Westinghouse
Astronuclear
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WANL-TME-2739
SEPTEMBER 1970

DATA ITEM S-52

REACTOR SERIES GROUND
TEST PROGRAM
FUNCTIONAL FLOW
DIAGRAMS

MASTER

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Westinghouse Astronuclear Laboratory

Subcontract NP-1
CODE IDENT NO. 14683

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REACTOR SERIES GROUND TEST PROGRAM FUNCTIONAL FLOW DIAGRAMS

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Approved By
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INFORMATION CATEGORY	
<i>Unclassified</i>	
<i>R. E. Thompson</i>	<i>9/17/70</i>
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FOREWORD

This document is submitted as the WANL expansion of the ANSC Function 7.1 of the NERVA Ground Test Program Functional Flow Diagrams (FFD), Data Item S-052. Reference ANSC Drawing Number 1136522, dated 23 February 1970.

This document should be used in conjunction with Data Item S-053, Requirement Allocation Sheets for Reactor Series Ground Test Program. Each of these functions should be considered a lower level breakdown of the ANSC Function 7.1 of the NERVA Ground Test Program.

A breakdown of Function 6.0, "Provide Test Assembly Maintenance Support" and Function 2.0, "Conduct R-Series Performance Test" is not provided.

Current planning does not include the use of the nozzle skirt extension during the Reactor Series Ground Test Program. However, the Functional Flow Diagrams depict the use of the nozzle skirt extension for the R-Series testing in the event its use is reconsidered at a later date.

*NO RAS REQUIRED FUNCTION SHOWN FOR CONTINUITY ONLY

**THE NOZZLE AND ASSEMBLY HARDWARE IS COMPRISED OF THE FOLLOWING COMPONENTS

- 1 NOZZLE
- 2 NOZZLE/VESSEL SEAL
- 3 NOZZLE BOLTS

SECOND LEVEL

FUNCTION 5 3			
PROVIDE NOZZLE AND ASSEMBLY HARDWARE			
DWG SIZE	CODE IDENT NO.	DWG NO.	
G	14683	613175	
REV	9-70	SHEET 8	OF

*NO RAS REQUIRED FUNCTION SHOWN FOR CONTINUITY ONLY

** Current planning does not include the use of the nozzle skirt extension during the reactor series testing. It is included here in the event that its use is reconsidered at a later date.

SECOND LEVEL

FUNCTION 5 4			
PROVIDE NOZZLE SKIRT EXTENSION			
DWG SIZE	CODE IDENT NO.	DWG NO.	
G	14683	613175	
REV	9-70	SHEET 9	OF

*NO RAS REQUIRED FUNCTION SHOWN FOR CONTINUITY ONLY

**A DETAIL LIST OF THIS EQUIPMENT CANNOT BE PROVIDED UNTIL THE PRELIMINARY DESIGN OF THE TEST CAR IS AVAILABLE THE LIST OF TEST CAR COMPONENTS GIVEN FOR FUNCTION 5 1 IS SUBJECT TO CHANGE AS THE DESIGN PROGRESSES

***RAS TO BE PREPARED WHEN EQUIPMENT DEFINITION IS AVAILABLE

SECOND LEVEL

FUNCTION 5 5			
PROVIDE MISCELLANEOUS TEST ARTICLE/TEST CAR INTERFACE EQUIPMENT AND PIPING			
DWG SIZE	CODE IDENT NO.	DWG NO.	
G	14683	613175	
REV	9-70	SHEET 10	OF

*NO RAS REQUIRED FUNCTION SHOWN FOR CONTINUITY ONLY

**THIS EQUIPMENT INCLUDES THE CONTROL DRUM DRIVE ACTUATOR, MALFUNCTION OVERRIDE DEVICE, ACTUATORS, GUIDE TUBES AND ASSEMBLY HARDWARE THIS EQUIPMENT WILL BE SHIPPED SEPARATELY FROM THE NSSM FOR R-1 TESTING ONLY

SECOND LEVEL

FUNCTION 5 6			
PROVIDE CDDA EQUIPMENT			
DWG SIZE	CODE IDENT NO.	DWG NO.	
G	14683	613175	
REV	9-70	SHEET 11	OF

*NO RAS REQUIRED FUNCTION SHOWN FOR CONTINUITY ONLY
**(LIST OF EQUIPMENT TO BE SUPPLIED AT A LATER DATE)

SECOND LEVEL

FUNCTION 5 7		
PROVIDE NON NUCLEAR INSTRUMENTATION		
DWG NO.	CODE IDENT NO.	DWG NO.
14683		613175
REV 9-70 SHEET 12 OF

FIRST LEVEL

FUNCTION 4 0		
ASSEMBLE AND CHECKOUT TEST ASSEMBLY		
DWG NO.	CODE IDENT NO.	DWG NO.
14683		613175
REV 9-70 SHEET 13 OF

*THIS COMPONENT REQUIRED FOR R-4 AND R-5 TESTING ONLY
**THIS COMPONENT SHIPPED SEPARATE FROM THE NSSM FOR R-1 TESTING ONLY

SECOND LEVEL

FUNCTION 4 1		
RECEIVE, INSPECT, AND DISPOSITION TEST ASSEMBLY COMPONENTS		
DWG NO.	CODE IDENT NO.	DWG NO.
14683		613175
REV 9-70 SHEET 14 OF

*THIS COMPONENT SHIPPED SEPARATELY FROM THE NSSM FOR R T TESTING ONLY

** Check plan gives details of use of the nozzles at the end of the test series testing. It is included here to give it its sequence at a later date.

