSED" or "TRIP CURRENT FOUND –> FAILED" will appear on the MTK2000 display.

4.16 Maintenance Mode Time Settings

4.16.1 MDS 520 Digitrip Models

If any of the red LEDs are blinking on Digitrip press Reset.

4.16.2 MTK2000

After the "MAINTENANCE MODE" current is found press **Test Select** until "MMODE MAX TIME" comes up on the MTK2000 display.

Note: If **Test Select** is hit more than twice, the MTK will skip the next test sequence. The only way to return to the time test is to redo the Im current test.

Press **Start** and the MTK2000 will return the Maintenance Mode trip time.

A message of "MAINTENANCE PASSED" or "MAINTENANCE FAILED" will appear on the MTK2000 display.

If test is failing please reference Section 2.3 MTK2000 Breaker Cables.

Section 5: Testing the 1150 Digitrip Models

5.1 Legend for MTK2000 testing with 1150 Digitrips

g= entered ground value setting

GF= GND PU

i(A)= the entered instantaneous value setting

I(A)= the output current value for the MTK2000 tested

$\mathbf{I_g}$(A)= $\mathbf{I_n} \times \mathbf{g}$

$\mathbf{I_i}$(A)= $\mathbf{I_n} \times \mathbf{i}$

$\mathbf{I_m}$(A)= $\mathbf{I_r} \times \mathbf{m}$

$\mathbf{I_{mult}}$(A)= $\mathbf{I_r} \times \mathbf{mult}$

$\mathbf{I_n}$(A)= rated plug value (must match sensor rating, $\mathbf{I_s}$)

$\mathbf{I_r}$ = (A) $\mathbf{I_n} \times \mathbf{r}$

$\mathbf{I_s}$(A)= $\mathbf{I_r} \times \mathbf{s}$

INST= INST PU

LDS= LONG PU

LDT= LongTIME

mm= limit for Maintenance mode reduction levels

mult= multiplying factor

MMODE= Maintenance Mode

n= Rating Plug Value

r= Long PU

R= the actual time the Digitrip tripped during the test

s= SHORT PU

SDS or SD= SHORT PU

SDT= SHORT TIME

T= is the entered time value the MTK2000 started a time test at

$\mathbf{T_g}$= entered time value for the "GROUND TIME"

$\mathbf{T_r}$= entered time value for the "LongTIME"

$\mathbf{T_s}$= entered time value for the "SHORT TIME"

5.2 Entering Breaker Name

The MTK2000 is capable of storing test results as each test is performed. For this reason, it is important to label the breakers subject to test in the MTK2000 memory. When prompted for breaker name on the display screen press Start then use the **Up Arrow** and **Down Arrow** to change the character and **Start** button to advance to the next character. The **Cancel** button can be pressed to move to the previous field. The **Phase Select** button, when pressed, performs the delete function. Once the entry is complete, press the **Test Select** button to proceed.

It is important to press the **Cancel** button twice to return to the Home Screen after performing all tests on one breaker before proceeding to the next breaker so that a new breaker name can be entered.

5.3 Setting the Rating Plug

Press **Start** to set the rating plug value on the MTK2000 by using the scroll up and down button. Press **Test Select** button when complete.

5.4 Setting the Frequency

Press **Start** to set the frequency value on the MTK2000 by using the scroll **Up and Down Arrow**. Press **Test Select** button when complete.

5.5 ZSI Shorting Plug

The MTK2000 will ask if the ZSI Shorting Plug is installed, please validate if it is installed (Reference Section 2.4 Zone Interlock Shorting Plug), if the correct answer is not shown, press **Start** then scroll the **up and down arrows** to find the correct answer. Once the correct answer is shown press **Test Select**.

Note: If the shorting plug is present the short delay time and ground fault time can be calculated by the MTK 2000.

If the shorting plug is not present and the answer to this query is "Yes"; both the Short Delay Time and Ground Time test will "Fail" on the MTK2000.

If the shorting plug is not present and the answer to this query is "No"; both the Short Delay Time and Ground Time test will be a "Pass" on the MTK2000.

5.6 Self Calibrate

This should be done for every MAGNUM breaker

Press **Start**

Once the calibration is complete the MTK2000 will say "Calibration Complete" press **Test Select** to Return.

5.7 Long Delay Setting

5.7.1 MDS Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip.

Set value for the "LONG Slope" function to "I^2T".

Note: The MTK2000 is not programmed to test the Long Delay I^4T or IEEE or IEC slopes.

Set the desired test value for the "LONG PU" function.

For test purposes set the "Long Memory" function is set to "OFF ", Reference Section 2.3 MTK200 Breaker Cables.

Set value for the "SHORT SLOPE" to "FLAT".

Note: The MTK2000 is not programmed to test Short Delay with I^2T slope.

- Set value for the "SHORT PU" function to maximum value.
- Set value for the "INST PU" function to "OFF".
- Set value for the "GND PU" function to maximum value.
- Set value for the "GND SLOPE" function to "FLAT".

The MTK2000 is not programmed to test GROUND Delay with I^2T slope.

Once all selections have been made, press "Save" under the "Edit Value" Menus buttons.

5.7.2 MTK2000

"LONG DELAY TEST" should be shown on the screen if not press **Test Select** until "LONG DELAY TEST" is on screen. Press **Start**.

The MTK2000 display is specifying that values need to be set, these values were set in the Digitrip Instructions. Press **Start**.

Set "r" value on the MTK2000 display to match the Digitrip's "Long PU" settings by scrolling the **up and down arrows**.

Once value is set press **Start** on MTK2000, the test kit begins to generate current. Begin to press the **Up Arrow** until the "Unit Status" LED on the Digitrip begins to flash quickly. This should occur at the pickup current. Once the pickup current value is found press the **Start** button. A message of "TEST TERMINATED ->PASSED" or "TEST TERMINATED ->FAILED" will appear on the MTK2000 display. The current level is the Long Delay Pickup Value, this is the value where the trip unit will **Start** timing for Long Delay (overload protection).

Note: If the Start button is not pressed, the test times out after 40 seconds.

Note: The rate of the Status LED flashing will slow to normal when the current is lowered below the pickup setting.

5.8 Long Delay Time

5.8.1 MDS 1150 Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip.

Do not change the "LONG PU" function.

In the Program Settings menu set the desired test value for the "LongTIME" function.

Once all selections have been made, press "Save" under the "Edit Value" Menus buttons.

5.8.2 MTK2000

After the "LONG DELAY TEST" pick up current is found press **Test Select** on the MTK2000.

Note: If **Test Select** is hit more than once, the MTK will skip the next test sequence. The only way to return to the time test is to redo the Long Delay pick up current test.

The next value that needs to be set on the MTK2000 display is "mult" the multiplier setting for the "Long Delay Time @6xIr". (The standard multiplier is 6 hence the statement "@6xIr". If the multiplier is changed lower than 6 the actual LDT value goes up, if you raise the multiplier higher the actual LDT value goes down. When you leave the multiplier as 6, the TR value and the LDT value stay the same.)

Press **Test Select** on MTK2000.

Set "Tr" value on the MTK2000 display to match the Digirip's "LongTIME" value by scrolling the **up and down arrows**.

Once value is set press **Start** on MTK2000.

A message of "LONG DELAY PASSED" or "LONG DELAY FAILED" will appear on the MTK2000 display.

5.9 Short Delay Settings

5.9.1 MDS 520 1150 Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip..

- Do not change the "LONG PU" function.
- Set value for the "LongTIME" function to maximum.
- Set the desired test value for the "SHORT PU" function.
- Set value for the "SHORT TIME" function to ".1" sec.
- Set value for the "INST PU" function to "OFF".

Once all selections have been made, press "Save" under the "Edit Value" Menus buttons.

5.9.2 MTK2000

Press **Test Select** until "SHORT DELAY TEST" name comes up. Press **Start**.

The MTK2000 display is specifying that values need to be set, these values were set in the Digitrip Instructions. Press **Start**.

Set the "s" value on the MTK2000 display to match the Digitrip's "SHORT PU" value by scrolling the **up and down arrows**.

Once value is set press **Start** on MTK2000.

A message of "TRIP CURRENT FOUND –> PASSED" or "TRIP CURRENT FOUND –> FAILED" will appear on the MTK2000 display.

5.10 Short Delay Time Settings

5.10.1 MDS 1150 Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip.

Set the desired test value for the "SHORT TIME" function.

Once selection has been made, press "Save" under the "Edit Value" Menus buttons.

5.10.2 MTK2000

After the "SHORT DELAY TEST" current is found press **Test Select** until "SHORT DELAY (at 1.5xs)" comes up on the MTK2000 display.

Note: If **Test Select** is hit more than once, the MTK will skip the next test sequence. The only way to return to the time test is to redo the Is Short Delay Pick-up current test.

