

FILM SCRIPT

for

SATURN QUARTERLY FILM REPORT

Nr. 20

(April, May, June)

1964

7/14/64

FILM

NARRATION

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"

Saturn I/IB Quarterly Film Report No.20
covers progress during the period April,
May, and June 1964.

FILM

FADE TO:

SCENE 4--

Scenes of SA-6

in flight.

NARRATION

A highlight of this report period was the launch of the sixth Saturn flight vehicle, SA-6. This vehicle was the first to carry an Apollo boilerplate as payload, and to use an ST-124, however, was active for only the last part of the flight. Prior to second stage ignition, an ST-90S guided the vehicle. Starting with the next flight vehicle, only the ST-124 will be carried.

The SA-6 launch, scheduled for May 26th, was scrubbed during countdown, due to an Environmental Control System Compressor malfunction in the Ground Facilities Equipment. The count was re-cycled to T-minus 15 minutes and at 12:07 p.m, on May 28th the vehicle lifted off. Vehicle performance was as expected for the first 117 seconds of flight. At that time, engine No.8 shutdown due to a mechanical failure in the propellant pump. The engine-out circuit shutdown the

126
Vehicle in total engine-out circuits channeled the propellant to remaining engines, providing 20% performance surplus correction
compensate for engine-out

FILM

NARRATION

defective engine. The vehicle's guidance system which was used for the first time in a "closed loop" or active capacity, compensated for the loss of the engine without altering the flight pattern. The SA-7 booster will carry ^{an} ~~the~~ improved propellant pump. Final booster cut-off occurred 149 seconds after lift-off. Separation, ullage and retro-rocket action was as expected. The flight ~~pattern~~ ^P of SA-6 was recorded by the standard ground cameras plus eight movie cameras, jettisoned after 175 seconds of flight. These cameras were successful in recording flight data such as.....,

...Aero dynamic effect on blowout panels....,

...Opening of the blowout panels....,

...LOX and fuel tank consumption....,

...S-IV engine chilldown....,

...Stage separation....,

...S-IV ignition and launch escape system jettison.

FILM

Continue

Scene 4 --

NARRATION

Two television cameras were also successful in retrieving data during flight ^{one} to view stage separation--the other to view the engine compartment. S-IV stage ignition and performance was successful. Two changes in the S-IV stage will be made to lighten the vehicle as a result of good flight performance in SA-5 and SA-6

The Apollo Boilerplate instrument unit, and the burned out S-IV stage, weighing about ^{3 1/2} eighteen tons, was placed in a near nominal orbit and re-entered the earth's atmosphere over the Western Pacific after a lifetime of 3 and three-tenths days.

FILM

CUT TO:

SCENE --

Preparation for shipment of SA-7 from MSFC, aboard the "PROMISE" to Cape Kennedy.

(Stock)

CUT TO:

SCENE--

Preparation for shipment of Apollo--show arrival at Cape Kennedy.

CUT TO:

SCENE --

Footage of S-IV-7 being static fired, then preparation for stage shipment.

Mating of vehicle stages at Cape Kennedy.

(stock footage)

NARRATION

On May 28th, the booster and instrument unit for the seventh flight vehicle, SA-7, departed the Marshall Center, aboard the "Promise" and arrived at Cape Kennedy eleven days later.

By the 9th of June, both the Apollo Service Module and the Command Module had arrived at the Cape without incident.

Following successful acceptance static firing tests and final checkout of S-IV-7 early this quarter, the stage was flown from Santa Monica to the Cape June 10th. After hanger checkout of the stage was completed, the vehicle was erected on the launch platform.

Following mating of the stages and pre-flight checkout, SA-7 will be launched next quarter.

FILM

CUT TO:

SCENE --

Scene showing a booster
undergoing testing in
Quality's Test Cell

CUT TO:

SCENE --

P-1454

Scenes 1 thru 14

E.S. of Parckard Bell

Compuator Equipment.

CUT TO:

SCENE --

OM-1402

NARRATION

At Marshall's Quality Division, the booster for the ninth flight vehicle, SA-9, is undergoing post-static checkout in the Pressure Test Cell. Following testing, the stage will undergo electrical checkout-- then preparation for shipment, to the Cape, will get underway.

On April 17th, the booster stage was loaded on the barge "Promise". The stage was shipped from Michoud the same day and arrived at Marshall on April 26th.

Early this quarter, at Michoud, following pre-static checkout, Chrysler prepared S-I-8 for shipment to Marshall.

FILM

FADE TO:

SCENE --

Quick scene of post-static checkout followed by static firing sequence of S-1-8.

