(38)

U. S. AIR FORCE
MOTION PICTURE SCRIPT

SFP 1034

"THE STORY OF DYNA SOAR"

AIR PHOTO. & CHARTING SERVICE

AIR PHOTOGRAPHIC
AND
CHARTING SERVICE
(MATS)

atch 1 2

1365TH PHOTOGRAPHIC SQUADRON (PHOTOGRAPHIC CENTER)
AIR PHOTOGRAPHIC AND CHARTING SERVICE (MATS)
ORLANDO AIR FORCE BASE, FLORIDA

SFP 1034

"THE STORY OF DYNA SOAR"

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Development
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TECHNICAL ADVISOR: GEORGE W. S. ABBEY
Capt USAF
Dyna Soar WSPO
ARDC, WADD

STATUS: Approved Script

DATE: 19 July 1960

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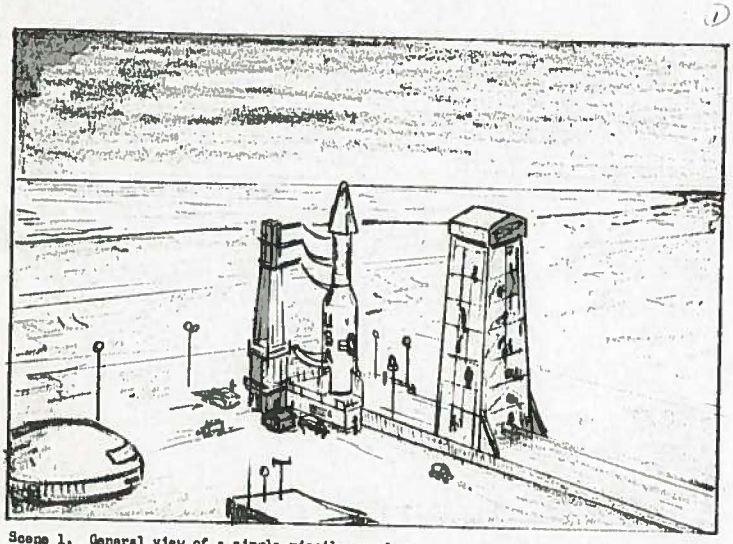

Scene 1. General view of a single missile complex
(Details of Gantry, umbilical cord tower and surrounding buildings and vehicles plus Design of Dyna-Soar stop missile will be supplied to Producer at time of production)

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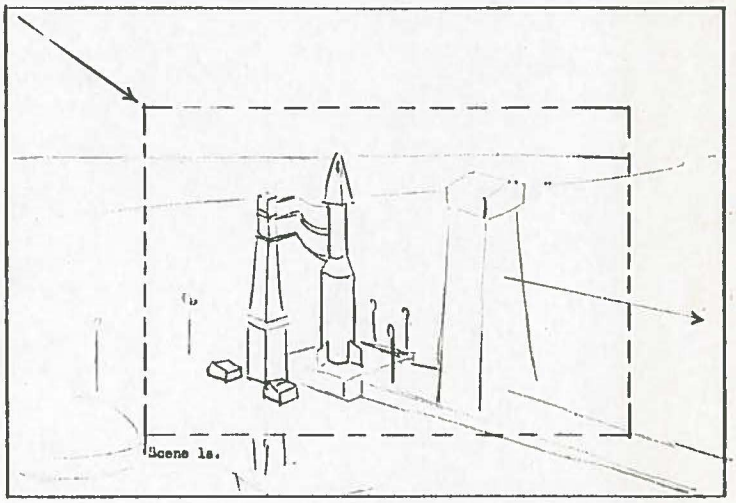
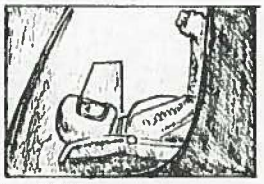


Scene 1a.



Scene 1aa. INSERT
..... Pilot in "take-off" position ..
.. faint "glow" from instrument panel lights the interior of cabin.

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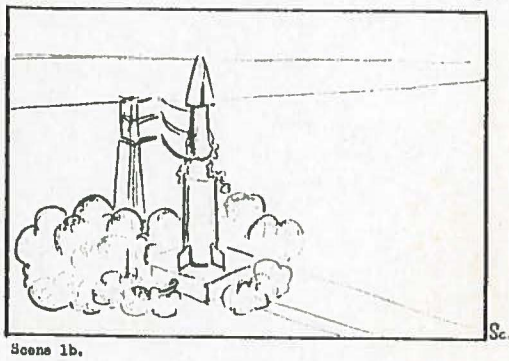

Scene 1b.

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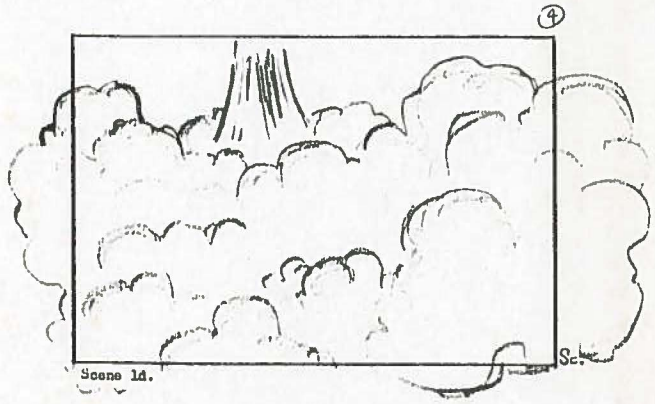
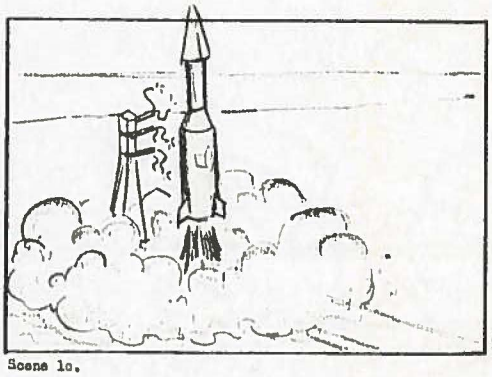
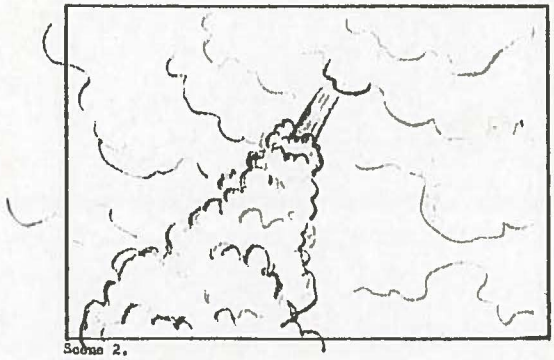


Scene 1d.



Scene 1c.



Scene 2.

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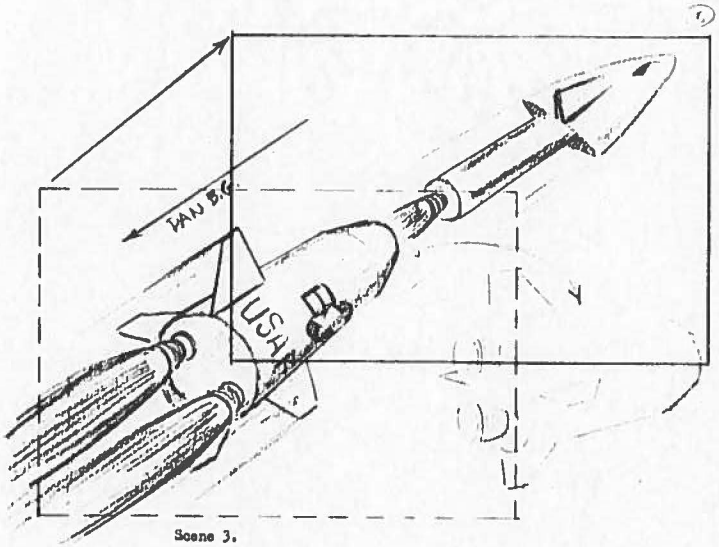

Scene 3.

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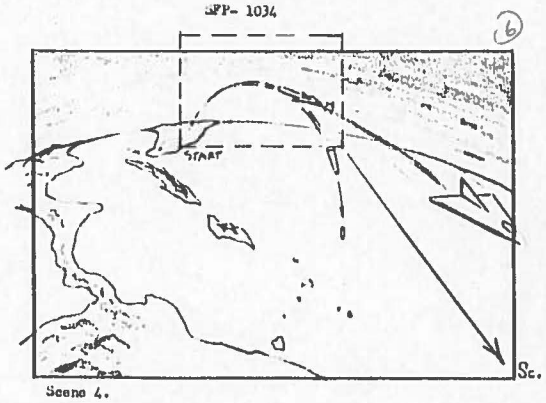

Scene 4.

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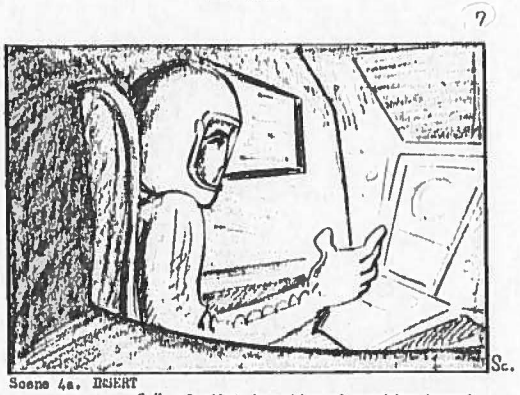

Scene 4a. INSERT
C.U. of pilot in action of reaching toward instruments. PAN B.G. MOVES BEHIND WINDOW.

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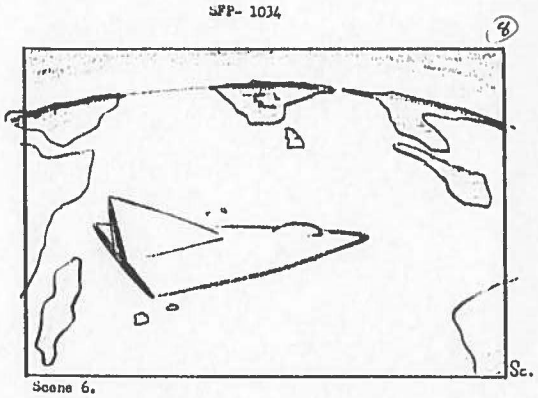
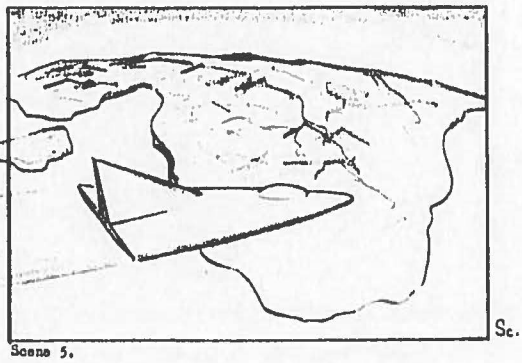
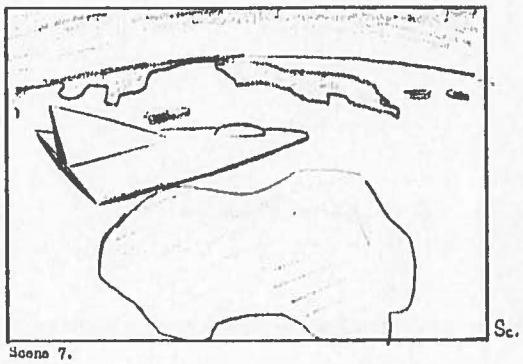


Scene 6.



Scene 5.



Scene 7.

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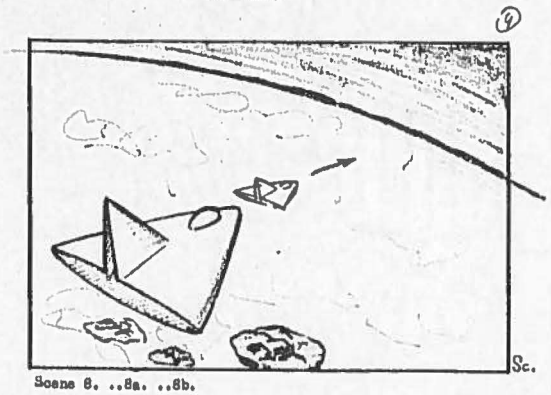
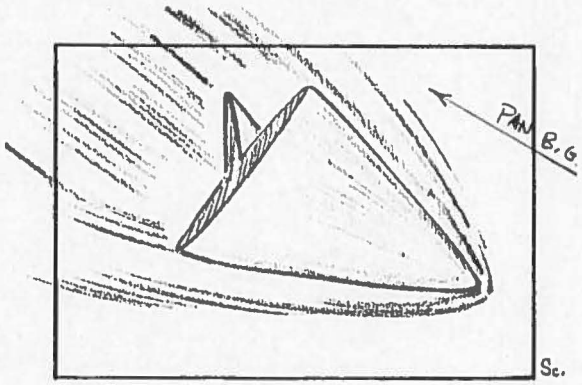


Scene 8. ..8a. ..8b.



Scene 9.