Set the "Ts" value on the MTK2000 display to match the Digitrip's "Short TIME" values by scrolling the **up and down arrows**.

Once value is set press **Start** on MTK2000.

A message of "SHORT DELAY PASSED" or "SHORT DELAY FAILED" will appear on the MTK2000 display.

Note: If test is failing please reference Section 2.3 MTK2000 Breaker Cables.

5.11 Ground Settings

5.11.1 MDS 1150 Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip.

- Set the "SHORT PU" function to maximum.
- Set the desired test value for the "GND PU" function.

Once selection has been made, press "Save" under the "Edit Value" Menus buttons.

5.11.2 MTK2000

Press **Test Select** until "GROUND FAULT TEST" comes up on the MTK2000. Press **Start**.

Set the "g" value on the MTK2000 display to match the Digitrip's "Ground PU" values by scrolling the **up and down arrows**.

Once value is set press **Start** on MTK2000.

Note: The "g" value must not go above 1200Amps, please keep this in mind when rating plugs are above 1200Amps.

A message of "TRIP CURRENT FOUND –> PASSED" or "TRIP CURRENT FOUND –> FAILED" will appear on the MTK2000 display.

5.12 Ground Time Settings

5.12.1 MDS 1150 Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip.

Set the desired test value for the "GROUND TIME" function.

Once selection has been made, press "Save" under the "Edit Value" Menus buttons.

5.12.2 MTK2000

After the "GROUND FAULT TEST" current is found press **Test Select** until "GF Delay" comes up on the MTK2000 display.

Note: If **Test Select** is hit more than once, the MTK will skip the next test sequence. The only way to return to the time test is to redo the Ig Ground current Pick-up test.

Set the "Tg" value on the MTK2000 display to match the Digitrip's "GND TIME" values by scrolling the **up and down arrows**.

Once value is set press **Start** on MTK2000.

A message of "GROUND FAULT PASSED" or "GROUND FAULT FAILED" will appear on the MTK2000 display.

Note: If test is failing please reference Section 2.3 MTK2000 Breaker Cables.

5.13 Instantaneous Settings (If Applicable)

5.13.1 MDS 1150 Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip.

- Set value for the "LONG PU" function to maximum.
- Set value for the "LongTIME" function to maximum.
- Set value for the "SHORT PU" function to maximum.
- Set value for the "INST PU" function to "ON".
- Set the desired test value for the "INST PU" function.

Once selection has been made, press "Save" under the "Edit Value" Menus buttons.

5.13.2 MTK2000

Press **Test Select** until "INSTANTANEOUS TEST" comes up on the MTK2000. Press **Start**.

The MTK2000 display is specifying that values need to be set, these values were set in the Digitrip Instructions. Press **Start**.

Set the "i" value on the MTK2000 display to match the Digitrip's "INST PU" settings by scrolling the **up and down arrows**.

Once value is set press **Start** on MTK2000.

A message of "TRIP CURRENT FOUND –> PASSED" or "TRIP CURRENT FOUND –> FAILED" will appear on the MTK2000 display.

5.14 Instantaneous Time Settings

5.14.1 MDS 1150 Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip.

5.14.2 MTK2000

After the "INSTANTANEOUS TEST" current is found press **Test Select** until "INSTANT MAX TIME" comes up on the MTK2000 display.

Note: If **Test Select** is hit more than once, the MTK will skip the next test sequence. The only way to return to the time test is to redo the Ii current test.

Press **Start** and the MTK2000 will return the Instantaneous trip time.

A message of "INSTANTANEOUS PASSED" or "INSTANTANEOUS FAILED" will appear on the MTK2000 display.

Note: If test is failing please reference Section 2.3 MTK2000 Breaker Cables.

5.15 Maintenance Mode Setting

5.15.1 MDS 1150 Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip.

- Set the desired test value for the "Maint PU" funtion.
- Set the "MaintenanceMode" menu to "Enable".

Once selection has been made, press "Save" under the "Edit Value" Menus buttons.

- Set value for the "LONG PU" function to maximum.
- Set value for the "LongTIME" function to maximum.
- Set value for the "SHORT PU" function to maximum.

Once selection has been made, press "Save" under the "Edit Value" Menus buttons.

5.15.2 MTK2000

Press **Test Select** until "MAINTENANCE MODE TEST" comes up on the MTK2000. Press **Start**.

The MTK2000 display is specifying that values need to be set, these values were set in the Digitrip Instructions. Press **Start**.

Set the "R" value on the MTK2000 display to match the Digitrip's "MAINT PU" values by scrolling the **up and down arrows**.

Note: If you are not sure which R value is needed the next menu will allow the multiplier value to be set.

Press **Test Select** for "MMODE TRIP SET" menu, the "mm" value can be adjusted up or down to give you the R value desired for testing.

Once value is set press **Start** on MTK2000.

A message of "TRIP CURRENT FOUND –> PASSED" or "TRIP CURRENT FOUND –> FAILED" will appear on the MTK2000 display.

5.16 Maintenance Mode Time Settings

5.16.1 MDS 1150 Digitrip Models

If any of the red LEDs are blinking press "Reset" on Digitrip.

5.16.2 MTK2000

After the "MAINTENANCE MODE" current is found press **Test Select** until "MMODE MAX TIME" comes up on the MTK2000 display.

Note: If **Test Select** is hit more than twice, the MTK will skip the next test sequence. The only way to return to the time test is to redo the Im current test.

Press **Start** and the MTK2000 will return the Maintenance Mode trip time.

A message of "MAINTENANCE PASSED" or "MAINTENANCE FAILED" will appear on the MTK2000 display.

Note: If test is failing please reference Section 2.3 MTK2000 Breaker Cables.

Section 6: Troubleshooting

Listed below are resolutions to common problems experienced with MTK2000. Please review this section prior to contacting Eaton with questions.

Trip Unit keeps indicating the wrong type of trip (i.e. Long Delay Trip when testing Short Delay Pickup).

Verify that the trip unit is set correctly as indicated on the MTK2000 prior to Starting the test and that the trip unit is reset prior to Starting a test. Verify that the Zone Interlock plug is installed when the breaker is removed past the Test Position or is removed from the cell.

Measured values for a particular Digitrip are not consistent with settings on the Digitrip.

Press **Cancel** twice to reach the Home Screen. Proceed as normal and ensure that the MTK2000 performs the self calibration procedure with the new Digitrip. Verify that the thermal memory jumper is in the correct position or setting (see paragraph 2.2.2). Ensure that the SD Card provided from the factory is installed in the MTK2000 and still has the original calibration data stored.

Digitrip seems not to respond to input from the MTK2000.

Verify that the Digitrip Cable is plugged correctly into the Digitrip as well as the rear of the MTK2000.

Long Delay Times seem to decrease during testing.

Verify that the thermal memory jumper is in the correct position (see paragraph 2.2.2)

The values on the MTK2000 Test Kit and the values on my metering Digitrip do not match.

It is important to understand that the Digitrip has a tolerance band within which it is expected to perform. Some difference is acceptable, although this value should be minimal.

Section 7: Customer Updates

Periodically Eaton will issue updates that can be obtained at the following web address.

http://www.eaton.com/EatonCom/Markets/Electrical/Products/

Switchgear/LowVoltageSwitchgear/index.html

These updates are meant to resolve issues as well as improve functionality and usability of the MTK2000 Test Kit. These updates

are to be performed by the MTK2000 Test Kit user using the

included data communication cable.