CUT TO:

SCENE --

P-1454

Scene 1 thru 14

E.S. of checkout

equipment.

NARRATION

At MSFC, the booster was erected directly in the ~~Static~~ Test Stand and static firing preparation were begun. A short duration firing was scheduled for May 21st, but was re-scheduled when a leak developed around the manhole cover in the center LOX tank. Later, the stage successfully completed two separate static firings--one short duration and one long duration. On June 24th, S-1-8 was shipped back to Michoud where post static checkout is scheduled to begin early next quarter.

Also, at Marshall's Michoud Operations, checkout of the Chrysler-built S-1-10 began on May 4th and will be completed next quarter. Checkout test operations are being monitored by recently installed checkout equipment. Following completion of checkout the booster will be prepared for shipment to MSFC, ~~next quarter~~.

FILM

CUT TO:

SCENE --

OM-1456

Best scenes from

1-17

CUT TO:

SCENE --

Input from Douglas

related to S-IV-9

0-1452

CUT TO:

SCENE --

Input from Douglas

related to S-IV-8.

0-1452

Scenes 50-51

NARRATION

During this quarter, at Michoud, construction work included construction of a concrete block building which houses the air compressor supplying compressed air for instrumentation in the computer facility and, brick and mortar construction on the Card-Tape Storage Building

At Douglas' Santa Monica facility, S-IV-9 post manufacturing checkout was completed April 28th. On May 8th, the stage was shipped to SACTO and installed in the static test stand. S-IV-static testing is scheduled for next quarter.

Meanwhile, on April 25th, S-IV-8 was moved from DAC's assembly area to the Vertical Checkout Area. Checkout, temporarily delayed because of parts shortages, is now underway. No major problems have been encountered to date.

FILM

NARRATION

CUT TO:

Also, at Santa Monica, engine installation and stage assembly of Douglas' S-IV-10 stage continued during the quarter and is on schedule.

SCENE --

Input from Douglas related to S-IV-10

0-1452

Scenes 46 and 48

CUT TO:

At Wyle Laboratories, Huntsville, Alabama, vibration testing of the first unpressurized design Instrument Unit was completed during this report period. Minor modifications made in this test unit, as a result of testing, will appear on S-IU-9, 8 and 10 flight units. Checkout of S-IU-9, in Marshall's Quality Assurance Laboratory, is scheduled for completion next quarter.

SCENE--

Establishing shot of S-IU-9, follow up with MCU of man working on I.U.

FILM

CUT TO:

SCENE --

Establishing shot of
S-IU-8, follow up with
shot of man working
on IU.

CUT TO:

SCENE --

Stock footage showing
vehicle in
Dynamic Test Tower

FADE OUT:

then

FADE IN:

NARRATION

On June 15th, S-IU-8 structure was removed
from storage and transferred to the
Manufacturing Engineering Laboratory for
component assembly. Checkout of S-IU-8
is scheduled to start next quarter.
S-IU-10 is in storage awaiting start of
component assembly next quarter.

what month?
On May 20th, at MSFC's test Laboratory,
the booster was mated to the previously
tested S-IV stage, instrument unit, Apollo
boilerplate and micro-meteroid capsule.
Dynamic testing of the complete SA-9
micro-meteroid configuration was carried
out during the report period and is scheduled
for completion in July.

FILM

To artwork and
new title--

SATURN I-B

CUT TO:

Scene --

P-1454

Scenes 1,2,3,4

Handwritten:
Will on
Secret?

CUT TO:

SCENE--

Stock footage of
uprated H-1 engine.

Handwritten:
?

CUT TO:

SCENE --

P-1454

S-IB Mock Up Fin

Scenes 1 thru 7.

NARRATION

At Michoud, Chrysler fabrication and assembly of the S-IB-1 second stage adapter and thrust structure assembly were completed in May. On June 19th, clustering began for S-IB-1, also, component fabrication began on the spider beam for S-IB-2. The spider beam is a major component of the second stage adapter.

The first six H-1 uprated flight engines were delivered to Michoud for ~~S-IB-1~~ during this quarter. ~~S-IB-1 will be the first stage using the uprated H-1 engines.~~

In the meantime, the S-IB Mockup Fin was completed. The fin, which can be mounted on the tail section mockup, will generally be used as a developmental fixture for routing of plumbing and wiring.

FILM

CUT TO:

SCENE --

S-IB-2 Fin & Thrust Support
Outrigger Assembly and Tail
Section Assembly

P-1454

Scenes 1 thru 10

CUT TO:

SCENE --

P-1380, Scenes 8 & 10

CUT TO:

SCENE --

P-1380, Scenes 9 & 11-22

NARRATION

The S-IB-2 barrel assembly was completed during this report period and assembly of the outriggers to the barrel assembly begun. The unit form, the main structure of the thrust structure assembly.