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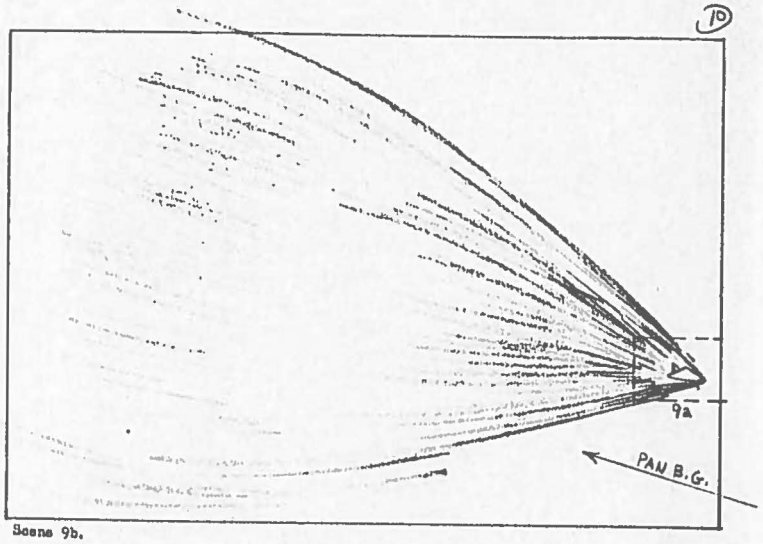

Scene 9b.

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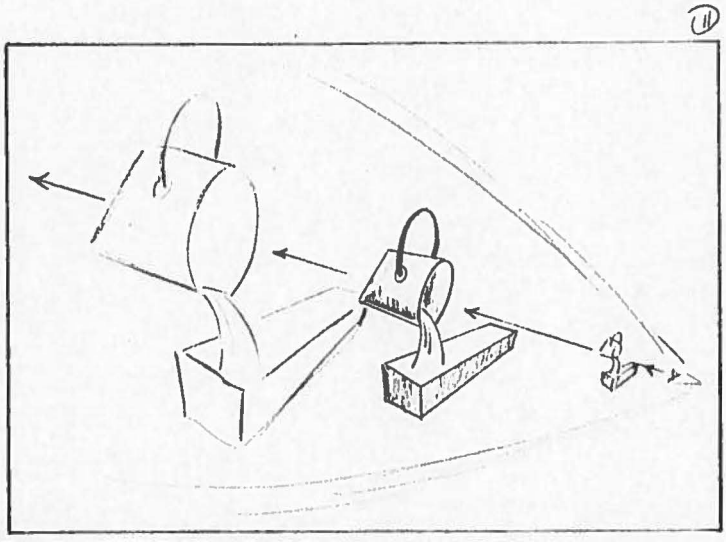

Scene 9c. ZOOM UP "Metallurgy" symbol

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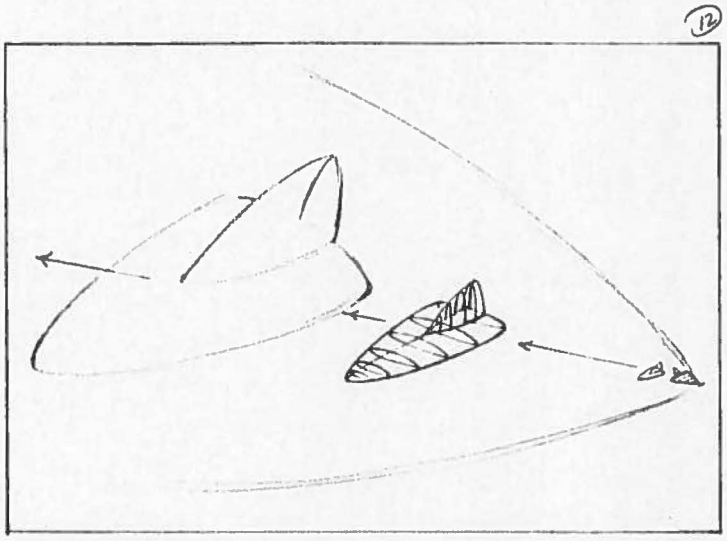
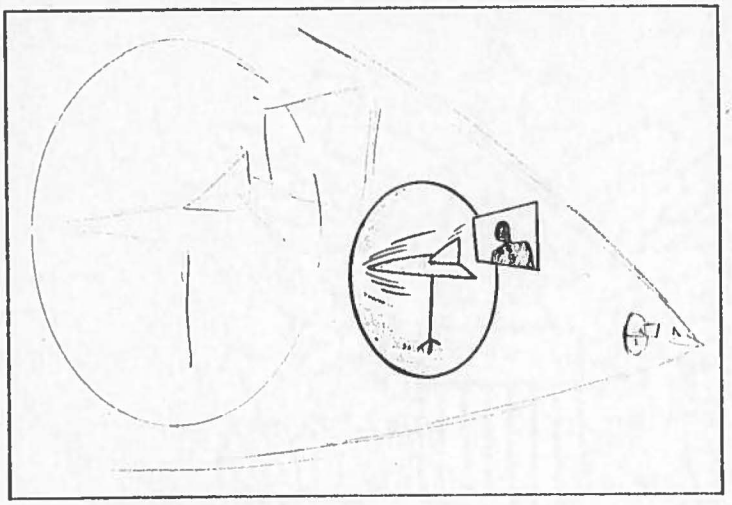


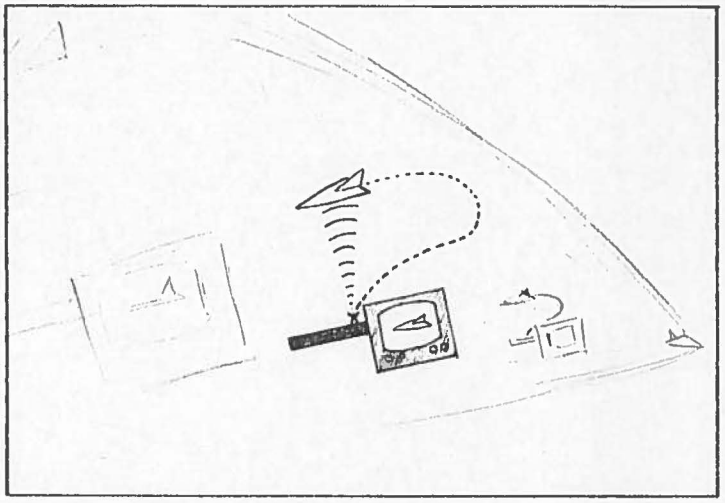
Scene 9d. ZOOM UP "Structures" symbol

SFP- 1034



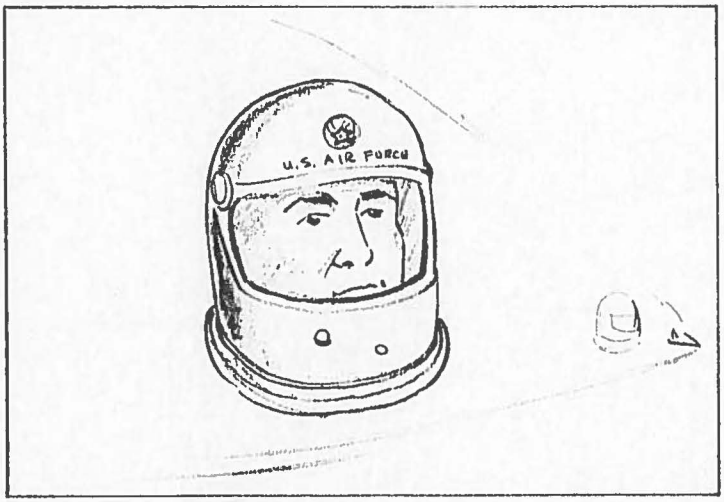
Scene 9e. ZOOM UP "Aerothermodynamics" symbol

SFP- 1034



Scene 9f. ZOOM UP "Guidance & Communications" symbol

SFP- 1034



Scene 9g. ZOOM UP "Human Engineering" symbol

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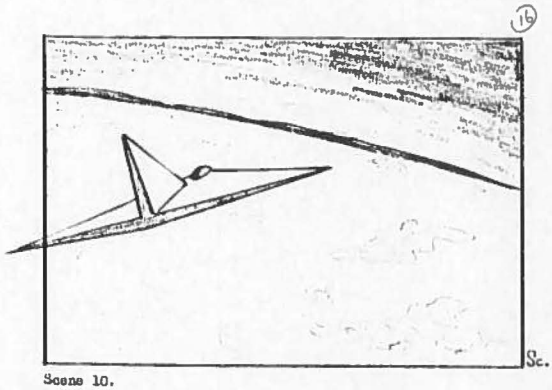
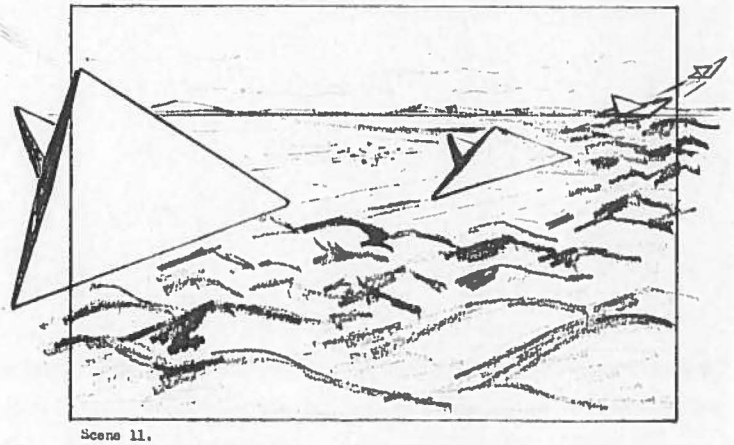


Scene 10.



Scene 11.

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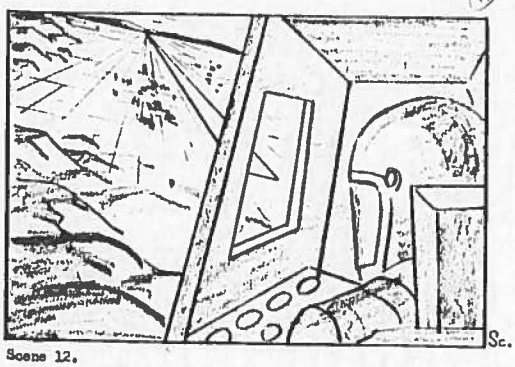
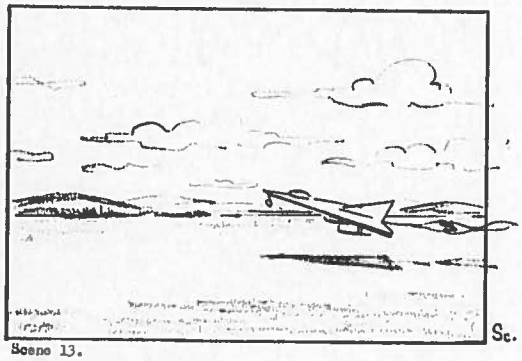


Scene 12.



Scene 13.

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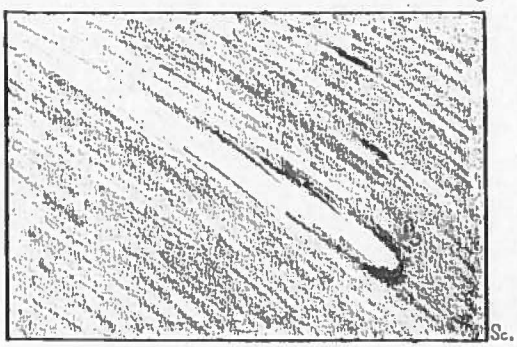
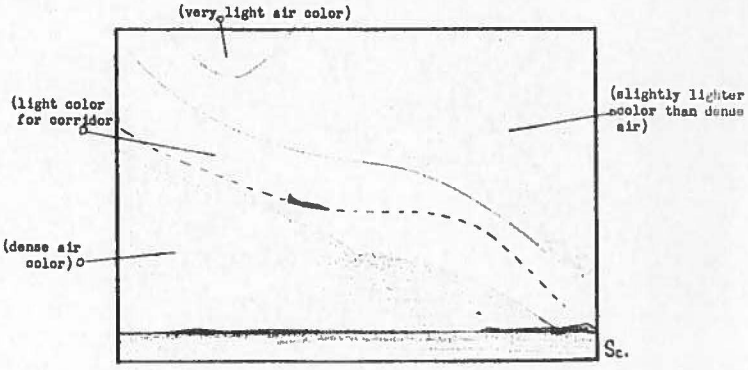


TRANSITION FROM LIVE ACTION:



Scene 31

LIVE ACTION SCENE NEXT

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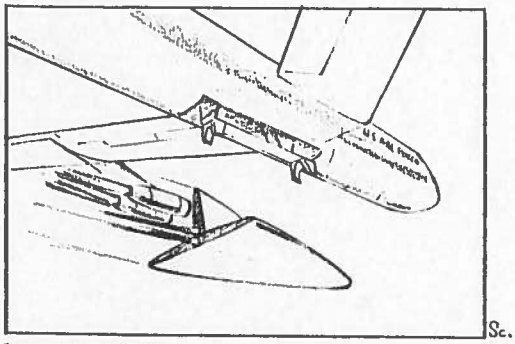
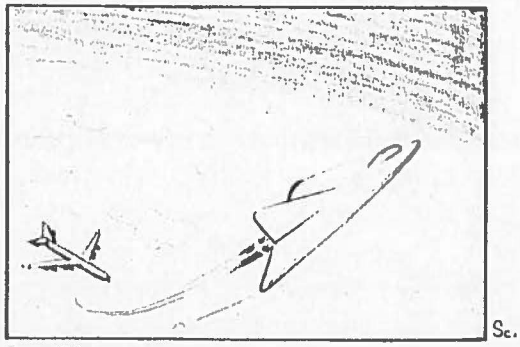
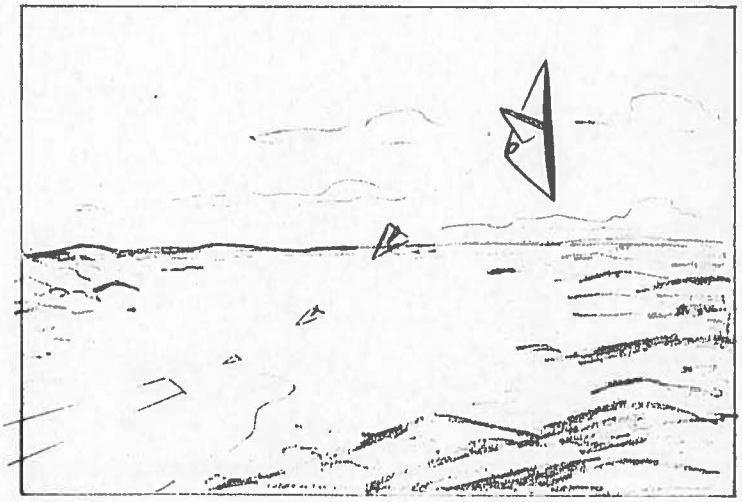


Scene 122, and 122a.