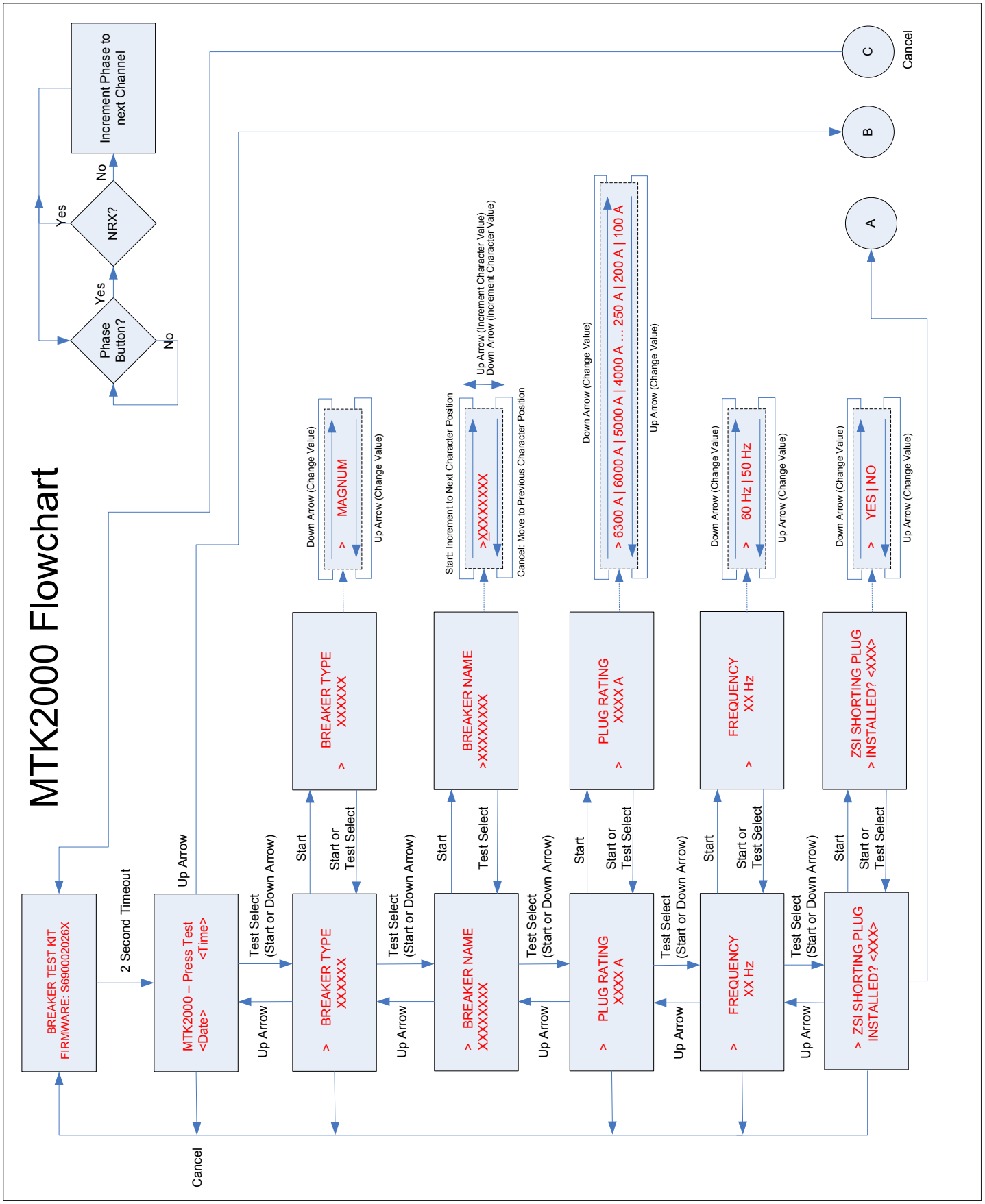
Please visit the web site prior to testing to ensure the latest firmware revision has been installed on the PACB Trip Unit Test Kit. Detailed instructions will be provided in the downloadable file guiding the user through the update procedure.

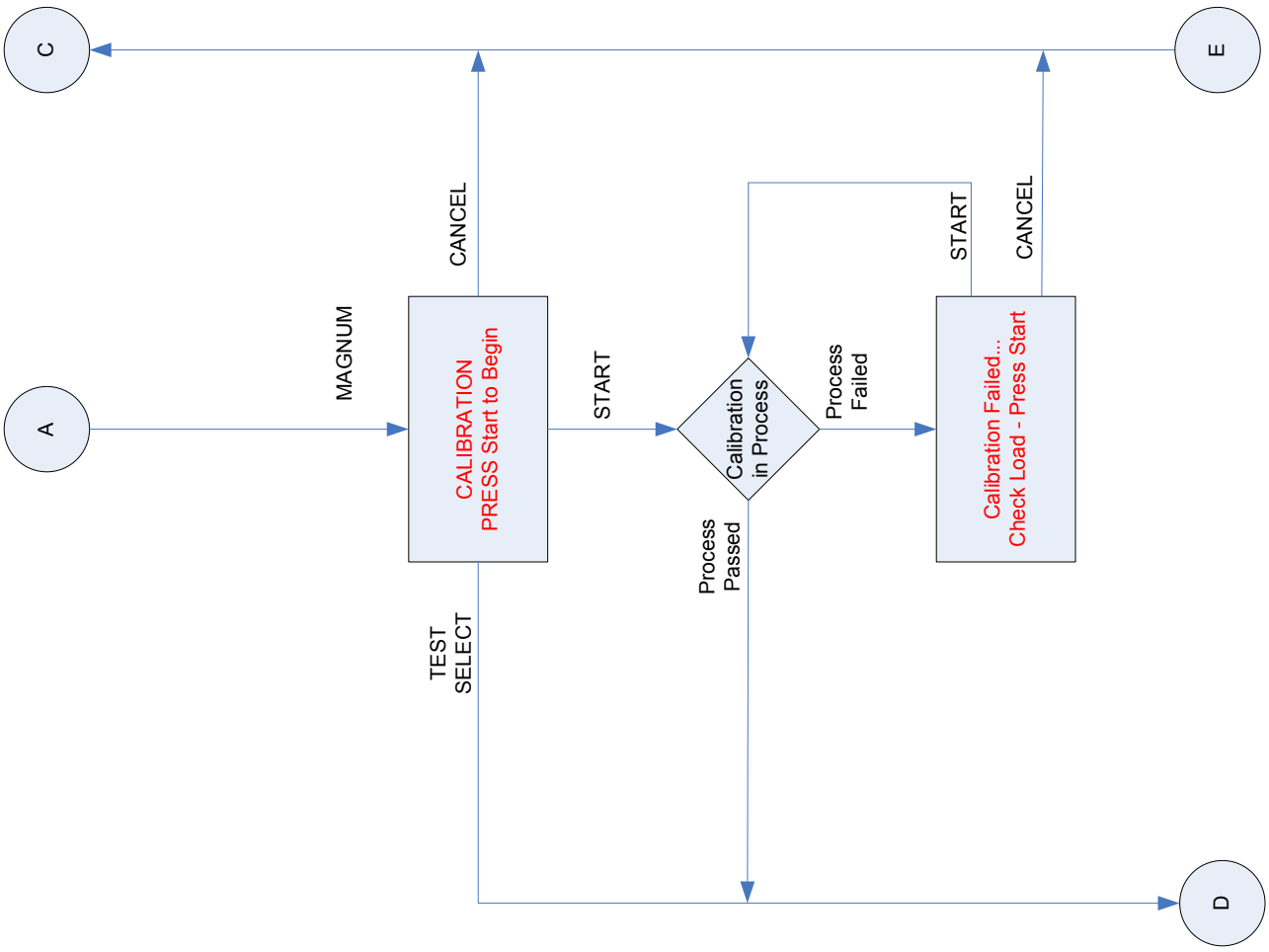
Section 8: Additional Publications

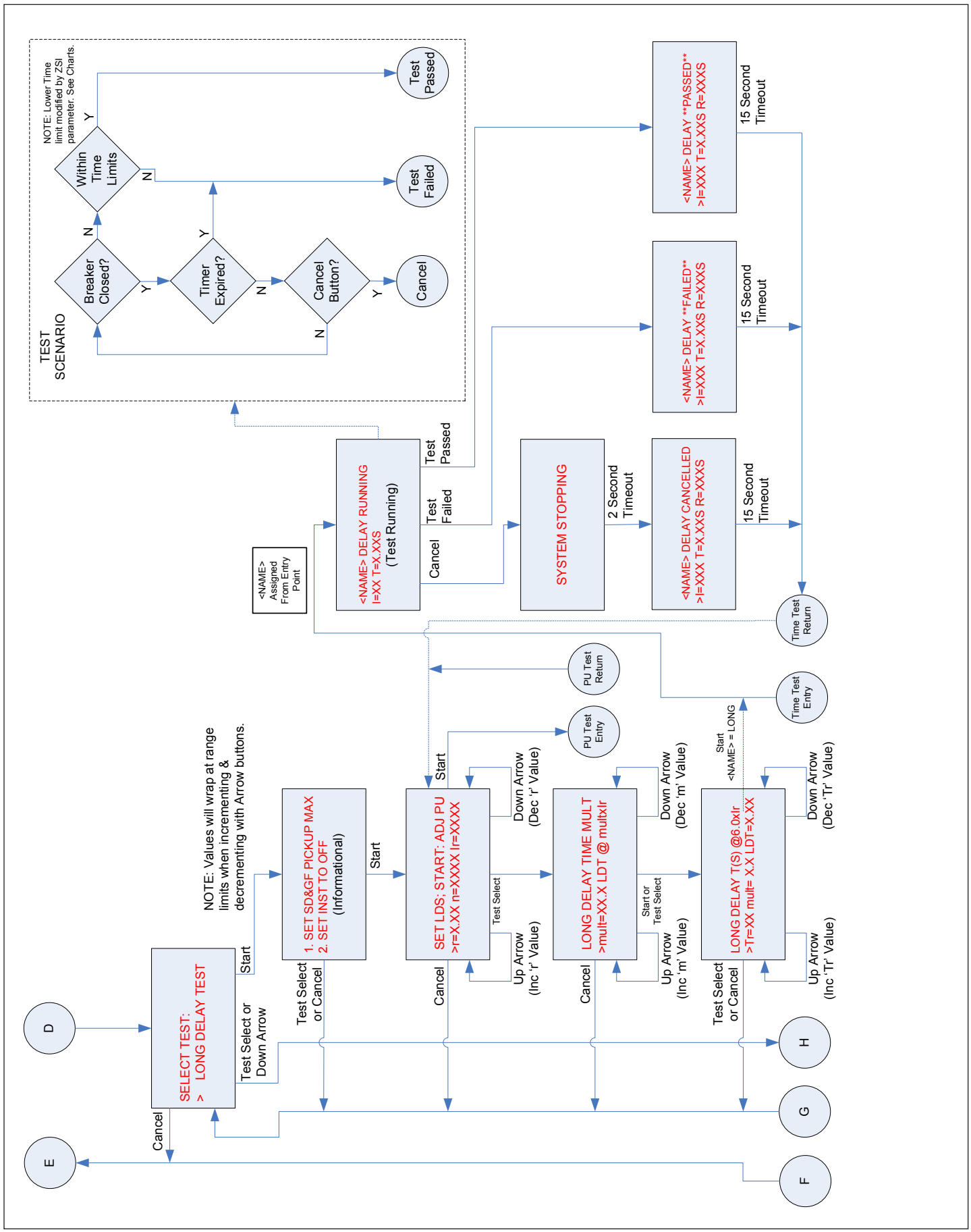
In addition to this Instruction Book, the following Instruction Books and drawings are commonly included with any Magnum DS® Circuit Breaker and/or provided with any Eaton Low-Voltage Assembly shipment. Please inspect the documentation provided before contacting an Eaton service representative for replacements.