SECOND LEVEL

FUNCTION 4 2			
ASSEMBLE TEST ASSEMBLY			
DWG. SIZE	CODE IDENT NO.	DWG. NO.	
G	14683	613 75	
REV 9-70 SHEET 1 F OF

SECOND LEVEL

FUNCTION 4 3			
PERFORM POST ASSEMBLY CHECKOUT OF TEST ASSEMBLY			
DWG. SIZE	CODE IDENT NO.	DWG. NO.	
G	14683	613175	
REV 9-70 SHEET 1 G OF

SECOND LEVEL

FUNCTION 4 4			
STORE TEST ASSEMBLY			
DWG. SIZE	CODE IDENT NO.	DWG. NO.	
G	14683	613175	
REV 9-70 SHEET 17 OF

FIRST LEVEL

*NO RAS REQUIRED - THIS FUNCTION SHOWN FOR CONTINUITY ONLY
THE TEST PLANNING FOR THE R-SERIES PERFORMANCE TEST WILL BE PROVIDED BY REACTOR TEST PLAN/TEST SPECIFICATION (DATA ITEM T 102)
THE FACILITIES AND GENERAL SUPPORT EQUIPMENT REQUIRED TO SUPPORT THIS TESTING EFFORT WILL BE DOCUMENTED IN DATA ITEMS T 134 AND M 110

FUNCTION 2 0			
CONDUCT R-SERIES PERFORMANCE TEST			
DWG NO.	CODE IDENT NO.	DWG NO.	
6	14683	613175	
REV 9-70 SHEET 22 OF

FIRST LEVEL

FUNCTION 1 0			
CONDUCT POST TEST OPERATION			
DWG NO.	CODE IDENT NO.	DWG NO.	
6	14683	613175	
REV 9-70 SHEET 23 OF

SECOND LEVEL

*NO RAS TO BE PREPARED AT THIS DATE

FUNCTION 1.1			
PERFORM POST-PERFORMANCE TEST OPERATION			
DWG NO.	CODE IDENT NO.	DWG NO.	
6	14683	613175	
REV 9-70 SHEET 24 OF

SECOND LEVEL

FUNCTION 1 2			
TRANSFER TEST ASSEMBLY TO DISASSEMBLY FACILITY			
DWG NO.	CODE IDENT NO.	DWG NO.	
6	14683	613175	
REV 9-70 SHEET 25 OF

*THIS COMPONENT REQUIRED FOR R 4 AND R 5 TESTING ONLY

FUNCTION 1.3			
DISASSEMBLE TEST ASSEMBLY			
DWG SIZE	CODE IDENT NO.	DWG NO.	
G	14683	613175	
REV 9-70 SHEET 26 OF

THIRD LEVEL

FUNCTION 1.3.2			
SEPARATE TEST ARTICLE FROM TEST CAR			
DWG SIZE	CODE IDENT NO.	DWG NO.	
G	14683	613175	
REV 9-70 SHEET 27 OF

*FOR R 1 TESTING (ONLY) THE CDDA ARE MOUNTED BENEATH THE PRIVY ROOF AND WILL BE REMOVED PRIOR TO REMOVING THE TEST ARTICLE FROM THE TEST CAR SEE FUNCTION 1.3.2.3 AND 1.3.2.4

THIRD LEVEL

FUNCTION 1.3.3			
DISASSEMBLE TEST ARTICLE			
DWG SIZE	CODE IDENT NO.	DWG NO.	
G	14683	613175	
REV 9-70 SHEET 28 OF

FIFTH LEVEL

FUNCTION 13359 DISASSEMBLE CORE ASSEMBLY			
DWG SIZE G	CODE IDENT NO. 14683	DWG NO. 613175	REV 970 SHEET 30 OF

FIFTH LEVEL

FUNCTION 133510 DISASSEMBLE REFLECTOR			
DWG SIZE G	CODE IDENT NO. 14683	DWG NO. 613175	REV 970 SHEET 31 OF

TITLE Reactor Series Ground Test Program Functional Flow Diagrams	
	DOCUMENT NO. WANL-TME-2739	DATE September 1970
ABSTRACT This data item shows the logical arrangement of functions that must be performed to successfully complete the Reactor Test Series of the NERVA Program. This document is a fulfillment of Work Statement number 4a of Project number 717.		
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