Scene 123.

SFP- 1034



Scene 124.

SFP- 1034

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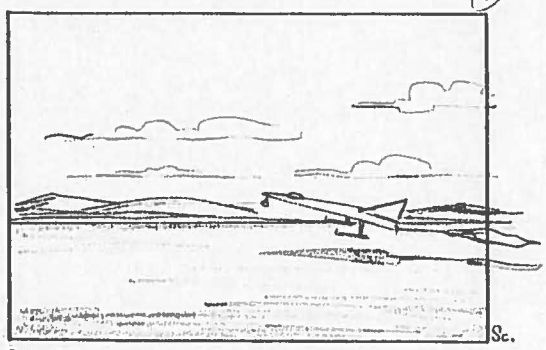

Sc.

Scene 125.

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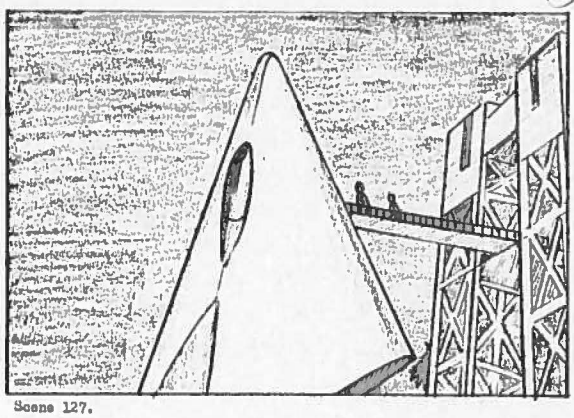
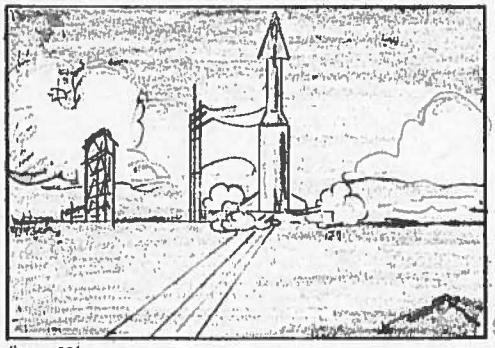
22

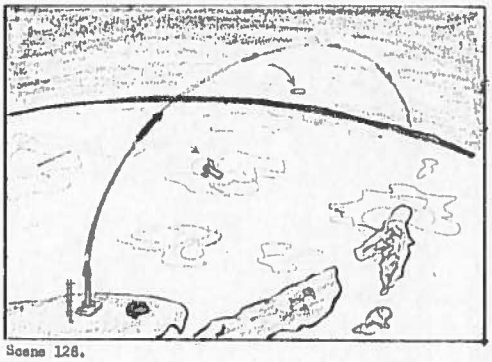


Scene 127.



Sc.

Scene 126.



Scene 128.

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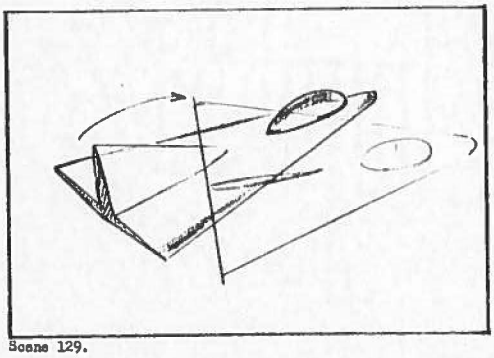
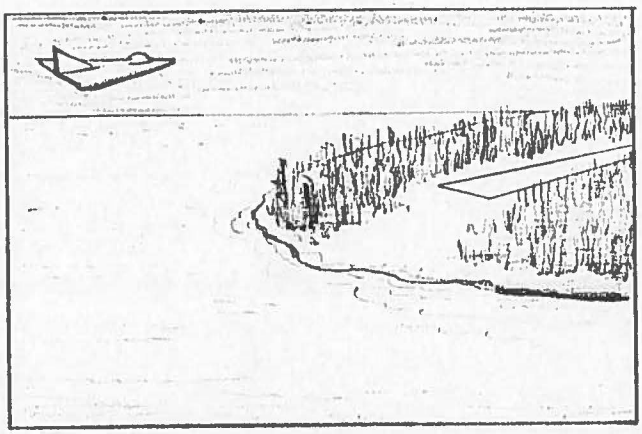


Scene 129.



Scene 130.

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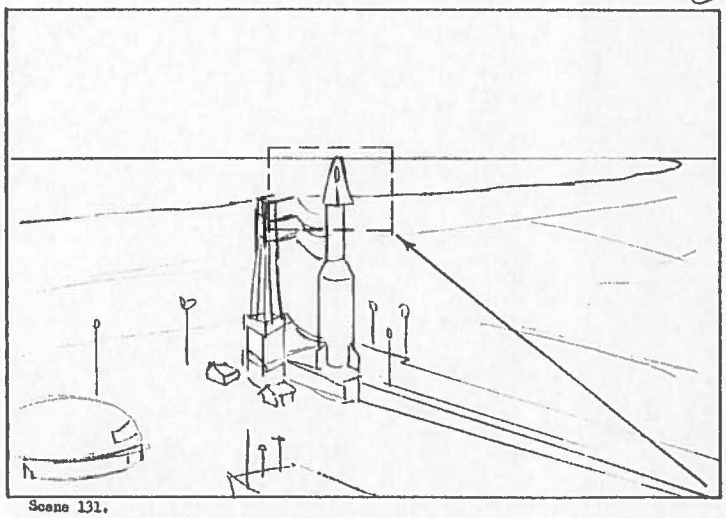
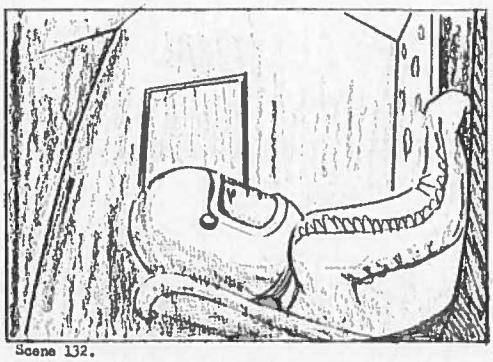
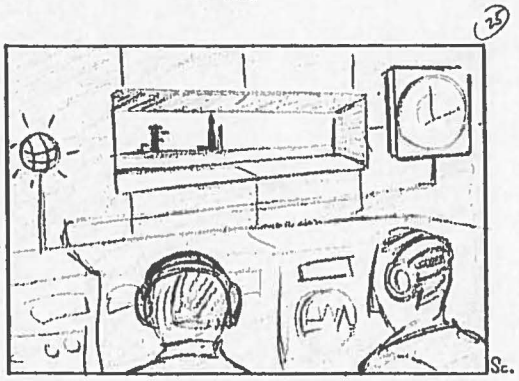


Scene 131.



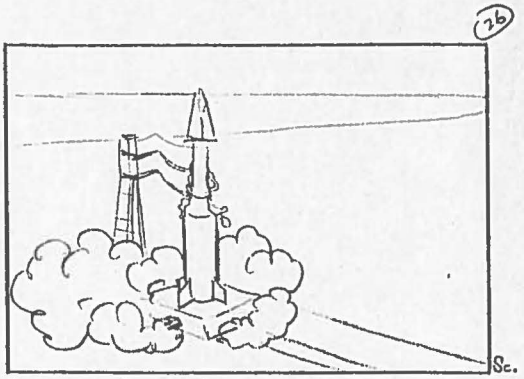
Scene 132.

SFP- 1034

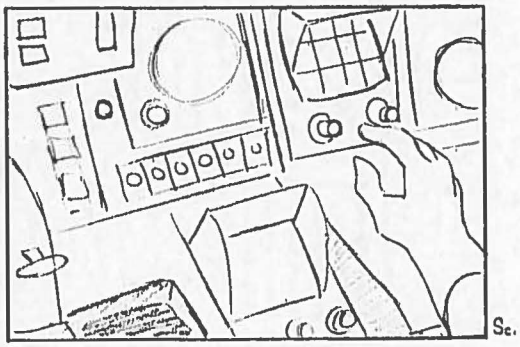


Scene 133.

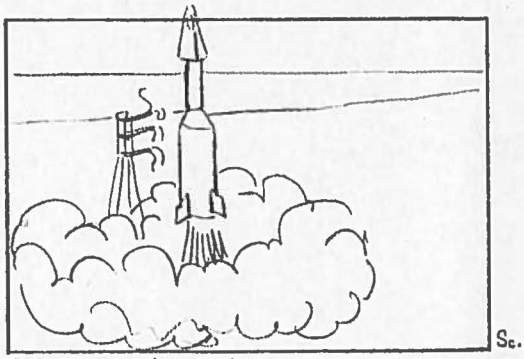
SFP- 1034



Scene 135. (repeat 1b)

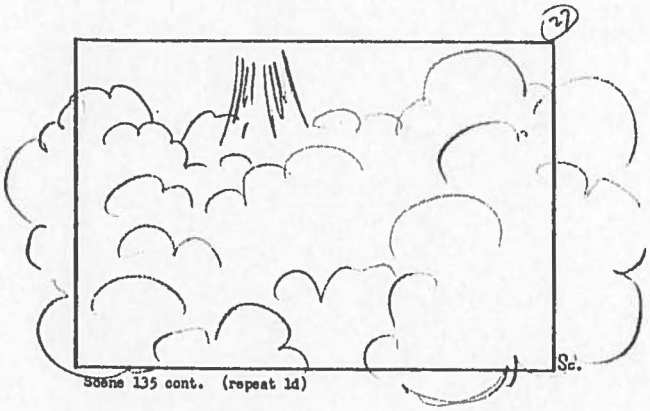


Scene 134.



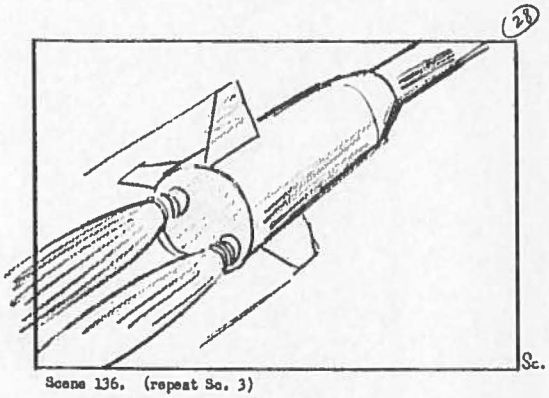
Scene 135 cont. (repeat 1c)

SFP- 1034

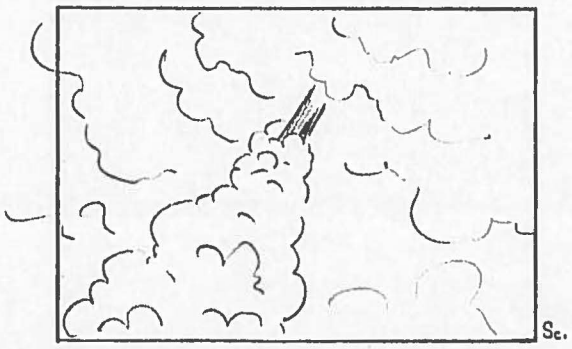


Scene 135 cont. (repeat 1d)

SFP- 1034

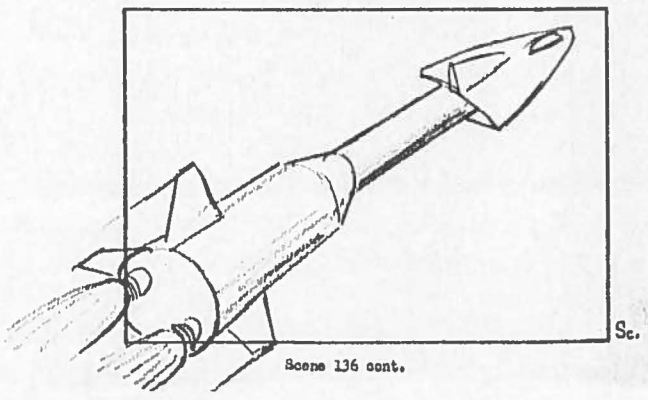


Scene 136. (repeat Sc. 3)



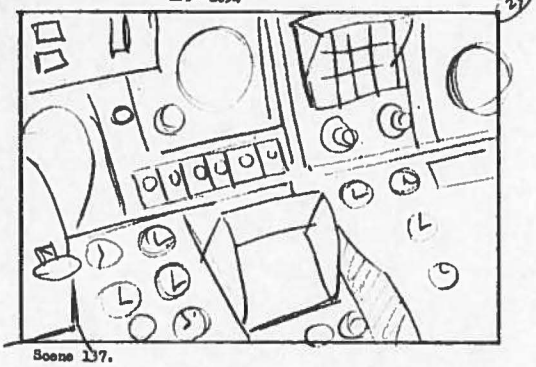
Scene 135 cont. (repeat 2)

CAMERA MOVES AHEAD TO INCLUDE
2nd STAGE & GLIDER ....