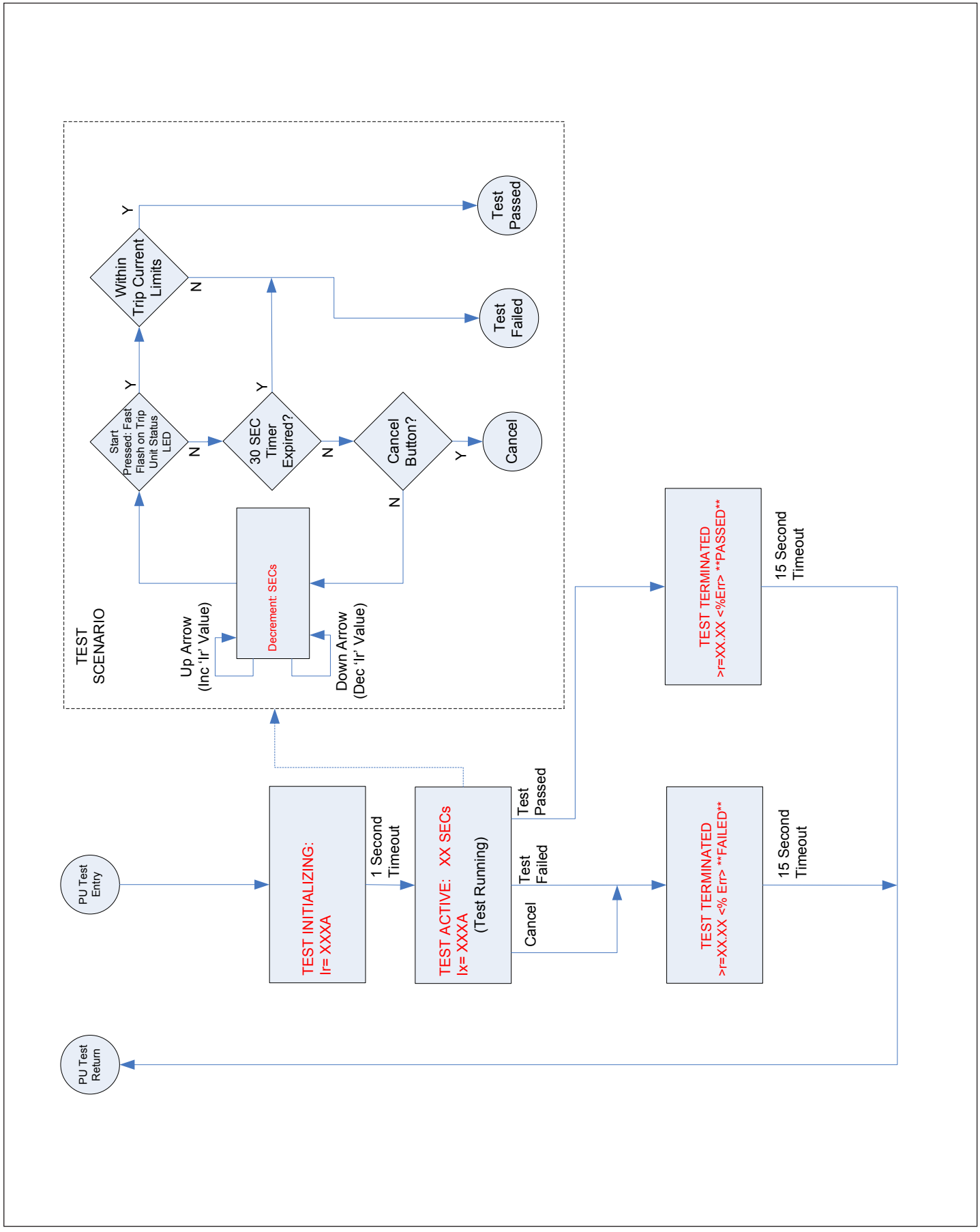
IB 2C12060H08	Instructions for Installation, Operation and Maintenance of Magnum DS, DSX and DSL Low Voltage Power Circuit Breakers
IB 2C12063H02	Instructions for Installation, Operation and Maintenance of Magnum SB Insulated Case Low Voltage Power Circuit Breakers
IL 70C1036H05	Instructions for Digitrip Models 1150, 1150i and 1150+,1150+i Trip Units for use only in Cutler-Hammer Magnum and Magnum DS Circuit Breakers
IL 70C1037H05	Digitrip models 520, 520i; and 520M, 520Mi, 520MC, 520MCi trip units for use only in Magnum and Magnum DS circuit breakers
70C1082	Characteristic Curves for Magnum DS Circuit Breakers using Digitrip 220, 220Pm 520, 520M Tripunits and Magnum Circuit Breakers using Digitrip 520i, 520Mi, 520MCi Tripunits
70C1030	Characteristic Curves for Magnum DS and Magnum SB Circuit Breakers using Digitrip 1150 and Magnum Circuit Breakers using 1150i Tripunits

