

FILM SCRIPT

for

SATURN I/IB QUARTERLY FILM REPORT

Nr. 22

(Covering October, November, December 1964)

FILM

FADE ON:

SCENE 1--

NASA SEAL

FADE TO:

SCENE 2--

"The George C. Marshall

Space Flight Center

Presents:

FADE TO:

SCENE 3--

Artwork, then pop on

words over artwork

"SATURN I/IB"

NARRATION

Saturn I/IB Quarterly Film Report Nr. 22

covers progress during the period

October, November, December 1964.

FILM

FADE TO:

SCENE 4--

Static Firings of

S-I-10

0-1553, 0-1568

*Rework*

CUT TO:

SCENE 5--

Establishing shot of S-I-9

undergoing pressure testing

at Quality. Follow up with

shots of S-I-9 undergoing

checkout operations at

Cape Kennedy.

NARRATION

At Marshall, static firing of the booster for the tenth flight vehicle, S-I-10, on October 5th concluded a highly successful test program for the first ten S-I boosters. During mid-quarter the stage was prepared for shipment to Michoud for post-static checkout. Following checkout operations, S-I-10 was shipped from Marshall November 3rd and arrived at Michoud\_\_\_\_\_.

Early this quarter, S-I-9 completed pressure and functional testing at Marshall's Quality Laboratory. The stage was then shipped to Cape Kennedy by barge on October 30th. During transit, rough seas caused some shifting of the stage; however, inspection showed no damage. Ten days later S-I-9 arrived at the launch site. Following checkout, the stage was erected on the pad November 3rd.

*1's  
en*

## FILM

CUT TO:

SCENE 6--

Input from Douglas  
(S-IV-9) and Cape  
footage on S-IV-9

CUT TO:

SCENE 7--

Erection of S-IU-9 atop  
S-IV-9 at Kennedy Space Center.

CUT TO:

SCENE 8--

Show arrival and handling  
of a spacecraft service  
module (stock footage)

## NARRATION

At Douglas' SACTO Test Facility the S-IV-9 stage has completed all phases of testing and final inspection. The stage was stored temporarily until October 21st, when it was flown to Cape Kennedy. The Stage arrived at the launch site October 22nd and pre-flight checkout was begun. On November 19th the unit was erected on the pad.

Activity at Kennedy Space Center also included the ST-124 mounting surface alignment for S-IU-9. Following alignment the instrument unit for the eight flight vehicle, SA-9 was erected on the pad November 19th, as scheduled.

The spacecraft service module and adapter for SA-9 arrived at the Cape on November 13th and was transported to Hangar AF. Command module fit checks are presently in progress.

FILM

FADE TO:

SCENE 9--

Establishing shot of S-I-8  
at Michoud-follow up with a series  
of shots showing booster checkout

NARRATION

Meanwhile, at Marshall's Michoud  
Operations, S-I-8 post static  
checkout was completed November 20th.  
The stage was prepared for shipment, then  
placed in temporary storage. S-I-8 is  
scheduled for shipment to Cape Kennedy  
~~mid-quarter~~, next report period.

~~no permanent problems existed. Stage  
post static checkout was completed  
November 20th.~~

CUT TO:

SCENE 10--

Series of shots showing  
component installation on S-I-10.

Also at Chrysler, Michoud, installation  
of flight components and instrumentation  
for S-I-10 is complete. Stage modification  
and inspection is virtually complete. Post  
static checkout of ~~S-I-10~~ is scheduled for  
completion early next quarter.

FILM

FADE TO:

SCENE 11--

Douglas input on

S-IV-8.

NARRATION

Early this report period at SACTO,

✓ pre-static firing checkout of S-IV-8

got underway. On November 24th the stage was successfully static fired for a period of \_\_\_\_\_.

The stage's fire control switch failed with the suspected source of trouble being the mounting bracket.

Douglas personnel have resolved the problem. Post static checkout of the stage is underway.

CUT TO:

SCENE 12--

Douglas input on

S-IV-8.

At Santa Monica, S-IV-10 Simulated Flight tests were completed in mid-October and stage modifications were begun. Stage cleanup and shipment to SACTO marked the completion of S-IV manufacturing by Douglas. S-IV-10 was installed on Test Stand 2B December 5th. Acceptance firing is scheduled for January 20th.

~~January 20th.~~

FILM

FADE TO:

SCENE 13--

Show men involved in  
IU checkout procedures.  
(Stock footage)

CUT TO:

SCENE 14--

Show men installing components  
on an IU.  
(Stock footage)

CUT TO:

SCENE 16--

Show Pegasus  
Detector panels.  
(Stock footage)

NARRATION

Component checkout of the instrument unit for the ninth flight vehicle, S-IU8, located at Marshall's Quality and Reliability Assurance Laboratory began October 26th and continued through December. Checkout of components will continue as scheduled with completion of tests due January.

Also at Marshall, S-IU-10 component assembly, begun last quarter, is continuing as scheduled.