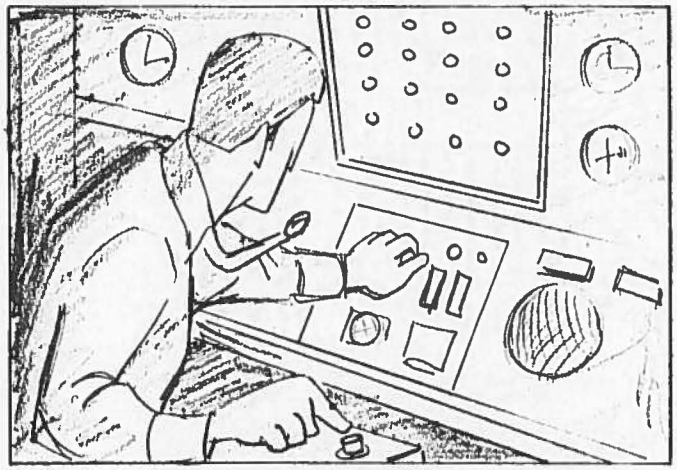


Scene 136 cont.

SFP- 1034



Scene 137.



Scene 138. Scene is dramatically lit - Lights FLASH intermittently on panel.

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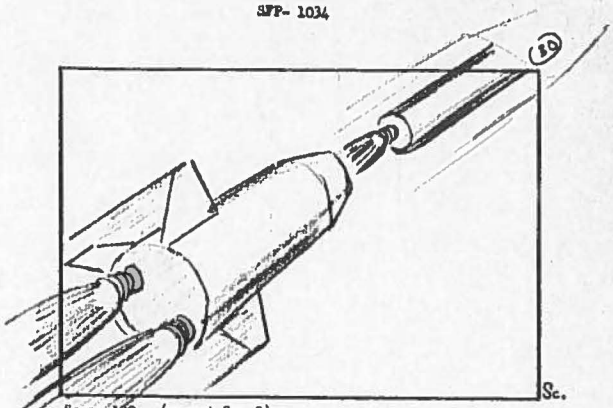
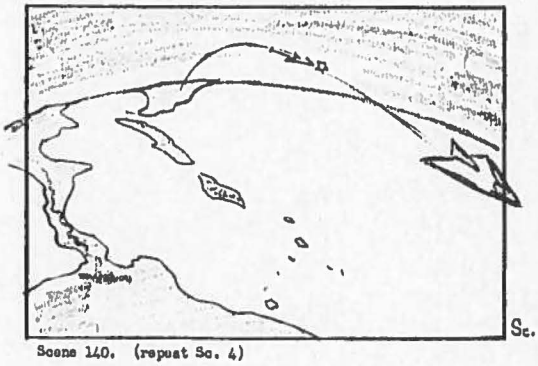
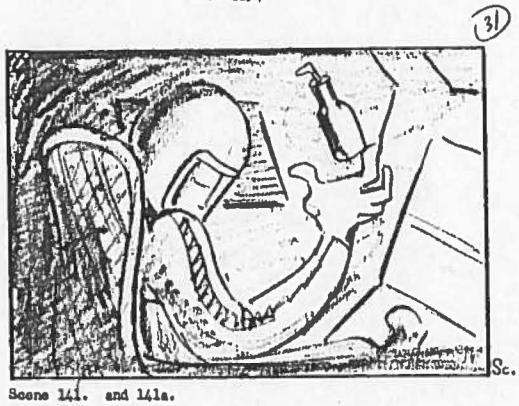


Scene 139. (repeat Sc. 3)



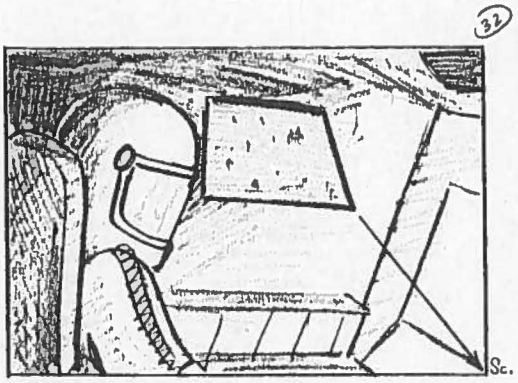
Scene 140. (repeat Sc. 4)

SFP- 1034

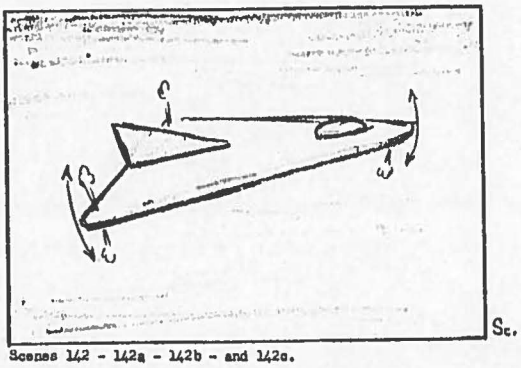


Scene 141. and 141a.

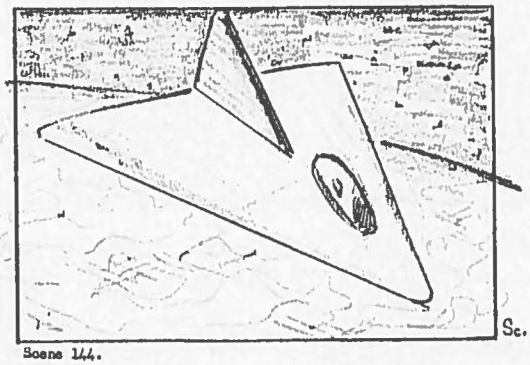
SFP- 1034



Scene 143.

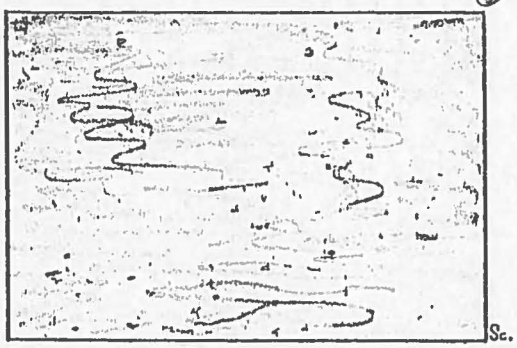


Scenes 142 - 142a - 142b - and 142c.



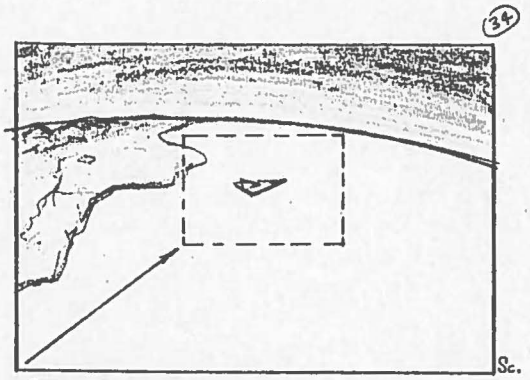
Scene 144.

SFP- 1034

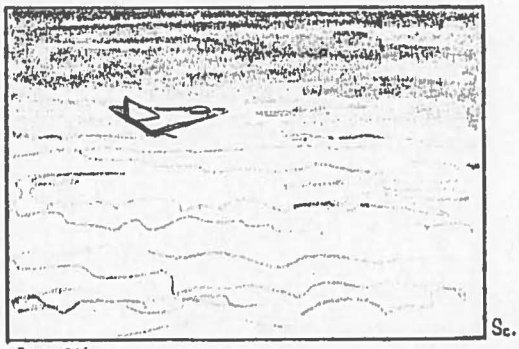


Scene 145.

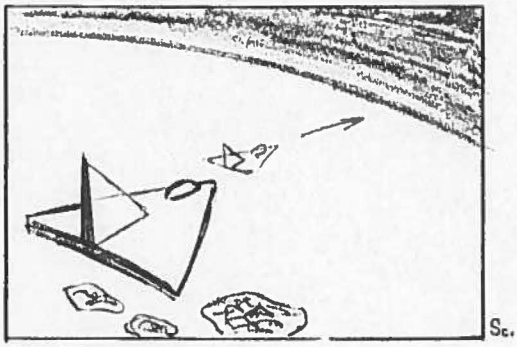
SFP- 1034



Scenes 147. and 147a.

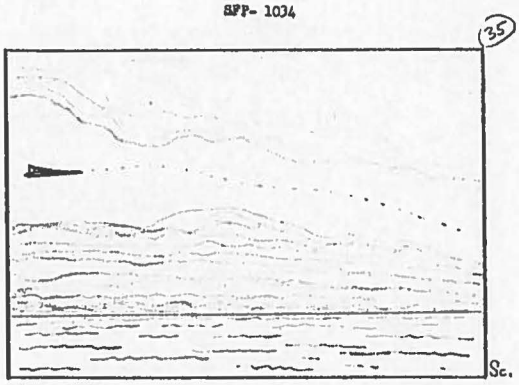


Scene 146.



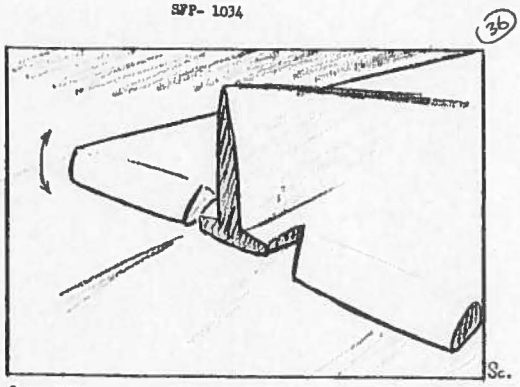
Scene 148. - 148a. - 148b.
(repeat Sc. 8)

SFP- 1034

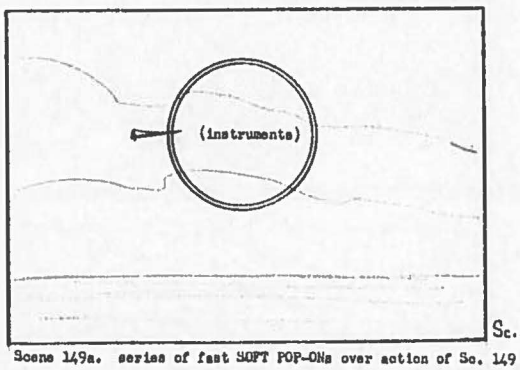


Scene 149.

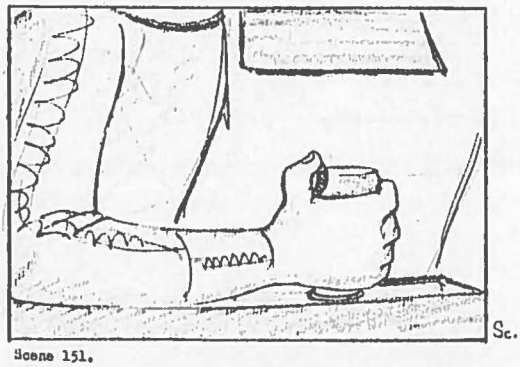
SFP- 1034



Scene 150.



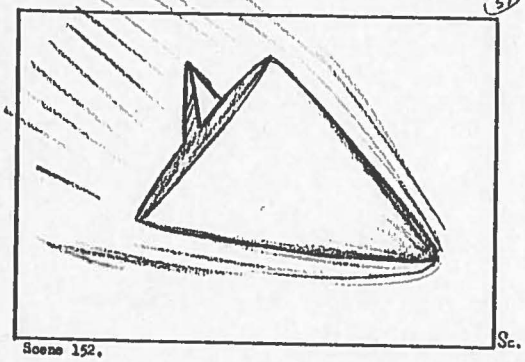
Scene 149a. series of fast SOFT POP-ONs over action of Sc. 149



Scene 151.

SFP- 1034

37

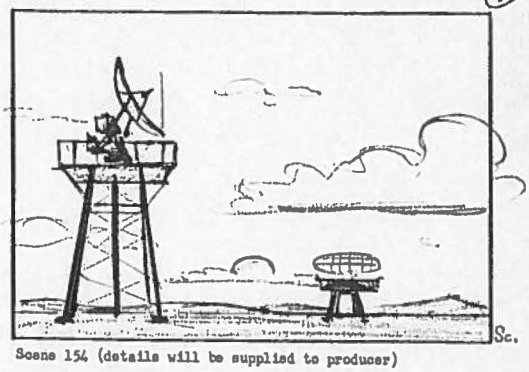


Sc.

Scene 152.