At the close of last quarter, the S-IVB Structural and Dynamic Test Stages were in Douglas' Vertical Assembly Towers at Huntington Beach, California.

Early this quarter the Structural Test Stage was moved from its assembly position and transferred to the Structures Test Building, where strain gauges and other instrumentation devices were installed in preparation for hydrostatic testing. On June 23rd, the finished tank was moved into the Hydrostatic Tower. Hydrostatic pressure testing of the LOX and LH₂ tanks is scheduled to begin in mid-July.



the portion of the structural stage? program

FILM

CUT TO:

SCENE 31--

P-1407, Scenes 39,42

NARRATION

Assembly of the propellants tanks for the S-IV-B Dynamic Stage was completed in March. The stage was then moved to the Hydrostatic Test Tower, during hydrostatic test operations on the S-IV-B Dynamic Stage, a valve controller in the facilities test equipment malfunctioned, causing a negative pressure in the liquid hydrogen tank-- which resulted in depressions in the LH₂ dome. The depressions were later popped out by filling the tank with water. During inspection, cracks were found in two weld seams. These cracks were repaired, and the stage has been successfully re-tested. Stage insulation installation was begun late this quarter and is expected to be completed early next quarter.

CUT TO:

SCENE --

P-1407, Scenes 27-34

*what about
welding of
LH₂ upper
ballast?*

During this report period, the S-IV-B All-Systems Stage was processed through Assembly Towers 1 and 2, where welding of the LOX tank assembly to the LH₂ cylinder was accomplished. The stage was then installed in the Hydrostatic Tower.

FILM

NARRATION

CUT TO:

At DAC's Sacramento Test Facility, final inspection of facility contractor effort at the Gamma Complex Test Control Center and Instrumentation Center has been completed. Completion of the entire Gamma Complex, including test cells, has been temporarily delayed due primarily to late delivery of approximately sixty-five valves of various sizes and types. Inspection and testing of these valves is now underway.

SCENE --

P-1407, Scenes 1-9

CUT TO:

Also, at SACTO's Beta Complex, installation of instrumentation at Beta Test Stand No. 1 is complete. No. 2, the J-2 engine for use in the Battleship program was received in April. No 3, Cold flow testing of the Battleship Stage got underway the first week in June.

SCENE --

P-1407, Scenes 10 & 11,
and/or P-1380, Scenes 48-50,
51,52,57,and 58.

CUT TO:

During this period, construction continued at Beta Test Stand No. 3, with completion scheduled next quarter. The stand will be used for test programs with the All Systems-Stage.

SCENE --

P-1380, Scenes 49,59,60,
61,62,63,&64.

FILM

FADE TO:

SCENE --

Establishing shot of
Liquid Hydrogen Test
Tank--followed by
action shots of man
inspecting the tank
(Stock footage)

CUT TO:

SCENE --

Establishing shot of
Saturn IB IU Vibration
Test Unit.

CUT TO:

SCENE --

Establishing shot of Saturn
IB and 5 IU Dynamic Test Unit.
(Show man working on IU)

NARRATION

The Test Liquid Hydrogen Tank will be transferred next quarter from Marshall's Manufacturing Engineering Laboratory to the Test Laboratory for additional technological testing. Insulation was installed in the tank during this report period. The container will be used in the study of super-insulation for liquid hydrogen and LOX tanks.

Laboratory, installation of some components is underway on the Saturn IB Instrument Unit Vibration Test Unit. Work is scheduled to be completed in early August, then the unit will be prepared on August 31st for shipment to Wyle Laboratories for vibration testing.

Fabrication is complete on the Saturn IB and Saturn 5 Instrument Unit Dynamic Test Unit. Results of testing will furnish necessary data influencing control computer filter design. The unit will be in storage until August 10th, at which time it will be transferred to the Propulsion and Vehicle Engineering Laboratory for dynamic testing.

FILM

DISSOLVE TO:

SCENE --

OM-1399

Scenes 1,2,3

*made by
Richard
J-2*

FADE TO:

SCENE --

OM-1424

Scenes 1-7

NARRATION

A significant highlight of this report period was the gimbaling of Rocketdynes' J-2 Liquid Rocket Engine during hot firings at Test Stand 2B. These firings meet all PFRT requirements. During the tests the engine was gimballed at thirty degrees per second. Gimballing was programmed through three cycles in both phases to a maximum of ten degrees.

In April, the first hot-fired J-2 engine was turned over to NASA. Delivery was made at Rocketdyne's main facility, Canoga Park, California.