SCHJELDAHL is now successfully bonding acceptable .0015 inch detector panels. All panels were delivered to Fairchild November 30th, following formal qualification tests of the detector panels.

FILM

FADE OUT:

then

FADE IN:

sub-title

SATURN IB

CUT TO:

SCENE 17--

Show men in process of  
checking out S-IB  
Dynamics/Facilities  
Vehicle.

(Stock footage)

CUT TO:

SCENE 18--

S-IB-1 input from  
Chrysler showing  
pre-static checkout  
operations.

NARRATION

At Marshall's Michoud Operations

functional checkout of the S-IB Dynamics/  
Facilities vehicle was completed in mid-  
December. On December 22nd the stage was  
shipped from Chrysler Michoud to MSFC for  
use in dynamic testing of the Saturn IB  
design.

Also at Michoud, Chrysler completed  
assembly operations on the S-IB-1 early  
this quarter with pre-static checkout  
operations of the stage well underway.  
Booster mechanical testing and measurement  
calibrations are progressing as  
scheduled.



FILM

CUT TO:

SCENE 19--

Show booster assembly  
operations for S-IB-2  
(Chrysler input)

CUT TO:

SCENE 20--

Show spider beam buildup  
of S-IB-3.  
(Chrysler input to come,  
or stock footage).

CUT TO:

SCENE 21--

Show fabrication of the  
booster upper thrust ring.  
(Chrysler input to come,  
or stock footage).

NARRATION

S-IB-2 fabrication and assembly  
operations are complete. Stage tank  
clustering is scheduled to begin  
January 2nd.

S-IB-3 tail section assembly operations  
and build-up of the stage's spider  
beam continued during this quarter.  
Overall fabrication of the stage is  
expected to be near completion next  
quarter.

Fabrication operations are underway for  
S-IB-4. Buildup of the upper and lower  
thrust ring began in late October.  
Clustering of the stage is scheduled  
for late March, next quarter.

FILM

FADE TO:

SCENE 22--

Douglas input on

S-IVB

O-1559

CUT TO:

SCENE 24--

Douglas input on

S-IVB Battleship

hot firings.

NARRATION

At DAC's Sacramento Test Area, preparations for the first S-IVB Battleship hot firing, started last September, continued through October. Routine hardware and equipment checks were made, including successful J-2 engine thrust chamber chilldown tests.

On November 7th, the first hot firing was cut off prior to main stage by a gas generator over-temperature command. On November 24th, a second firing of the stage resulted in a successful test of one-second duration. On December 1st a third firing of ten second duration was completed. On December 9th a 50 second firing was completed. On December 23rd a 416 second firing of the Douglas-built stage was highly successful. During the next quarter, engine chilldown, propellant utilization, and engine gimbaling tests will be run.

FILM

CUT TO:

SCENE 25--

Douglas input

O-1594

CUT TO:

SCENE 26--

Douglas input

O-1594

CUT TO:

SCENE 27--

O-1559, O=1594

NARRATION

At SACTO's Gamma Complex, a series of single and multiple attitude control engines first-phase development firings were successfully conducted in October.

Also at Sacramento, Douglas efforts centered around Beta Test Stand Nr 3. When ~~xxxx~~ preparations are complete the Facilities Checkout Stage will be installed on the stand for propellant loading tests scheduled for early March.

Meanwhile at DAC's Huntington Beach Facility, assembly and checkout of the S-IVB Dynamic Test Stage was completed early this quarter. In November the ~~age~~ stage was prepared for its sea and river journey to Marshall. In formal ~~the~~ ceremonies the first S-IVB stage was turned over to NASA, on December 4th at Huntington Beach, California.

FILM

CUT TO:

SCENE 28--

O-1594

FADE TO:

SCENE 29--

O-1594

FADE TO:

SCENE 3---

Douglas input on

S-IVB-IB flight

units.

CUT TO:

SCENE 31--

S-IVB-IB 201

NARRATION

Cleaning and insulation of the Facilities Checkout Stage is now complete. Douglas will use the stage for propellant loading tests at SACTO and for facilities checkout at Cape Kennedy.

At the Airesearch Facility in Phoenix, Arizona, pressure testing to failure of S-IVB propellant loading flexible hoses was conducted this quarter for Douglas.

At Douglas' Santa Monica and Huntington Beach Facilities fabrication and assembly of S-IVB-IB flight units is well underway.

At Huntington Beach, tank insulation of the first flight stage, 201, was completed this quarter. Work was also underway, at the end of the quarter, on installation of electrical and mechanical systems on the stage.

FILM

CUT TO:

SCENE 32:

S-IVB-IB-202

CUT TO:

SCENE 33--

S-IVB-IB 202 and 203

FADE TO:

SCENE 34--

~~Show J-2 engine firing~~

~~(Stock footage)~~

Hot firing Test

J-015

M-170

NARRATION

Insulation is being applied to the tanks of the second flight stage, 202, with completion scheduled for early next report period.

Fabrication and assembly of the propellant tanks and thrust structures for the third and fourth flight stages 203 and 204 continued during this quarter. Tank insulation of the stages is scheduled for next quarter.