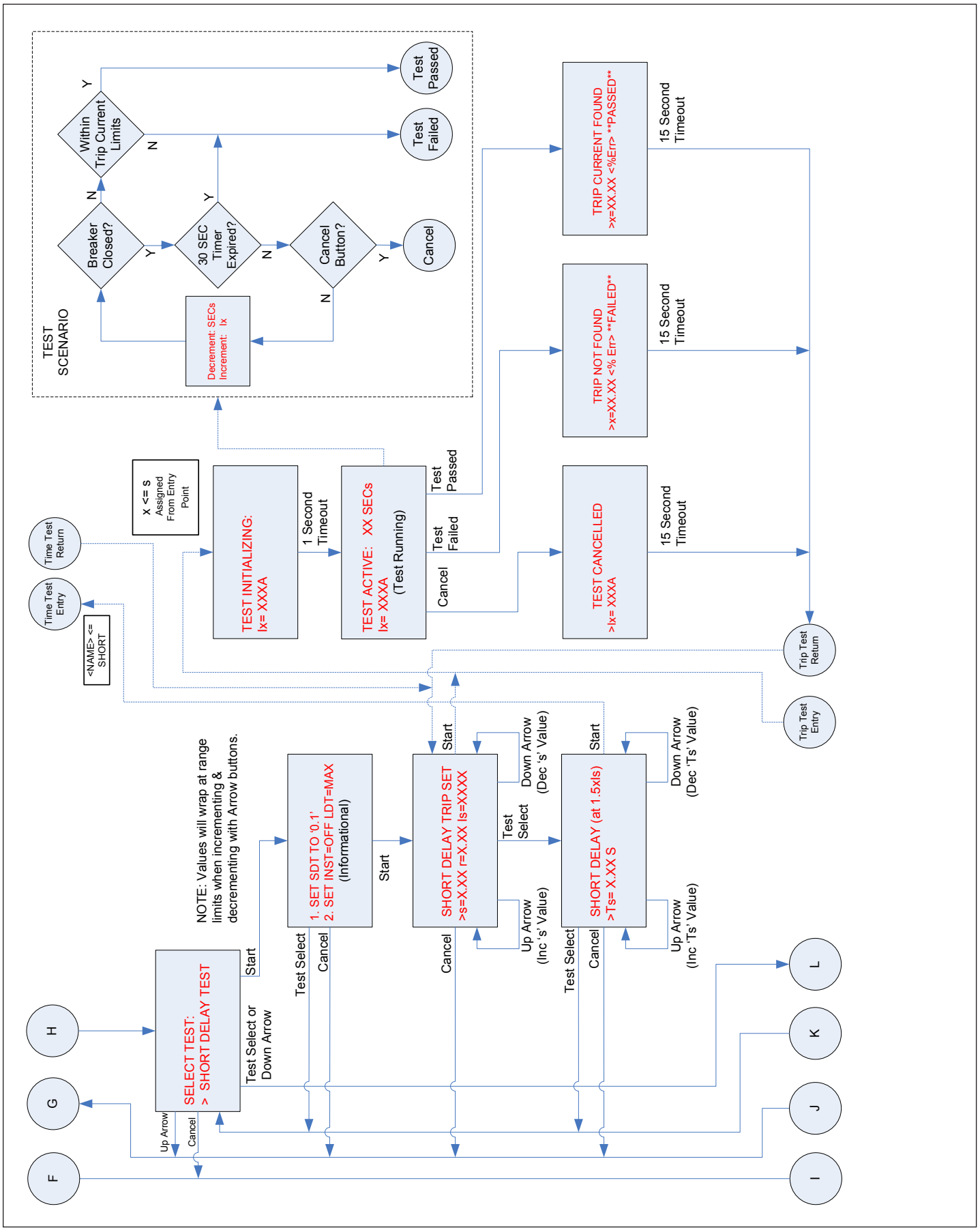
Appendix

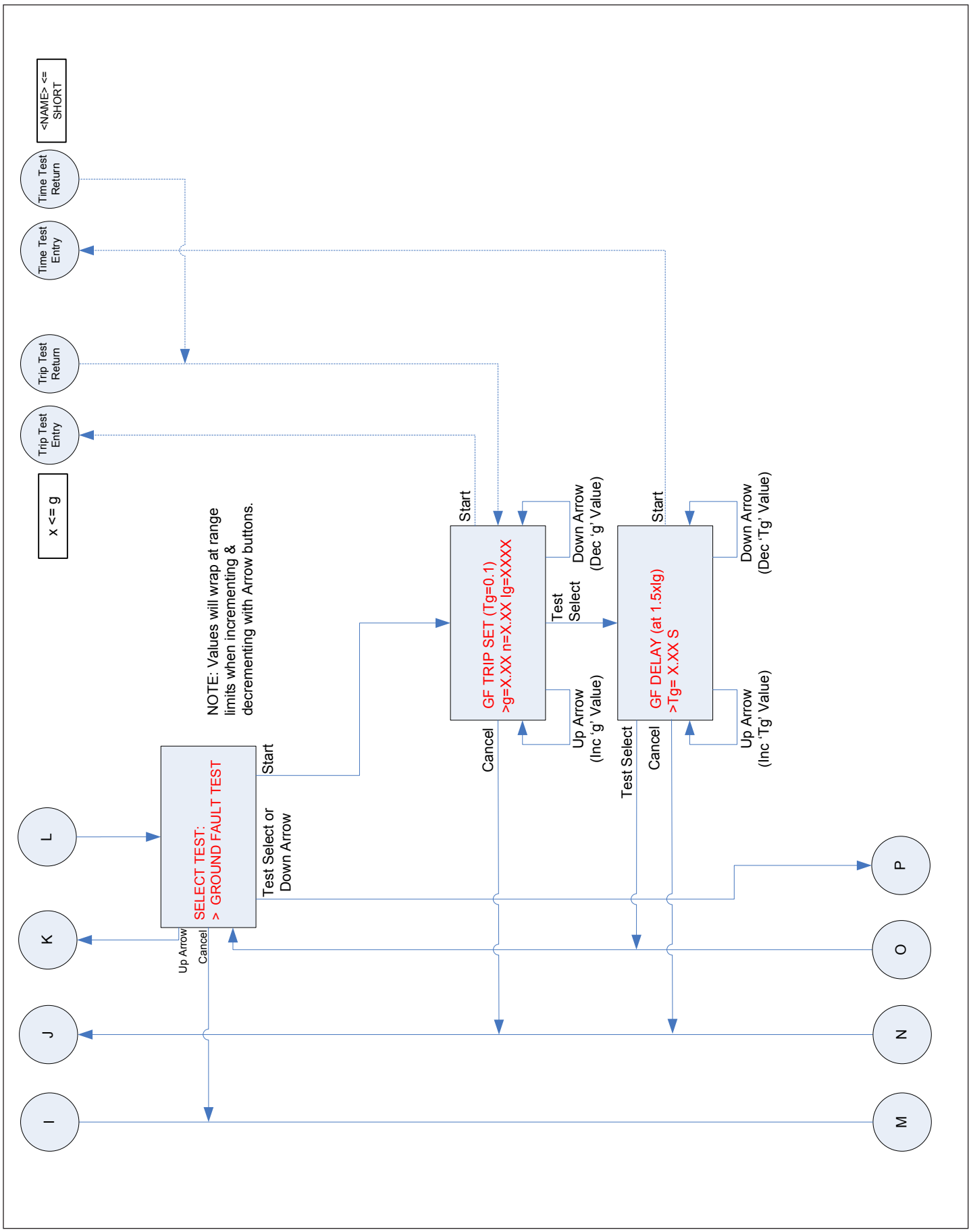

MTK2000 Flowchart
BREAKER TEST KIT
FIRMWARE: S69000026X
2 Second Timeout
MTK2000 – Press Test
<Time>
<Date>
Up Arrow
Cancel
Test Select
(Start or Down Arrow)
Up Arrow
BREAKER TYPE
XXXXXX
>
Start
Start or
Test Select
Down Arrow (Change Value)
Up Arrow (Change Value)
MAGNUM
BREAKER NAME
>XXXXXXXX
Up Arrow (Increment Character Value)
Down Arrow (Increment Character Value)
Start: Increment to Next Character Position
Cancel: Move to Previous Character Position
XXXXXXXX
PLUG RATING
XXXX A
6300 A | 6000 A | 5000 A | 4000 A ... 250 A | 200 A | 100 A
FREQUENCY
XX Hz
60 Hz | 50 Hz
ZSI SHORTING PLUG
INSTALLED? <XXX>
YES | NO
A
B
C
Cancel
Increment Phase to next Channel
No
Yes
NRX?
Yes
Phase Button?
No