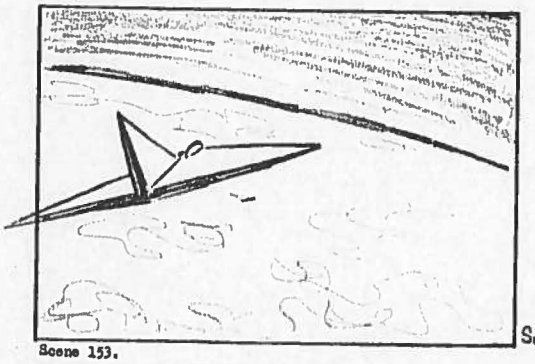
SFP- 1034

38



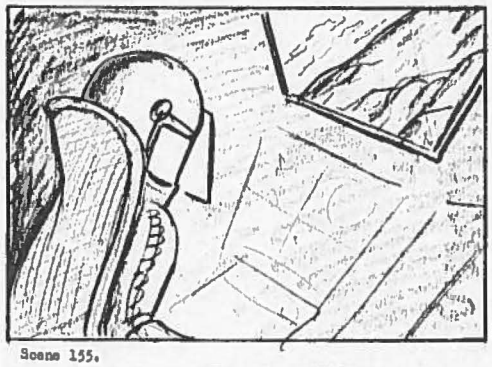
Sc.

Scene 154 (details will be supplied to producer)



Sc.

Scene 153.

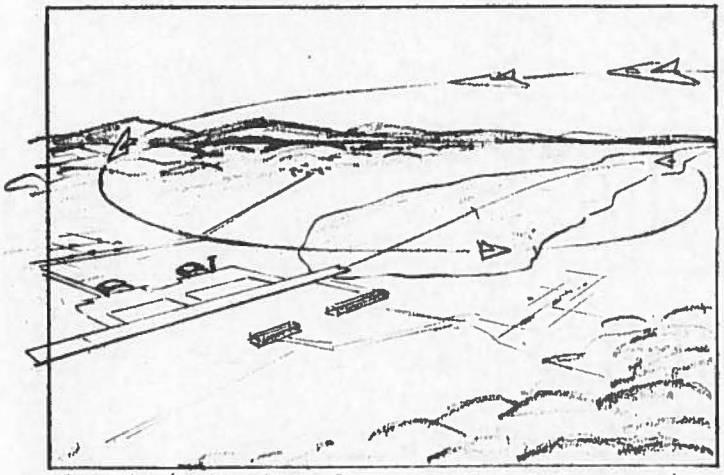


Sc.

Scene 155.

SFP- 1034

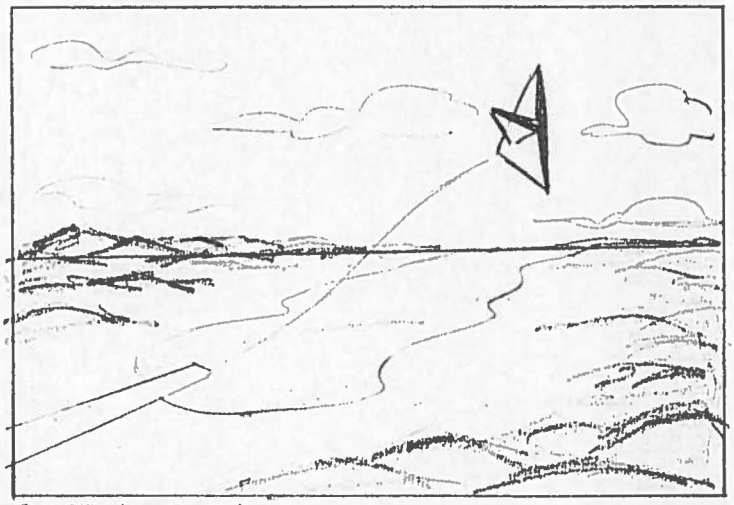
39



Scene 156. (details on Edwards AFB will be supplied in time for production)

SFP- 1034

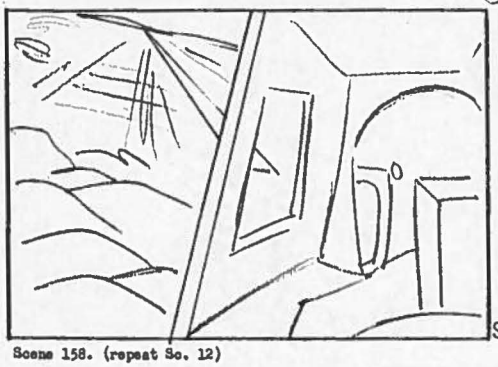
40



Scene 157. (repeat Sc. 124)

SFP- 1034

41

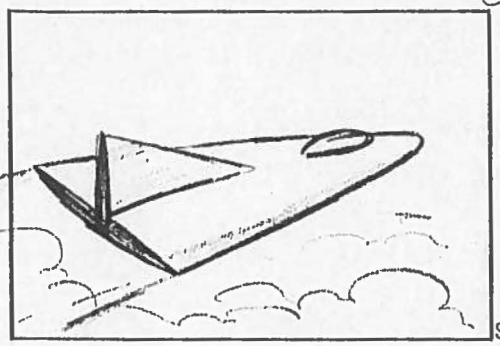


Sc.

Scene 158. (repeat Sc. 12)

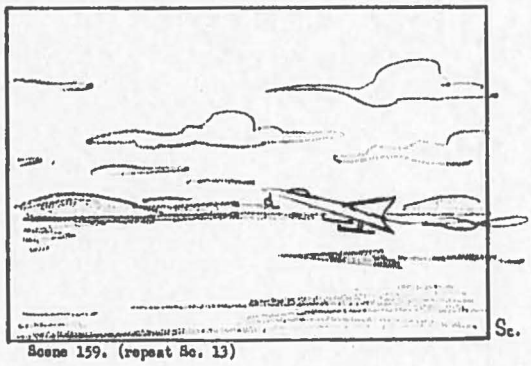
SFP- 1034

42



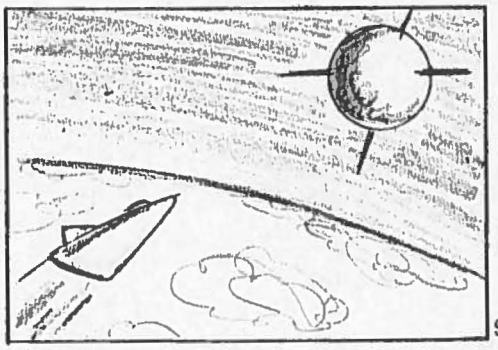
Sc.

Scene 160.



Sc.

Scene 159. (repeat Sc. 13)

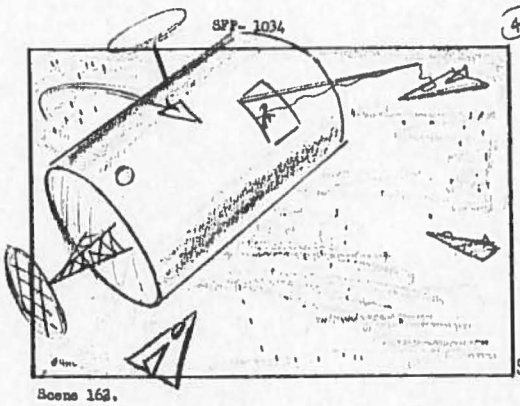


Sc.

Scene 161.

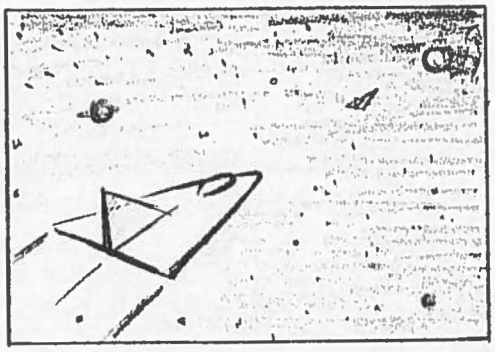
SFP- 1034

43



Sc.

Scene 162.



Sc.

Scene 163.

1365TH PHOTOGRAPHIC SQUADRON (PHOTOGRAPHIC CENTER)
AIR PHOTOGRAPHIC AND CHARTING SERVICE (MATS)
ORLANDO AIR FORCE BASE, FLORIDA

SFP 1034

"THE STORY OF DYNA SOAR"

WRITER: CHARLES E. WATERMAN

STORYBOARD SCENARIST: VINCENT J. ELETTO

COMMAND REPRESENTATIVE: WALTER K. RICKERT
Lt Col USAF
Directorate of Systems Development
DCS/D, USAF

TECHNICAL ADVISOR: GEORGE W. S. ABBEY
Capt USAF
Dyna Soar WSPO
ARDC, WADD

STATUS: Approved Script

DATE: 19 July 1960

APPROVAL CERTIFICATE

SFP 1034

"THE STORY OF DYNA SOAR"

I have read the attached script and certify that it meets the requirements of the Requesting Agency, is technically correct, and conforms to established procedures.

COMMAND REPRESENTATIVE: Walter K Rickert

DATE: 8 July 60

WALTER K. RICKERT
Lt Col USAF
Directorate of Systems Development
DCS/D, USAF

TECHNICAL ADVISOR: George W. S. Abbey

DATE:

GEORGE W. S. ABBEY
Capt USAF
Dyna Soar WSPO
ARDC, WADD

SCRIPT OUTLINE

SFP No. 1034

"THE STORY OF DYNA SOAR"

PURPOSE OF FILM AS STATED IN ORIGINAL REQUEST

To explain the need for the DYNA SOAR research vehicle as a necessary scientific and technical investigation of problems of manned operations in space.

INTENDED AUDIENCE

Primary: General Air Force. Film request listed as "possible additional audiences: general public." At the reading of the script in the Pentagon 8 July 1960, it was agreed that the version of the script read and approved there would be, for the time being, considered as "~~For Official Use Only.~~"

PRODUCTION SPECIFICATIONS

Type of film: "Color production." USAF letter of assignment does not specify whether this is to be 16mm or 35mm and does not stipulate any particular color process. Because of the large amount of stock footage called for by the script, and the fact that much of this is available in 16mm only, consideration should be given to the advisability of making this film in 16mm throughout.

Length: Estimated 20 minutes. Original film request was for 13½ minutes "to enhance the possibility of its use on TV." At 8 July Pentagon conference script was approved as written, except for possible tightening, which has been done.

Photography: 25% of live action: STOCK FOOTAGE.
16 minutes voice-over narration.
4½ minutes sync sound.
½ minute wild sound.

Animation: (TO BE SUPPLIED BY STORYBOARD SCENARIST).

Locations: Boeing Airplane Company, Seattle, Washington Area "B", Wright Air Development Divisions, Wright-Patterson AFB, Ohio

SCRIPT OUTLINE (Continued)

FILM CONTENT:

1. Pre-title animation introduction of Dyna Soar program and mission.

2. Dyna Soar mock-up.

3. Underlying dynamic soaring concept.

4. Research and development program: materials, structures, electronics, booster, acoustics.

5. National Aeronautics and Space Administration support.

6. Human factors.

7. Objectives of the Dyna Soar program.

8. An imaginary ride in Dyna Soar on its first mission.

A. ABBREVIATIONS USED IN MOTION PICTURE SCRIPTS

SC:	Scene	BG:	Background	FG:	Foreground
EXT:	Exterior	INT:	Interior	LS:	Long shot
MS:	Medium shot	MCU:	Medium close up	CU:	Close up
ECU:	Extreme close up	SFX:	Sound effects		

B. GLOSSARY OF TERMS USED IN MOTION PICTURE SCRIPTS

Fade: The optical darkening of a scene to black (Fade Out), or the optical brightening of a scene from black to intensity (Fade In).

Dissolve: An optical transition in which one scene appears to dissolve into another.

Wipe: One scene appears to be wiped away by the succeeding scene. A wipe may be made vertically, diagonally or a variation of this.

Dolly or Truck: A camera movement in which the camera is physically moved toward or away from the object being photographed.

Pan: Movement of the camera in a horizontal plane.

Tilt: Movement of the camera in a vertical plane.

Insert: An extremely close shot of any object such as a letter or a radio tube either held in the hand or placed on a background.

Two Shot: A close camera angle on two people to the exclusion of others in the scene.

Three Shot: As above, except that three people are photographed.

C. SPECIAL TERMINOLOGY USED IN ANIMATION

Pop-on and Pop-off: Sudden appearance or disappearance of an object or character.

Soft Pop-on and Soft Pop-off: As above except object or character appears in faint outline and gradually reaches full definition.

Scratch-On and Scratch-Off: Where a line or picture area appears to grow on the screen, or conversely appears to diminish.

Zoom or Truck: The process by which the scene changes from a long shot to a close shot or vice versa.

Pan: Horizontal movement of scene, produced by moving the background.

Sliding Cel: In which a painting or drawing on a transparent material is moved over a background.

Cycle Action: Any piece of action which repeats itself.

Cel Action: Continuous sequential action using a series of drawings.

SFP 1034

"THE STORY OF DYNA SOAR"

(CLASSIFICATION TITLE CARD, IF ANY)

SLOW FADE IN TO

1. ANIMATION

LONG SHOT: Realistic "Titan" type vehicle with Dyna Soar mounted on top. The scene is in darkness with a spot lighting effect surrounding pad. (Note: More detailed information will be supplied at production time.)

Trucks, figures and gantry around pad to simulate pre-launch activity. Slowly build up a "mist-effect" around vehicle as fueling operation proceeds.

Establish scene for about 3 seconds - then through a series of dissolves show change of darkness to "early morning sunrise effect."