At Rocketdyne's Santa Susana Test Facility J-2 Engine Preliminary Flight Rating tests were successfully completed this quarter. Eleven tests have been completed, including two full duration 500 second firings. Evaluation of start condition limits indicate no marginal start condition problems with the start sequence.

The J-2 Flight Rating Test, to demonstrate engine re-start capability, is scheduled for early next report period.

FILM

CUT TO:

SCENE 35--

O-1556

CUT TO:

SCENE 36--

OM-1584

CUT TO:

SCENE 37--

OM-1584

NARRATION

Also, at Santa Susana, Vertical Test

Stand 3-A is closed for renovation.

Accessory improvements are expected to provide better engine start conditions and more effective altitude simulation for flight rating.

As a result of a J-2 engine gas generator explosion last quarter, Rocketdyne built a pneumatic control system mockup, including the generator, to evaluate the problem and find a solution.

The J-2 engine gas generator valve case was connected to the control pressure point-- then tested. Analysis of test data indicated that this method of assembly would be successful in preventing an explosion.

FILM

CUT TO:

SCENE 38--

O-1556

CUT TO:

SCENE 39--

MSFC J-2 Engine

Test Facility.

CUT TO:

SCENE 40--

IU Structure for

Saturn IB

NARRATION

During this quarter at Rocketdyne, flame resistance testing of the connector for the flexible-armored harness used for all J-2 electrical control and instrumentation wiring was conducted. In this test, the system did not short out under a time and temperature rate of 6½ minutes and 2000 degrees Fahrenheit.

At MSFC, construction of the J-2 Engine Test Facility is virtually complete. Beneficial use of the facility is expected in January.

The first redesigned Saturn IB Instrument Unit structure, completed last quarter, was delivered to Marshall by General Dynamics, Fort Worth, Texas. The unit is scheduled for use in the Saturn IB and V dynamic test programs.

FILM

CUT TO:

SCENE 41--

Vibration testing of

Saturn IB IU

"cold plates".

CUT TO:

SCENE 42--

Stock footage of

IU Vibration Test at

Wyle Laboratories.

  
SCENE 43--

CUT TO:

SCENE 43--

0-1608

NARRATION

Vibration testing for evaluation of

Instrument Unit "cold plates"

manufactured by four vendors--AVCO, North

American, Solar Aircraft, and Aeronca--

continued at MSFC during this period.

Vendor selection will be made following

completion of evaluation testing.

Manufacture of the Instrument Unit to ~~be~~ <sup>at</sup>

be used for vibration testing is now

complete. The unit was shipped

November 30th to the test site at

Wyle Laboratories, Huntsville, Alabama.

Checkout of test facilities is

continuing and vibration testing is

scheduled to start early next quarter.

Negotiations with International

Business Machines are continuing for

the IU mission contract. Some IBM

personnel are at work in the Huntsville

facility.



FILMNARRATION

CUT TO:

SCENE 44

O-1608

One of the most significant activities in which IBM is participating is preparation for the Flight Systems Test Program--a thermal-vacuum test of the entire IU under simulated space-flight conditions, to be performed in an environmental chamber at Douglas Aircraft's Huntington Beach Facility. To reduce costly duplication of testing facilities, special test equipment which will be required both at Huntsville and Huntington Beach is being installed in trailers which can be air-transported between these locations.

CUT TO:

SCENE 45

O-1608

IBM personnel this quarter also performed functional testing of the IU Radar Altimeter, using an MSFC-furnished test set.

FILMNARRATION

CUT TO:

SCENE 46--

O-1608

Another test involved a circuit analysis of the IU's Remote Digital Sub-Multiplexer. Breadboard circuit modules, which duplicate production hardware in component utilization and location, are tested in a temperature chamber to detect possible circuit malfunctions resulting from component tolerance accumulations.

CUT TO:

SCENE 47--

O-1608

Also in progress this quarter were design evaluation studies on a newly-designed channel unit for the IU telemetry system. Experience gained in all these operations are expected to find valuable applications as IBM phases into complete responsibility for a mission-qualified Saturn V Instrument Unit.

FILM

CUT TO:

SCENE 48--

Saturn IB System

Development Breadboard

Facility

FADE TO:

SCENE 49--

Summarize by using

a montage of scenes as

used in the report.

FADE TO:

SCENE 50--

NARRATION

At Marshall, work continued on the Saturn IB System Development Breadboard Facility. In a recent test an ST-124 was used for verification of compatibility with the Ground Support Equipment and associated vehicle systems. The facility allows for checkout of hardware, debugging and verification of Ground computer Automatic Pre-launch checkout programs.

In summary, October, November, and December were months of noticeable achievements in the Saturn I and Saturn IB programs. SA-9 is being readied for its historic flight. Schedules are being met for the eight and tenth Saturn I Flight Vehicles. A significant highlight was the successful full duration hot firing of the S-IVB Battleship Vehicle. Accomplishments in the Saturn I program have broadened the outlook for an equally successful series of events for Saturn IB.

THE END