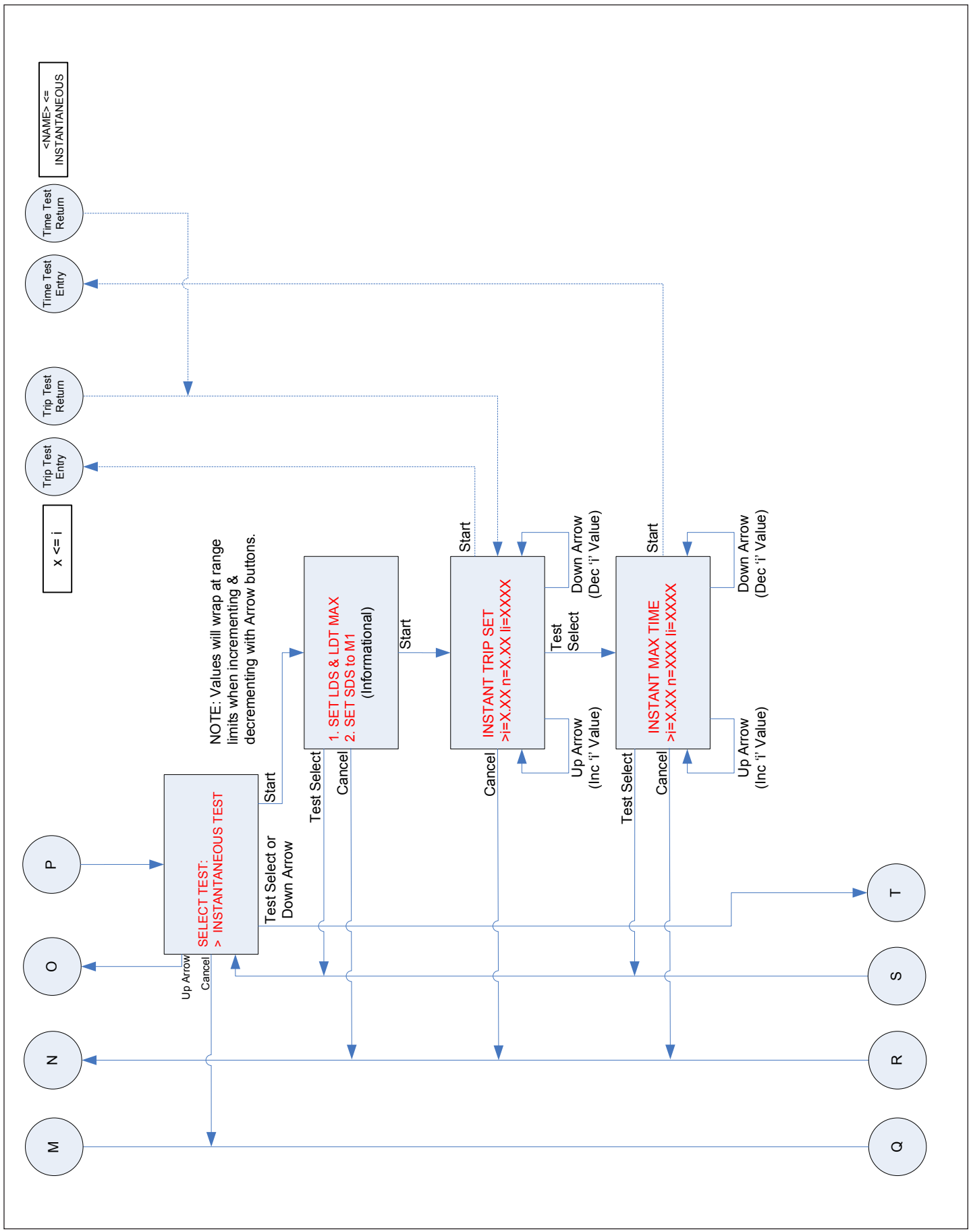

C
E
CANCEL
START
CANCEL
MAGNUM
A
CALIBRATION
PRESS Start to Begin
START
Calibration
in Process
Process
Failed
Calibration Failed...
Check Load - Press Start
Process
Passed
TEST
SELECT
D

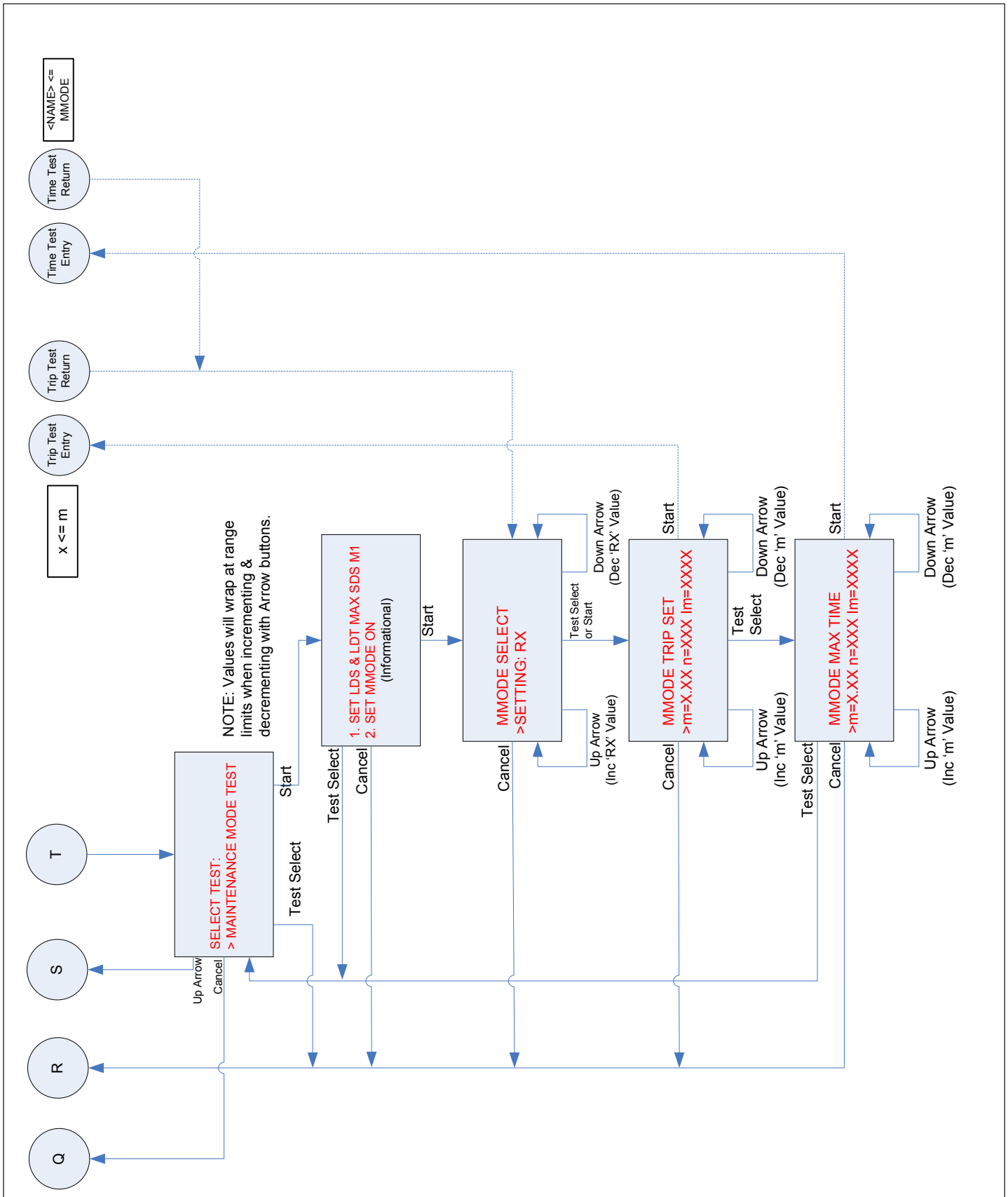

TEST SCENARIO
Breaker Closed?
Timer Expired?
Cancel Button?
Within Time Limits
Cancel
Test Failed
Test Passed
NOTE: Lower Time limit modified by ZSI parameter. See Charts.
<NAME> Assigned From Entry Point
<NAME> DELAY RUNNING I=XX T=X.XXS (Test Running)
SYSTEM STOPPING
<NAME> DELAY CANCELLED >I=XXX T=X.XXS R=XXXS
<NAME> DELAY **FAILED** >I=XXX T=X.XXS R=XXXS
<NAME> DELAY **PASSED** >I=XXX T=X.XXS R=XXXS
2 Second Timeout
15 Second Timeout
Time Test Return
Time Test Entry
PU Test Return
PU Test Entry
NOTE: Values will wrap at range limits when incrementing & decrementing with Arrow buttons.
SELECT TEST: > LONG DELAY TEST
1. SET SD&GF PICKUP MAX
2. SET INST TO OFF
(Informational)
SET LDS; START: ADJ PU >r=X.XX n=XXXX Ir=XXXX
LONG DELAY TIME MULT >mult=XX.X LDT @ multxIr
LONG DELAY T(S) @6.0xIr >Tr=XX mult= X.X LDT=X.XX
Start
Test Select or Down Arrow
Test Select or Cancel
Up Arrow (Inc 'r' Value)
Down Arrow (Dec 'r' Value)
Up Arrow (Inc 'm' Value)
Down Arrow (Dec 'm' Value)
Up Arrow (Inc 'Tr' Value)
Down Arrow (Dec 'Tr' Value)
Start or Test Select
Start <NAME> = LONG
Cancel
D
E
F
G
H