SLOW MUSIC BUILD-UP, THEN SEGUE TO: FILTERED VOICES OF LAUNCH PAD OPERATIONS AND VARIOUS BACKGROUND SOUNDS OR PREPARATIONS FOR CAPE CANAVERAL LAUNCH (A COMPOSITE OF ACTUAL TAPES OF COUNTDOWN CROSSTALK, HEARD IN SNATCHES OF WORDS AND PHRASES OVER GENERAL NOISE OF LAUNCH PREPARATIONS). AS CAMERA GETS IN CLOSER, SOUND EFFECTS DROP A LITTLE IN LEVEL AS NARRATOR COMES IN OVER:

NARRATOR

1A. ANIMATION

Start TRUCK DOWN as Gantry moves away from vehicle and trucks on ground depart from scene.

Someday, in the not-too-distant future, it will happen:

1AA. INSERT

Pilot in take-off position.

A man will sit in a glider on top of a rocket booster at . . .

1B.	ANIMATION Mist effect continues to build-up while engines have started . . . engine exhaust builds up and finally covers area around pad.	... Cape Canaveral, Florida
1C.	ANIMATION Vehicle lifts up slowly and umbilical cords separate . ..	. . . and take off for a journey around the world!
1D.	ANIMATION Vehicle moves up and out of frame as engine exhaust builds up to cover entire screen. CUT TO:	SOUND EFFECTS OF ROCKET BOOSTERS VOICES CALLING ENCOURAGEMENT TO THE BOOSTER, OTHER SOUNDS TYPICAL OF A LAUNCH, ALL INDISTINCT EXCEPT FOR OCCASION-AL WORDS.
2.	ANIMATION Rendered realistic cloud effect. We see rear of vehicle and exhaust as it penetrates through cloud. Glow will disappear into cloud.	
3.	ANIMATION Fast moving dark sky pan (textured). First stage of vehicle burns out - - then separates from 2nd stage which is already firing. Camera pans with 2nd stage as 1st stage drops out of frame right.	The first stage of the booster will drop away as the glider continues under the still greater acceleration of the second stage . . .

4. ANIMATION

Start in close on BG showing realistically rendered curved earth. Lower Florida, part of Mexico and Central America with northern South America plus the Caribbean Islands are shown.

Action starts in close on 2nd stage of vehicle with glider moving out toward front of screen.

Camera pulls back to full field as glider separates from 2nd stage with an extra push. (Flash effect at tail of glider) 2nd stage drops off and falls down toward ocean below (in perspective).

until its energies, too, are expended, and the separation rockets provide the final push to put man and glider in free flight <u>miles</u> above the earth!

SOUND EFFECTS OF ROARING ROCKET GIVE WAY TO THE "MUSIC OF OUTER SPACE" SIMILAR TO THAT IN PREVIOUS AIR FORCE SPACE FILMS.

4A. ANIMATION

CU of Pilot. He reaches out to touch knob on panel.

MUSIC

5. ANIMATION

Rendered terrain BG of South Africa, curved earth. Glider moves in from left and passes across screen and out.

CUT:

MUSIC UNDER NARRATOR

The lone pilot will pass over South Africa . . .

6. ANIMATION

Curved earth - realistically rendered area around Indian Ocean - Glider flies across screen (Left to Right).

CUT:

. . . over the Indian Ocean

7. ANIMATION

Curved earth - Realistic rendering of Australia and surrounding area. Glider flies through scene (left to right).

. . . Australia . . .

. . . the South Pacific . . .

MUSIC FADES OUT

8. ANIMATION

Curved earth - Rendered Hawaiian Islands and surrounding ocean.

. . . arriving at a point somewhere over Hawaii . . .

8A. ANIMATION

Glider slowly enters scene . . .

. . . approximately ninety minutes after take-off from Cape Canaveral.

(PAUSE)

Since the pilot is programmed for a single orbit on this first historic mission, . . .

8B. ANIMATION

Glider dips down and moves in perspective toward distant horizon.

the ship dips downward from the rim of outer space toward the increasingly denser air at more than 18,000 miles an hour!

9. ANIMATION

Rapidly moving diagonal sky pan (still rather dark-textured colors). Underside angle of glider in steep dive. "Glow" builds up around glider with nose turning "white-hot" and decreasing in intensity as it moves back. (T.A. will supply further info.)

The bruising atmosphere sets up a glow in the glider's skin, parts of which look like a white-hot poker.

9A. ANIMATION

Pan continues as camera pulls back to give effect of glider in steep dive as cycle action of "Flame Effect" dissolves on:

The man inside must now control his glide angle with fantastic accuracy, lest he fall too fast and be consumed in a flash, . . .

9B. ANIMATION

Effect is now like a "Flaming Meteor" dropping through space leaving a flaming tail in its wake. Pan continues.

. . . like a meteor plunging into firey extinction. To protect the pilot against the rigors of atmospheric re-entry requires . . .

9C. ANIMATION

Flaming meteor effect continues as a series of symbols ZOOM UP from distant glider to full screen and blur out: ZOOM UP -

Symbol for "Metallurgy."

. . . heat-resistant metals, . . .

9D. ANIMATION

ZOOM UP - Symbol for "Structures."

. . . rugged structural design with a minimum weight penalty, . . .

9E. ANIMATION

ZOOM UP - Symbol for "Aero-thermodynamics."

. . . the latest developments in aerothermodynamics, . . .

9F. ANIMATION

ZOOM UP - Symbol for "Guidance & Communication."

. . . precise guidance . . . . . reliable communications . . .

9G. ANIMATION

ZOOM UP - Symbol for "Human Engineering."

. . . human engineering.

10. ANIMATION

View looking over the rear of glider toward rendering of distant California coastline. Clouds are scattered around below glider. Early light effect glowing close to earth going into darker colors as it bends into outer space.

Move BG slightly to give effect of flight.

DISSOLVE:

And in the end, it takes the cool hand of a skilled pilot . . .

11. ANIMATION

Rendered BG symbolic of Edwards AFB. Mountains surround dry lake area. Glider swishes thru scene from left to right in perspective.

SOUND EFX: SWISH OF PASSING GLIDER

. . . to bring his glider in over the deserts of . . .

12. ANIMATION

View from pilot's position inside glider showing his view of Edwards below. Hold on pilot and glider and move up rendered Edwards complex slowly.

NARRATOR

. . . Southern California. . .

13. ANIMATION

Rendered dry lake landing strip at Edwards with mountains in distance on pan. Pan moves right as glider on sliding cel enters scene and touches down on skids simultaneously pops "chute" slowing down craft. Slow down pan BG to match action.

NARRATOR

for a "conventional" landing!

Man will have orbited the earth . . . --and lived to tell the story!

SNEAK IN MUSIC

FADE OUT ANIMATION

FAST FADE IN:

TITLE MUSIC

14. LIVE ACTION TITLE BACKGROUND
INT BOEING MOCK-UP DOCK DAY
HIGH ANGLE LS DYNA SOAR MOCK-UP

The mock-up is draped with tarpaulins. Lighting suggests mystery. Tarps are snug enough to clearly suggest the general configuration of the glider. After glider is clearly established.

14A. ZOOM UP USAF SEAL and hold.

TITLE MUSIC UP

SUPERIMPOSE:

14B. PRESENTATION TITLE OVER SEAL and hold.

DISSOLVE OFF SEAL AND SUPER. Hold BG.

DISSOLVE IN:

14C. MAIN TITLE OVER LIVE BG and hold. TITLE MUSIC

"THE STORY OF DYNA SOAR."

Under the title super, NARRATOR enters from left off-screen, holding a walk-around microphone with trailing cord. With him are two or three company TECHNICIANS who go directly to the shrouded mock-up and loosen tarpaulin fastenings preparatory to stripping back some of the covering. NARRATOR stops at a distance from the mock-up and watches.

DISSOLVE OFF TITLE. Hold live BG.

CAMERA LOWERS SLOWLY TOWARD NARRATOR who continues to watch the tarp removal until the camera is at the end of its boom movement. For the first time the NARRATOR seems to realize the camera is there, and turns to speak. During this time no particular detail of the mock-up has been revealed, but the intention to actually discover some of its lines is clear. The tarpaulins are more than a dramatic device, for certain aspects of the glider must remain classified. At the same time, it is important that we give the audience an impression that they are seeing a great deal. For this sequence, then, lighting and camera angle are important. As parts of the glider mock-up are revealed, proper lighting may yet avoid disclosing classified details that would be apparent under some other lighting. Mock-up is painted dull black, so that dramatic lighting can be used with good effect. As a further device to get around the classification

TITLE MUSIC SEGUES TO FACTORY BACKGROUND NOISES, HELD MODERATELY LOW BUT DISTINCT ENOUGH TO ESTABLISH OUR LOCATION. WE CAN HEAR AN OVERHEAD CRANE RUMBLING ON ITS TRACK SOMEWHERE IN THE BUILDING, THE STACCATO BLIP OF A DISTANT RIVETING MACHINE, FACTORY HORNS OR BELLS.

14C. (CONTINUED)

problem, unusual camera angles should be employed, giving us some striking shots as well as concealing a "sensitive" element of the mock-up. For the purposes of this film, the more declassification the better, and an effort is being made to have a maximum area of the glider declassified. It may be that the overall configuration of the glider will be declassified, and that only certain small external features will be considered in the sensitive category. If this should be the case by production time, this sequence may well close with a return to the HIGH ANGLE LONG SHOT for an overall view. This mock-up sequence calls for imagination and resourcefulness on the part of the director. NARRATOR is "commentator" type, capable of quick changes of pace, the light touch, and authority without sonority.

15. MS NARRATOR

NARRATOR OVER FACTORY BG NOISES

I am going to tell you the story of Dyna Soar ... starting right here with the exciting proof that the United States Air Force is at work on Dyna Soar <u>now</u>. <u>This</u> is Dyna Soar . . .

(GESTURES, SOMEWHAT APOLOGETICALLY)

. . . as much of it as we can show you at this time.

(TURNS TO MOCK-UP)

It's a full-scale mock-up . . .

16. CUTAWAY TO GLIDER BEING UNWRAPPED

. . . of the glider our Air Force test pilots will be taking into orbit for one of the great adventures of mankind.

(NARRATOR WALKS IN)

This is made of wood, but it's a full-sized replica of the shiny, glistening, metal wonder that will be boosted into orbit.

17. VARIED ANGLE

NARRATOR

As aircraft go, it isn't especially large. Not for a vehicle that's going as far and as fast as this one!

18. DIRECTOR'S CHOICE

NARRATOR

But that's part of the story . .. . the glider's size, its design, its light weight. For what we see here represents a major achievement in aerodynamics.

19. DIRECTOR'S CHOICE

NARRATOR

To design and fabricate a vehicle that will stand up under the punishment a glider like this must undergo calls for the finest know-how we have, from drawing board to the actual hardware itself . . .

20. CLOSE SHOT NARRATOR

NARRATOR (SMILING)

. . . --- not to mention some first-rate piloting! For this Dyna Soar project puts an emphasis on the pilot . . . -- on the "human factor", as scientists say.

21. DIRECTOR'S CHOICE END SHOT OF SEQUENCE

NARRATOR

The <u>purpose</u> of Dyna Soar is to obtain maneuverability, . . . -- to put a <u>manned</u>, <u>maneuverable</u> glider out on the edge of space, and fly it back to earth at will. It is part of one of man's oldest dreams, to build a glider that would go to great heights great distances. As a matter of fact, . . .

DISSOLVE

DISSOLVE

22. EXT NEIGHBORHOOD PLAY AREA DAY
CU TOY PAPER GLIDER ON GROUND

After a moment, a boy's hand enters, and picks up the glider. This glider is the standard schoolboy's creation, and bears a striking resemblance to the Dyna Soar configuration we show in the animation sequences.

NARRATOR'S TONE IS SERIOUS, BUSINESSLIKE, IN COUNTERPOINT TO THE LIGHT TOUCH OF THE VISUAL ACTION

. . . the experts have long known and practised the art of dynamic soaring.

23. MED ESTAB SHOT BOY WITH GLIDER

He's all boy, one experienced in the fine art of dynamic soaring. He examines his craft critically, makes a crimp in its backbone to stiffen it a bit, and then launches it. CAMERA TILTS and PANS to follow flight. Another BOY is watching nearby.

When it is properly designed, a glider has remarkable aerodynamic characteristics. And when it's boosted into orbit, it returns to earth safely, . . .

24. VARIED ANGLE MLS TO CS GLIDER MAKING LANDING

Glider comes to as close to camera as possible. CAMERA PULLS BACK (or CUTS) to MS as the BOY of preceding scene enters to get his glider. Again he studies it, and he is joined by the other BOY, who comments on the performance of the glider. First BOY decides to trim a little weight off the glider, and does so with a pocketknife with a set of scissors on it (a knife such as a boy might treasure because of its multitude of fancy utility blades and gimmicks).

NARRATOR (MOCK SERIOUSNESS)

. . . even though it is completely unpowered. Of course, the glider's design and configuration are critical, if it is to have the programmed maneuverability.

25. CU THE WEIGHT-REDUCTION OPERATION — MUSIC BRIDGE

Boy's serious expression epitomizes the delicacy of the task. He may bite his tongue to insure a good trim job on his prize glider.

26. 1-SHOT BOY WATCHING — MUSIC BRIDGE

He, too, is biting his tongue or otherwise "helping" the cutting operation.

27. LOW ANG MCU BOY WITH GLIDER — NARRATOR

He is satisfied with the weight reduction, and makes a practice launching motion with his hand at first without releasing the glider.

Reducing the overall weight increases the effectiveness of the booster.

He releases the glider, holding his hand at end of launch for

QUICK DISSOLVE

27A. INT BOEING MOCK-UP DOCK DAY
CS NARRATOR

NARRATOR

When it comes to working with the really <u>big</u> gliders, it proves to be quite a trick to combine satellite launching techniques and hardware with a manned glider.

DISSOLVE

QUICK DISSOLVE

28. (STOCK)
EXT LOW ANG SATELLITE LAUNCHING

Footage includes a follow-shot through successful lift-off.

MUSIC

29. (STOCK)
EXT GROUND-AIR DAY
ELS SATELLITE-BOOSTER GOING AWAY

MUSIC FADES UNDER NARRATOR

Once we have successfully launched an object into space, the problem is to bring it back without becoming . . .

DISSOLVE

30. (STOCK)
HIGH-SPEED PHOTOGRAPHY
NOSE CONE "METEOR" EFFECT

This is a shot made during an actual firing of a nose cone, showing the glow effect of cone on penetration.

(See cover photo and commentary P 19 of 13 June 60 Aviation Week magazine in script file, APCS, Com'l Projects, OAFB).

SPECIAL EFFECT TRANSITION
LIVE TO ANIMATION: After burning path of nose cone is established on screen, it FREEZES in a curve (or is slowly replaced by MATCH DISSOLVE), which becomes the curve for the following animation.

. . . a fireball, like this test nose cone photographed as it re-entered the atmosphere from ballistic orbit.

31. ANIMATION

This is stylized chart on which the curve of the nose cone trajectory becomes one of the lines on the chart. The chart is of dark background, and the lines are brilliant, matching as closely as practicable the preceding live footage. CAMERA pulls back as lines appear on the chart, on cue. These lines indicate the various limits of the flight corridor, the glide ceiling, and any other applicable details. Symbol of glider passes down the corridor on cue.

(NOTE: Details of animation design and action to be worked out with Storyboard Scenarist in conference with Technical Advisor and Producer.)

A manned glider must ease into the atmosphere. The pilot glides, using the dynamic energy built up during launch. The art of staying in his flight corridor, making a carefully-controlled let-down at hypersonic speeds, with regard for changing air density and glider-lift, is called dynamic soaring . . . hence the name, "Dyna Soar." It's an experience unique in the history of flight!

END OF ANIMATION

FAST FADE OUT

FADE IN:

32. INT ENGINEERING ROOM, BOEING DAY
CS ENGINEER'S TILT-TOP DESK

It is covered with appropriate engineering drawings and materials. A shirt-sleeved ENGINEER's hands may be seen, completing a sketch.

So, although the concept of dynamic soaring has long been in men's minds, many technical problems had to be licked before we could proceed with confidence.

33. (STOCK)
EXT FLIGHT TEST AREA, EDWARDS DAY
LS F-104 MAKING HOT LANDING

34. (STOCK)
EXT CAPE CANAVERAL DAY
LS ICBM BEING HAULED ON TRUCK

We reached that point some time back, when the Air Force, after consideration of several design and feasibility studies, established a Dyna Soar Project Office at Wright-Patterson Air Force Base, Ohio. The "wis-po" as it's called, assumed management of the program, . .

35. EXT WADD W-PAFB, OHIO
GENERAL AREA B ACTIVITIES

Shot features building complexes.

36. EXT WADD DYNA SOAR WSPO BLDG DAY
LS ENTRANCE FEATURING SIGN
BLDG 20, Area "B"

Air Force OFFICERS are entering and leaving, some carrying brief cases. Sign identifies as an ARDC activity.

37. EXT BOEING PLANT DAY
ESTABLISHING SHOT PMO BLDG.

. . . and in November, 1959, selected Boeing Airplane Company as system contractor.

38. EXT MARTIN PLANT, BALTIMORE DAY
ESTABLISHING SHOT

At the same time, the Martin Company was chosen as associate contractor to supply the rocket boosters. In addition, numerous other contractors throughout the country have supporting roles in this historic project.

FAST FADE OUT

FADE IN:

FADE IN:

39. INT BOEING DEV CEN BLDG DAY
LS RADIANT HEAT FACILITY
BLDG 101

This is one of the materials-testing rigs that uses quartz light bulbs with gold reflectors. This is in the "high bay" at the west end of building. TECHNICIANS are just finishing the preparation of a piece of material for the heat test. They turn on the lights. See NOTE Sc. 50.

One of the first steps was to improve our metal processing techniques. The Dyna Soar skin will be exposed to air temperatures as low as one hundred fifty degrees below zero . . . -- and then undergo the shock of friction-generated heat in the thousands of degrees.

40. VARIED ANGLE FEATURING HEAT RIG

41. CUTAWAY TO CS TEMPERATURE GAGE

It is climbing rapidly toward 1000 degrees F.

There can be no significant loss in strength . . . no warping out of shape!

42. BACK TO HEAT RIG

NOTE: If feasible, a small piece of steel that would "wilt like lettuce", is fixed in the rig along with the more durable material being tested. If this is practicable, CAMERA HOLDS on (long lens to avoid excessive heat on camera) to show this steel wilt.

MUSIC BRIDGE

43. MLS HEAT RIG AS TECHNICIAN WATCHES

He uses a facepiece with special tinted viewing glass.

MUSIC

44. TECHNICIAN'S VIEW THROUGH GLASS

Outline of glass mount plainly shows on screen. We can see the difference the glass makes in studying the effect of heating the material.

MUSIC

Test follows test. And new information derived from them calls for more tests.

45. INT BOEING PLANT DAY
MS FULLY-INSTRUMENTED COMPONENT
BLDG 9-80

It has all kinds of strain gages with leads. A TECHNICIAN fastens on another.

Scores of gages watch what happens, taking the "pulse" at each critical point.

46. CUT IN CLOSE UP STRAIN GAGES

47. INT BOEING COMPUTER FACILITY DAY
ESTABLISHING SHOT COMPUTER

Several PERSONNEL are at work around the computer, as appropriate.

What they find is sent to an electronic computer, which digests the material, analyzing it for the benefit of engineers.

48. CLOSER SHOT COMPUTER CONTROL CONSOLE

49. CS COMPUTER OUTPUT CONSOLE

This is either a high-speed typewriter device or card punches or a spinning tape take-up.

50. (STOCK)
EXT CAPE CANAVERAL 609 PAD DAY
ESTABLISHING SHOT HETS TEST

A model of a glider similar to the Dyna Soar vehicle is perched on top of a rocket booster. A man or some familiar object in the foreground makes its size apparent.

Note: Alternative location:
NASA FACILITY
WALLOPS ISLAND SCOUT TEST

One way to see what a glider will do on the front end of a rocket is to put one there . . . . . -- a scale model.

51. (STOCK)
CUT IN TO DETAIL SHOT

The 609 rocket fires.

52. (STOCK)
RE-ESTABLISHING SHOT DURING LAUNCH

SOUND EFFECT OF LAUNCH

53. (STOCK)
CUTAWAY TO MLS THEODOLITE TRACKER

SOUND DOWN

SOUND OUT

54. EXT BOEING WIND TUNNEL FACILITY DAY
LS BLOW-DOWN PRESSURE SPHERE

Usual activity around sphere, such as workmen with a truck, to provide size contrast with spheres. This is Bldg 283. A sign identifies this as a specific type of tunnel.

Some information is best obtained <u>indoors</u>. These tanks store air under great pressure, and . . .

55. INT TUNNEL FACILITY DAY
LS TUNNEL STINGER AREA

A model on a stinger is being pushed into place. This tunnel is in sections, and is closed by trundling the two sections together.

Note: If this should present time-sequence problems for the director, this scene can be omitted in favor of the one following.

. . . release it into a small tunnel containing a glider model, which undergoes many of the aerodynamic stresses and strains the real glider will meet later.

56. CS TUNNEL OBSERVER AT WINDOW

He makes an adjustment at the recording camera as he prepares it for the model being positioned.

57. CUTAWAY TO MLS MEN AT TAPE CONSOLES

They are getting ready for the test run.

58. CS MAN IN CHARGE OF TEST

He glances around, makes sure everything is ready, and starts test (either by nodding his head to an unseen operator or pressing the button himself.)

59. CU START BUTTON OR KEY

Finger presses it.

SOUND EFFECT OF TUNNEL OPERATION.

60. TUNNEL FOOTAGE OF MODEL

SOUND EFFECT OF TUNNEL IN OPERATION.

61.	CS TAPE WHIRLING ON CONSOLES	SOUND EFFECT UNDER SLIGHTLY
62.	CU MAN AT OBSERVATION WINDOW (OR AT CAMERA) He watches operation closely.	SOUND EFFECT
63.	CONTINUATION OF TUNNEL FOOTAGE Test is concluded.	SOUND UP THROUGH SHUTDOWN OF TEST.
64.	RE-ESTABLISHING SHOT The test is now over. PERSONNEL perform typical operations preparatory to evaluation of the test.	Total time of the model's "flight": _____ seconds. . .
65.	MLS TAPE CONSOLES MAN IN CHARGE and one or more TAPE OPERATORS discuss the operation, perhaps examining a critical recording.	. . . the results obtained will provide key data on a critical portion of the Dyna Soar mission. Although these tests have strict scientific and engineering utility, . . .
66.	(STOCK) INT WIND TUNNEL COLOR SCHLIEREN PHOTO OF MODEL It is spangled with multi-colored rays seen under Polaroid.	. . . sometimes there is start-ling beauty as well . . . (PAUSE) . . . At extremely high speeds the gases in the shock wave are "cooked" by heat of friction.

67. (STOCK)
INT MHD LAB TEST FACILITY DAY
CS PLASMA JET TEST

This is a magnetohydrodynamic generator, which glows with an eerie light.

Tests show that this intense heat changes the chemical and electrical properties of the atmosphere around the glider . . . and this, in turn, affects communications.

68. (STOCK)
CLOSER SHOT OF PLASMA GLOW

69. INT BOEING ELECTRONICS LAB DAY
CS TECHNICIAN WITH TINY ANTENNA

The glider antennas must be small, yet they must also be tough to withstand the heat of re-entry. They are designed as integral parts of the glider body, rather than as aerial appendages.

70. CU ANTENNA

71. (STOCK)
EXT CAPE CANAVERAL TRACKING SITE DAY
FS UHF VOICE ANTENNA

To keep in touch with the glider and glean all the information we need requires elaborate ground communications facilities.

72. (STOCK)
EXT CAPE CANAVERAL TRACKING SITE DAY
LS TLM-18 ANTENNA

73. (STOCK)
EXT HIGH SEAS DAY
LS ATLANTIC MISSILE RANGE TRACKING SHIP

74. (STOCK)
EXT CAPE CANAVERAL TRACKING SITE DAY
LS FPS-16 RADAR ANTENNA

FADE OUT

FADE IN:

75. (STOCK)
EXT TITAN TEST FACILITIES DAY
ESTABLISHING SHOT

Footage will include various angles emphasizing size and power of the Titan.

The Dyna Soar program calls for two kinds of boosters. The first, for the early test phases, will be modified Titan intercontinental ballistic missiles. They will be provided with huge fins to offset the effect of the winged glider on the nose. The booster for a "round-the-world" orbital mission must be even larger, . . .

76. (STOCK)
EXT AERO-JET ENGINE TEST FACILITY
NIGHT
ELS ENGINE TEST

(To be selected.) This is a captive test of one of the largest engines in existence (if possible, an actual engine for the Dyna Soar program). Scene is quiet for a moment, then bursts into flame and steam for run.

. . . and the power required is unimaginable. This is a test of just <u>one</u> of the several engines that will be used in an orbital booster.

SOUND EFFECTS BREAK IN FULL AUDIO

SOUND OUT

77. INT BOEING SHOCK TABLE TEST ROOM DAY
MS TECHNICIAN PUTTING ITEM ON TABLE
PMO Bldg.

This is a small piece of electronic gear or other item that one would suppose from its appearance would be relatively fragile. The TECHNICIAN completes the tie-down on the vibration table, as he signals for the vibration or reaches for the switch, we cut to:

The vibration and shock of the pounding engines affect the design of each Dyna Soar component.

78. CS ITEM ON TABLE

After a moment, table starts vibrating.

LIVE SOUND OF HUMMING TABLE AFTER PAUSE NARRATOR COMES OVER

79. CUTAWAY TO CS TECHNICIAN WATCHING

He watches a moment, then speaks into microphone or telephone, talking to the central tape recording facility in the Boeing plant. He is asking about the recording of the vibration test he is conducting. (Recordings are made remotely, in the central facility.)

Every item must be able to "take it" . .. -- from the glider's struts and joints and hydraulic "plumbing" to the most delicate electronic parts.

80. BACK TO TEST ITEM CS

It is now reviving up to an impressive vibration rate.

LIVE SOUND CARRIES ACTION

81. BACK TO TECHNICIAN TALKING AND WATCHING

NARRATOR OVER LIVE SOUND

The life history of every item must be studied.

SOUND OUT

82. INT BOEING CENTRAL TAPE FACILITY DAY
ESTABLISHING SHOT RECORDING CONSOLES

Two or three TECHNICIANS take calls on lines, adjust consoles, and do other typical work. TECHNICIAN in foreground is the man of next scene.

ROOM NOISE (WILD) OF ACTUAL TAPE FACILITIES, CROSS-TALK, AND BACKGROUND SOUNDS AFTER A MOMENT. NARRATOR COMES IN OVER

The central tape recording facility is where that history is written.

83. CS TECHNICIAN EXAMINING CONSOLE

This is the console on which the vibration test is being recorded. He wears a headset or uses some other telephone gadget to talk with the vibration technician. His lips do not show as to be "read."