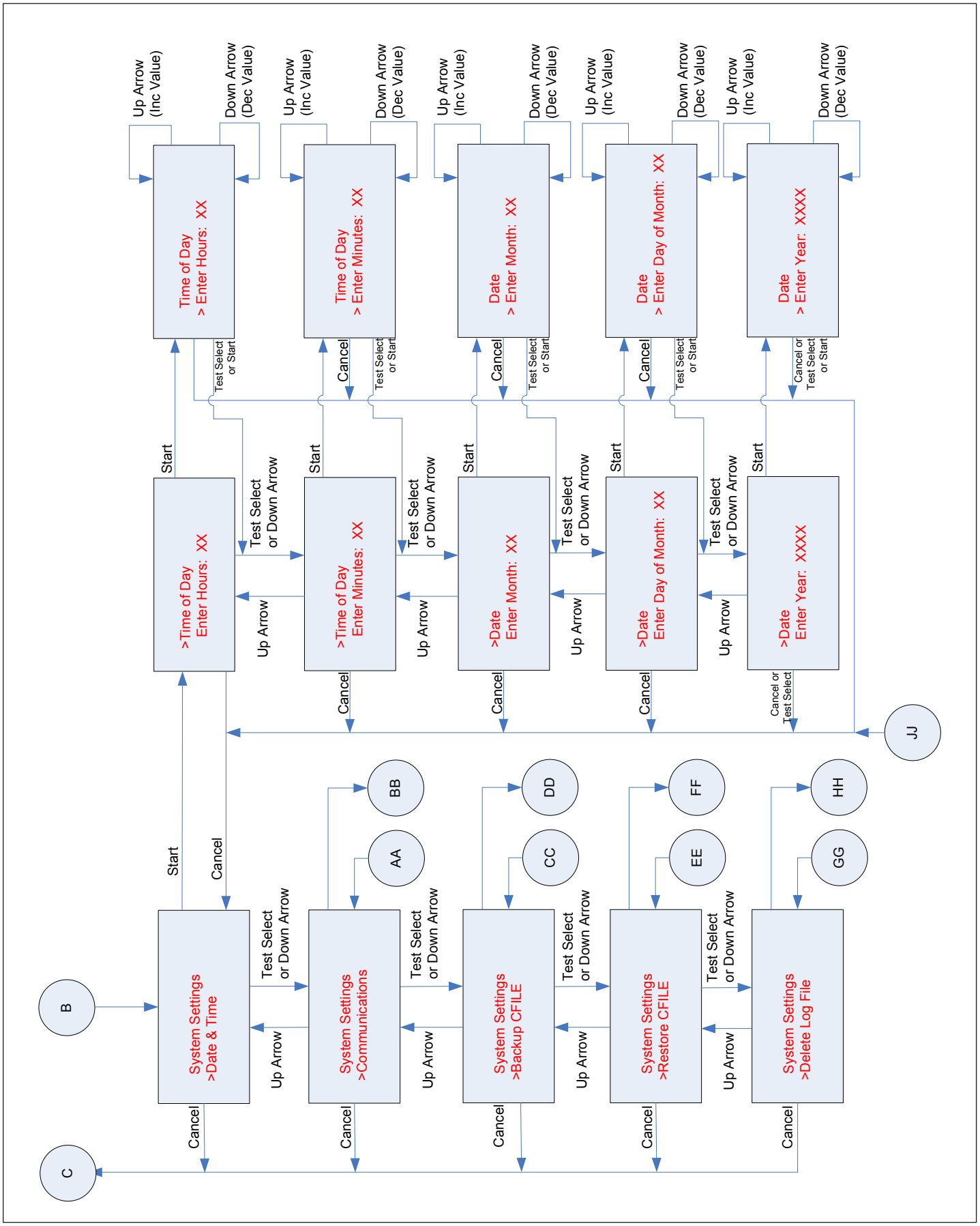

PU Test Entry
TEST INITIALIZING:
Ir= XXXA
1 Second Timeout
TEST ACTIVE: XX SECs
Ix= XXXA
(Test Running)
Test Passed
Test Failed
Cancel
TEST TERMINATED
>r=XX.XX <%Err> **PASSED**
TEST TERMINATED
>r=XX.XX <% Err> **FAILED**
15 Second Timeout
15 Second Timeout
PU Test Return
TEST SCENARIO
Within Trip Current Limits
Y
N
Test Passed
Test Failed
Start Pressed: Fast Flash on Trip Unit Status LED
30 SEC Timer Expired?
Cancel Button?
Cancel
Decrement: SECs
Up Arrow (Inc 'Ir' Value)
Down Arrow (Dec 'Ir' Value)

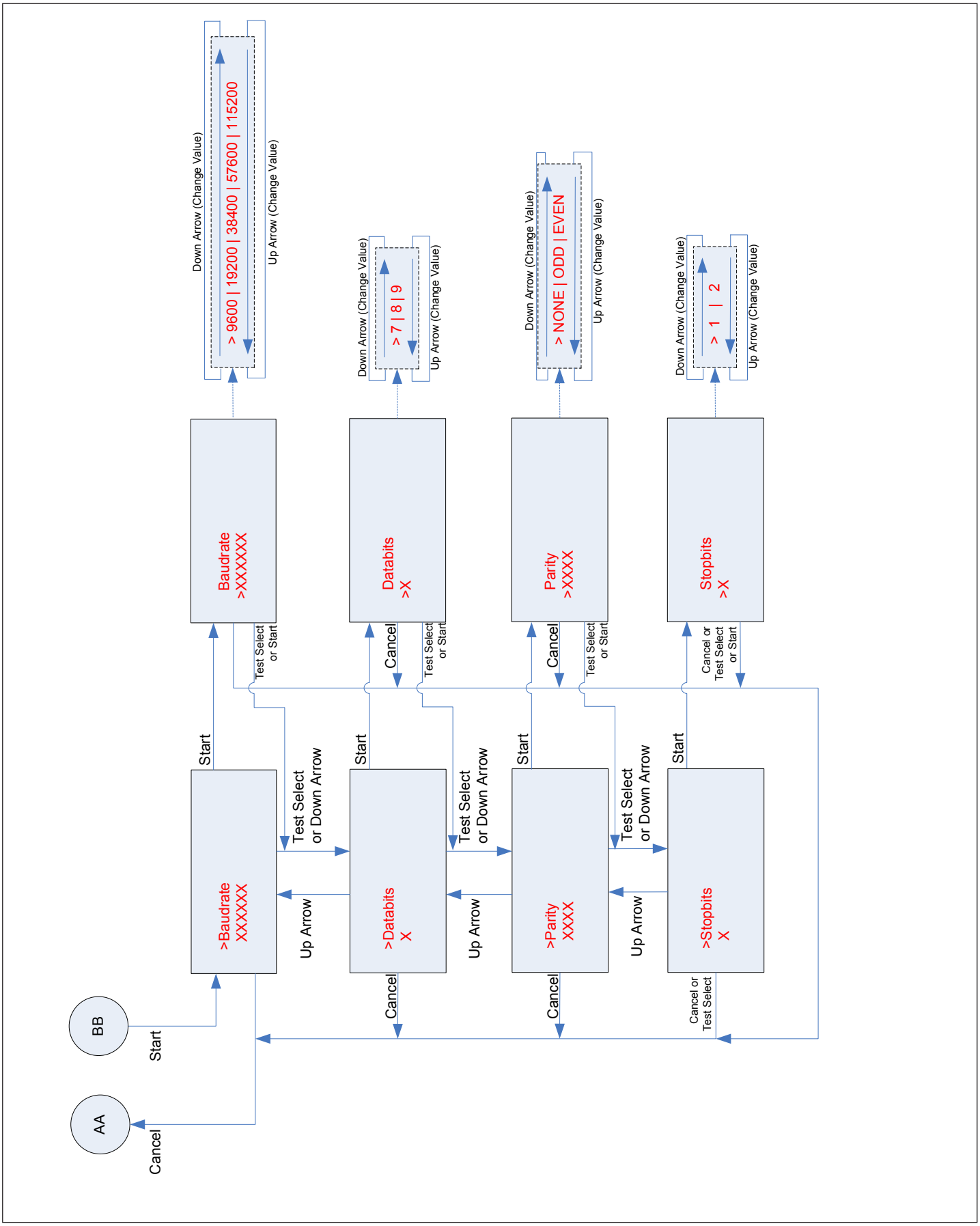

TEST SCENARIO
Breaker Closed?
Y
30 SEC Timer Expired?
N
Cancel Button?
N
Y
Cancel
Y
Within Trip Current Limits
N
Test Failed
Y
Test Passed
N
Decrement: SECs
Increment: Ix
x <= s Assigned From Entry Point
TEST INITIALIZING: Ix= XXXA
1 Second Timeout
TEST ACTIVE: XX SECs Ix= XXXA (Test Running)
Test Passed
Test Failed
Cancel
TRIP CURRENT FOUND >x=XX.XX <%Err> **PASSED**
TRIP NOT FOUND >x=XX.XX <% Err> **FAILED**
TEST CANCELLED >Ix= XXXA
15 Second Timeout
15 Second Timeout
15 Second Timeout
Time Test Return
Time Test Entry
<NAME> <= SHORT
Trip Test Return
Trip Test Entry
NOTE: Values will wrap at range limits when incrementing & decrementing with Arrow buttons.
SELECT TEST: > SHORT DELAY TEST
Start
Test Select or Down Arrow
Up Arrow
Cancel
1. SET SDT TO '0.1'
2. SET INST=OFF LDT=MAX
(Informational)
Start
Test Select
Cancel
SHORT DELAY TRIP SET >s=X.XX I=X.XX Is=XXXX
Start
Test Select
Cancel
Down Arrow (Dec 's' Value)
Up Arrow (Inc 's' Value)
SHORT DELAY (at 1.5xIs) >Ts= X.XX S
Start
Test Select
Cancel
Down Arrow (Dec 'Ts' Value)
Up Arrow (Inc 'Ts' Value)
F
G
H
I
J
K
L

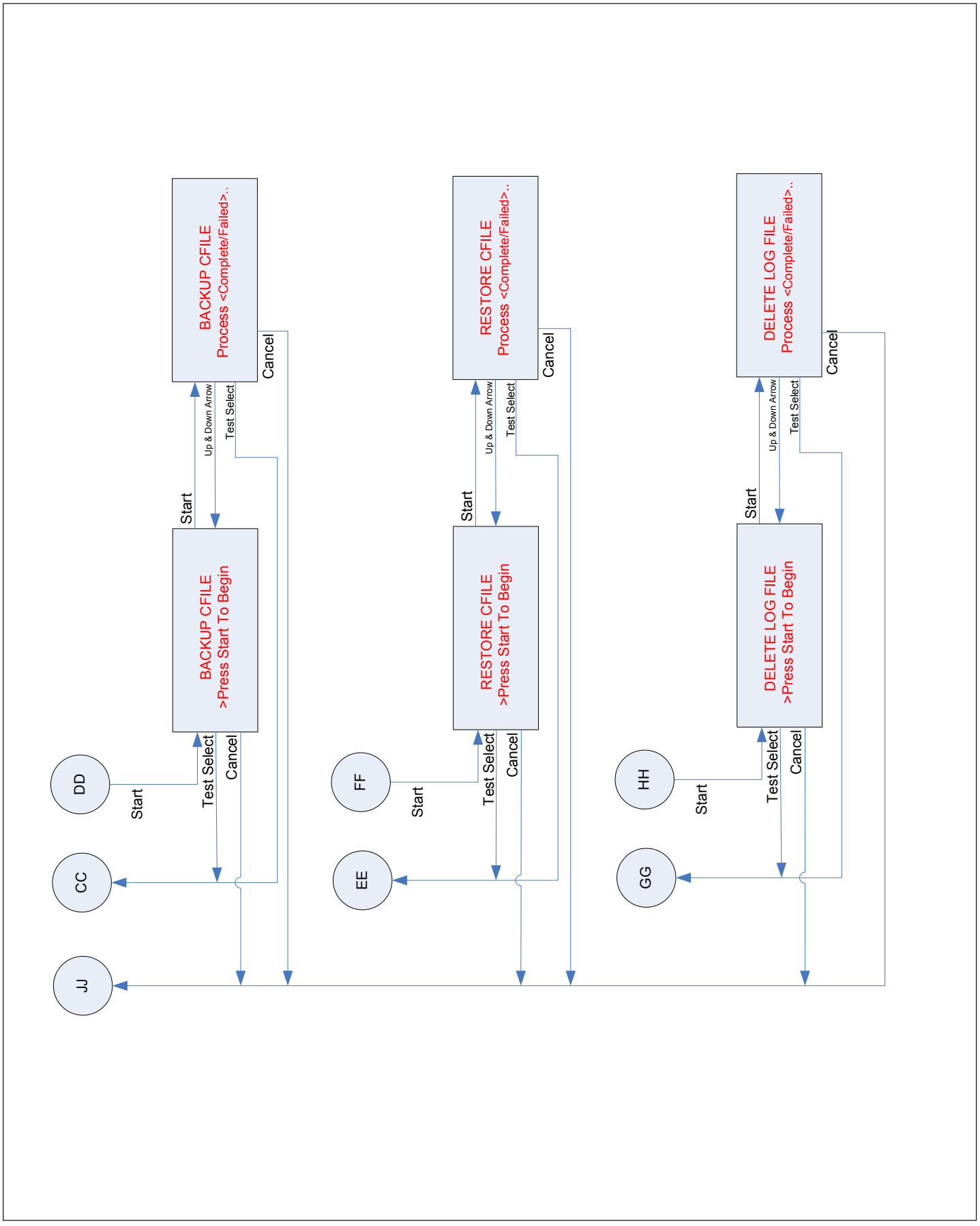

<NAME> <= SHORT
Time Test Return
Time Test Entry
Trip Test Return
Trip Test Entry
x <= g
NOTE: Values will wrap at range limits when incrementing & decrementing with Arrow buttons.
L
K
J
I
SELECT TEST:
> GROUND FAULT TEST
Start
Test Select or Down Arrow
Up Arrow
Cancel
GF TRIP SET (Tg=0.1)
>g=X.XX n=X.XX Ig=XXXX
Start
Down Arrow (Dec 'g' Value)
Test Select
Up Arrow (Inc 'g' Value)
Cancel
GF DELAY (at 1.5xIg)
>Tg= X.XX S
Start
Down Arrow (Dec 'Tg' Value)
Test Select
Up Arrow (Inc 'Tg' Value)
Cancel
P
O
N
M


<NAME> <= INSTANTANEOUS
Time Test Return
Time Test Entry
Trip Test Return
Trip Test Entry
x <= i
NOTE: Values will wrap at range limits when incrementing & decrementing with Arrow buttons.
P
O
N
M
SELECT TEST:
> INSTANTANEOUS TEST
Start
Test Select or Down Arrow
Up Arrow
Cancel
1. SET LDS & LDT MAX
2. SET SDS to M1
(Informational)
Start
Test Select
Cancel
INSTANT TRIP SET
>i=X.XX n=X.XX Ii=XXXX
Start
Test Select
Cancel
Down Arrow (Dec 'i' Value)
Up Arrow (Inc 'i' Value)
INSTANT MAX TIME
>i=X.XX n=XXX Ii=XXXX
Start
Test Select
Cancel
Down Arrow (Dec 'i' Value)
Up Arrow (Inc 'i' Value)
T
S
R
Q


<NAME> <= MMODE
Time Test Return
Time Test Entry
Trip Test Return
Trip Test Entry
x <= m
T
S
R
Q
SELECT TEST:
> MAINTENANCE MODE TEST
Start
Test Select
Up Arrow
Cancel
NOTE: Values will wrap at range limits when incrementing & decrementing with Arrow buttons.
1. SET LDS & LDT MAX SDS M1
2. SET MMODE ON
(Informational)
Start
Test Select
Cancel
MMODE SELECT
>SETTING: RX
Test Select or Start
Down Arrow (Dec 'RX' Value)
Up Arrow (Inc 'RX' Value)
Cancel
MMODE TRIP SET
>m=X.XX n=XXX Im=XXXX
Start
Test Select
Down Arrow (Dec 'm' Value)
Up Arrow (Inc 'm' Value)
Cancel
MMODE MAX TIME
>m=X.XX n=XXX Im=XXXX
Start
Test Select
Down Arrow (Dec 'm' Value)
Up Arrow (Inc 'm' Value)
Cancel


B
C
System Settings >Date & Time
System Settings >Communications
System Settings >Backup CFILE
System Settings >Restore CFILE
System Settings >Delete Log File
Start
Cancel
Test Select or Down Arrow
Up Arrow
AA
BB
CC
DD
EE
FF
GG
HH
>Time of Day Enter Hours: XX
>Time of Day Enter Minutes: XX
>Date Enter Month: XX
>Date Enter Day of Month: XX
>Date Enter Year: XXXX
Time of Day > Enter Hours: XX
Time of Day > Enter Minutes: XX
Date > Enter Month: XX
Date > Enter Day of Month: XX
Date > Enter Year: XXXX
Up Arrow (Inc Value)
Down Arrow (Dec Value)
Test Select or Start
Cancel or Test Select
Cancel or Test Select or Start
JJ


Down Arrow (Change Value)
> 9600 | 19200 | 38400 | 57600 | 115200
Up Arrow (Change Value)
Down Arrow (Change Value)
> 7 | 8 | 9
Up Arrow (Change Value)
Down Arrow (Change Value)
> NONE | ODD | EVEN
Up Arrow (Change Value)
Down Arrow (Change Value)
> 1 | 2
Up Arrow (Change Value)
Baudrate >XXXXXX
Databits >X
Parity >XXXX
Stopbits >X
Test Select or Start
Cancel
Test Select or Start
Cancel
Test Select or Start
Cancel or Test Select or Start
Start
Test Select or Down Arrow
Up Arrow
Start
Test Select or Down Arrow
Up Arrow
Start
Test Select or Down Arrow
Up Arrow
Start
>Baudrate XXXXXX
>Databits X
>Parity XXXX
>Stopbits X
Cancel
Cancel
Cancel or Test Select
BB
Start
AA
Cancel


BACKUP CFILE
Process <Complete/Failed>..
Cancel
Up & Down Arrow
Test Select
Start
BACKUP CFILE
>Press Start To Begin
Test Select
Cancel
Start
DD
CC
JJ
RESTORE CFILE
Process <Complete/Failed>..
Cancel
Up & Down Arrow
Test Select
Start
RESTORE CFILE
>Press Start To Begin
Test Select
Cancel
Start
FF
EE
DELETE LOG FILE
Process <Complete/Failed>..
Cancel
Up & Down Arrow
Test Select
Start
DELETE LOG FILE
>Press Start To Begin
Test Select
Cancel
Start
HH
GG

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Instructions for Testing Magnum DS Digitrips with the MTK2000 Test Kit

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