WILD SOUND CARRIES ACTION

84. CU RECORDING TAPE

85. RETURN TO SHOCK TABLE TEST ROOM MS SIMILAR TO SC.80

TECHNICIAN is watching the test now in progress, and talking to the man of SC. 86.

NARRATOR OVER WILD ROOM NOISE

Tell-tale dips and rises in the signal from the . . .

TAPE FACILITY SOUNDS OUT

VIBRATION ROOM NOISES IN

. . . vibration table undergo analysis even as the test is being conducted.

86. VARIED ANGLE

TECHNICIAN talks for a moment, then shuts down the test (or signals this to be done.)

SOUND OUT

87. INT BOEING BLDG 9-80 DAY
MS TECHNICIAN IN 190 DB ACOUSTIC CHAMBER

He is fitting a model or a piece of material on a mount in front of a huge horn-shaped device.

After a moment, he exits, and shortly SOUND EFFECT COMES IN.

The sound of the booster engines in itself is an engineering problem. An acoustic chamber is used to study the effects of . . .

88. CU MATERIAL VIBRATING UNDER SOUND IMPACT

SOUND EFFECT STARTS UP LOW UNDER NARRATOR, AND BUILDS

. . . blasts, rumbles, and shrieks . . .

89. CUTAWAY TO MS CHAMBER OPERATOR

This is in the adjoining room. OPERATOR watches through a window. He adjusts dial or checks gages.

SOUND SUDDENLY MUCH LOWER

. . . that will hammer away at the glider . . . (PAUSE) . . . eight thicknesses of glass protect the acoustic chamber operators from the overpowering noise. This is necessary also because in some tests . . .

90. SHOT THROUGH OPERATOR'S WINDOW

91. (STOCK)
ACTUAL LAB PHOTO OF TEST MATERIAL SHATTERING

(Note: If stock is not suitable, this scene may be a simple CS of Boeing wall display of shattered test materials. This is in the chamber operator's room, above.)

FAST FADE OUT

SOUND UNDER SLOWLY

. . . the sound actually pulverizes materials, somewhat as a wine glass may be shattered by the resonant voice of a powerful singer.

SOUND OUT

FADE IN:

92. (STOCK)
EXT NASA TEST FACILITY DAY
LS TYPICAL DYNA SOAR TEST

Feature men in picture.

Putting a pilot into space in a hypersonic, maneuverable glider calls for the finest technical back-up available.

93. INSERT
FS "NASA" SIGN

94. (STOCK)
INT NASA LAB FACILITY DAY
GENERAL LAB ACTIVITY

For this reason, the National Aeronautics and Space Administration serves as technical advisor to the Air Force for the Dyna Soar program.

95. (STOCK)
ANOTHER NASA FACILITY
(OR CUT IN TO ABOVE)
Feature "scientist-types" at work.

Its experts bring to bear long experience in experimental flight programs, . . .

96. (STOCK)
INT NASA AMES WIND TUNNEL DAY
GENERAL TESTING FACILITY

This has a full-scale aircraft (such as the F-104) in it.

. . . and provide technical support through extensive test facilities . . .

97. (STOCK)
EXT DESERT ROCKET SLED TEST DAY
DRAMATIC SHOT SLED NEAR END OF RUN

It approaches water braking area, sends up a huge double-plume of water.

. . . and experimental projects already in being.

98. (STOCK)
INT NASA MERCURY OPERATION DAY
ESTABLISHING SHOT ASTRONAUT & CAPSULE

ASTRONAUT (or model) in full gear is climbing into the capsule mock-up.

N-A-S-A's experience with the Mercury Man-into-Space program in which a man rides a capsule through a ballistic orbit into space and back is of immense benefit in the preparations for Dyna Soar.

99. (STOCK)
DETAIL SHOT

100. (STOCK)
EXT EDWARDS AFB TEST STRIP DAY
LS X-15 UNDER WING OF B-52

(To be selected.)
Air-to-air shot, if suitable footage exists.

FADE OUT

Another program that has furnished valuable experience-data is that of the X-15, under which pioneering flights have been made using novel techniques to achieve record-setting speed and altitude runs.

FADE OUT

FADE IN:

101. INT WADD CENTRIFUGE FACILITY DAY
LS SUBJECT BESIDE GONDOLA-CAPSULE

He wears the orange full-pressure suit to be used in Dyna Soar. A MEDIC hands him his "fishbowl" helmet, and helps him with it.

CAMERA TRUCKS IN for CS of SUBJECT adjusting helmet. MEDIC is excluded.

102. DIRECTOR'S CHOICE
CUT IN CU MEDIC

This is a cover shot.

103. VARIED ANGLE CU SUBJECT IN HELMET

He checks out the mikes, earphones, and other parts of the rig.

104. MS SUBJECT ENTERING CAPSULE

MEDIC helps him.

105. CS SUBJECT SETTLING DOWN

He checks the controls, including the sidestick controller.

What about the man who will pilot Dyna Soar? . . . (PAUSE) . . . He'll be wearing the latest in space styles! . . . (PAUSE) . . . His equipment, as well as everything else on board required to bring him back alive, is the responsibility of life-support experts. And, like the designers for all the other systems in the Dyna Soar program, they must test and check and train for the missions to come.

A special centrifuge that resembles the cockpit of the Dyna Soar glider is one of many experimental tools.

106. LS MEDIC CLOSING CAPSULE DOOR

He backs away as the centrifuge starts up.

107. CUTAWAY TO MS CENTRIFUGE CONTROLLER
He is monitoring a TV screen of the SUBJECT as seen by capsule camera.

108. FS TV SCREEN

109. CENTRIFUGE PEDESTAL SHOT

Gondola as seen from center of centrifuge.

110. LOW ANGLE CU CENTRIFUGE CONTROLLER

His face is lit by TV screen glow. He watches screen and perhaps associated dials, and talks to the pilot.

LIVE SOUND OF CENTRIFUGE UNDER NARRATOR

The G-forces that press down upon the subject in the centrifuge are very much like the forces a pilot will be subjected to during launch and re-entry.

SOUND UP AS APPROPRIATE FOR INSIDE AND OUTSIDE CENTRIFUGE CONTROL ROOM.

111. FS TV SCREEN SUBJECT TALKS

He is showing effect of strong G forces, but is not blacked out.

112. CENTRIFUGE PEDESTAL SHOT

Centrifuge is now going considerably faster.

113. SIMULATED CENTRIFUGE CAPSULE COCKPIT

This is the SUBJECT's-eye view of his controls during the centrifuge run. He works the sidestick controller. Flashing lights suggest motion of centrifuge past stationary lamp. HIGH ANGLE SHOT plus moderate camera tilt may help add to simulated effect.

NARRATOR OVER SOUND

The men who fly Dyna Soar will be specially-trained Air Force test pilots selected for their adaptability and accommodation to the new conditions they will be encountering. Before a man steps into a glider for the real thing, we must know how much we can expect of him.

114. CU HAND ON SIDESTICK CONTROLLER

115. OBSERVATION BOOTH SHOT
ELS CENTRIFUGE CAPSULE WHIRLING

Capsule makes two or three revolutions at high RPM before we

FAST FADE OUT

We must anticipate what helps he will require to operate efficiently. We must <u>train him</u> to handle his glider under all sorts of situations.

SOUND FADES FAST

FADE IN

116. INT BOEING MOCK-UP DOCK DAY
MLS NARRATOR AT MOCK-UP

The mock-up is fully unveiled to the extent permitted by security considerations. The TECHNICIANS of the opening live-action sequence are no longer in evidence. Again, this sequence around the Dyna Soar mock-up is to be shot with attention to lighting and camera angle for maximum effect. The "hero" of this sequence is the glider, and the emphasis should be on it, picking out details in close-ups wherever possible to suggest the ideas expressed by the NARRATOR.

NARRATOR (IN TONE SUGGESTING THE IDEA, "I'M GLAD YOU ASKED THAT ----")

Why are we doing all this? Why Dyna Soar?

Because with Dyna Soar we are establishing a

technology . . .

117. DIRECTOR'S CHOICE

NARRATOR

. . . that enables us to extend Air Force operational capabilities into the hypersonic and orbital regimes.

118. DIRECTOR'S CHOICE

NARRATOR

Through Dyna Soar we are making use of what we have already accomplished in the missile, space, and aeronautical sciences ----- . . .

119. DIRECTOR'S CHOICE

NARRATOR

. . . but more than that, because of Dyna Soar, greater vistas will be open to the Air Force of the future.

120. DIRECTOR'S CHOICE

NARRATOR

By putting man at the controls, the Air Force is carrying forward into space the journey started by the Wright Brothers a little more than a half-century ago! . . . Wouldn't they be surprised at the way things are turning out?!!!

121. CS NARRATOR

NARRATOR

Unfortunately, they can't be here to see this. But you can! As a matter of fact, how about going for a ride in Dyna Soar? . . . (PAUSE) . . . --in your imagination, at least? . . . All right! Step through the curtain of time; . . .

QUICK DISSOLVE TO ANIMATION

122. ANIMATION

Realistic view of glider mounted underneath B-52. Rendered sky pan BG moves behind aircraft. Vapor trails out of jet pods.

NARRATOR

. . . and get on board! Even as an experienced pilot, you first fly Dyna Soar by stages. This one is a drop from a mother-ship.

122A. ANIMATION

Dyna Soar glider drops away from B-52. Vapor ANIMATES from tail of glider as rockets fire.

On these drop flights, . . . your glider has rockets to help you get up the necessary speed for a test of Dyna Soar's behavior and its functional sub-systems.

123. ANIMATION

Rendered view looking down at B-52 and Dyna Soar as it adds power and pulls up in sharp climb.

(PAUSE OF COMPLETION OF ACTION)

124. ANIMATION

Rendering of landing strip at Edwards AFB as glider makes a high-speed turn into a landing. (Animation)

125. ANIMATION

Rendered pan of landing strip at Edwards. Pan moves left to right as glider (on sliding cel) makes touchdown and chute opens.

DISSOLVE TO:

126. ANIMATION

Medium view - Rendered missile pad complex - gantry in distance. Missile with glider on top takes off in burst of flame and smoke separating from umbilical cord.

Next step: Launch of an unmanned glider for a short hop down the Atlantic Missile Range.

127. ANIMATION

Close view of glider at top of missile with pilot standing on platform. Pilot enters cockpit of glider.

Later, you will get experience in handling the glider in successively longer probes out over the Atlantic.

128. ANIMATION

LONG SHOT - Rendering of lower Florida (Cape Canaveral area) and surrounding islands. Clouds are scattered about. Exaggerated missile with glider stands on pad. Immediately ANIMATE missile to follow a trajectory toward distant horizon.

Every resource of the vast missile range will be brought to bear in these early launches, . . .

129. ANIMATION

Close view of glider over sky pan BG. Glider animates into a half-bank maneuver.

. . . carefully plotting each movement of your highly maneuverable glider.

130. ANIMATION

Rendered piece of land surrounded by water. Clearing through the center of wooded area is an airstrip. Dyna-Soar glider enters scene from upper left flying toward airstrip. (Sliding cel action)

(PAUSE FOR ACTION)

131. ANIMATION

Set-up similar to that of Sc. 1 - Gantry has been removed and all ground activity has been completed. Start on long shot. Camera slowly moves down toward pilot's compartment in glider.

Finally, when all systems and components have been checked out, the word will be given: We are ready to send you on an <u>orbital mission</u>!

132. ANIMATION

CU of pilot in glider. Shows signs of anxiety.

You, as the pilot, are the key to it all. Your safety is a prime consideration.

133. ANIMATION

Rendered interior of blockhouse with missile seen through window. Second hand on "count-down" clock ticks off the time. "Mist" is building up around the base of the missile.

During the preparations for launch, you are in constant touch with ground personnel in charge of the operation.

134. ANIMATION

Full shot of "instrument panel" in glider. Engine dial shows needle move to indicate engine heating up as lights on panel "blink" to indicate other activity. (Hand moves into scene toward button.)

(SOUND EFFECTS OF LAUNCH)

135. ANIMATION

In this sequence repeat action from Scenes 1B, 1C, 1D and 2.

1B - Mist effect continues to build up while engines have started . . . engine exhaust builds up and finally covers area around pad . . .

1C - Vehicle lifts up slowly as umbilical cords separate . . .

1D - Vehicle moves up and out of frame as engine exhaust builds up to cover entire screen.

CUT TO:

2 - Rendered realistic cloud effect. We see rear of missile and exhaust as it penetrates through cloud. "Glow" will disappear into cloud.

(SOUND UNDER) NARRATOR

Even during launch, you can abort, if anything goes wrong. But already you are under steady, driving acceleration. The G-forces acting on your body are no more than you have already experienced in conventional jet fighter operations.

136. ANIMATION

Same set-up from Scene 3 but do not separate first stage. Fast moving dark sky pan BG (textured) first stage of vehicle continues to fire as pan BG moves diagonally against direction of missile. Camera moves ahead to show more of missile and glider as pan BG continues.

SOUND EFFECTS UP

137. ANIMATION

Rendering of panel with indicators - Hands of indicators are in action.

(SOUND EFFECTS FADE AS NARRATOR CONTINUES)

You scan every indicator, alert to take any necessary corrective action.

138. ANIMATION

Scene is dramatically lit - lights on panel flash intermittently. Technician at display. He turns knobs and speaks into "mike" which he carries around his neck.

Your observations are relayed to scientists and technicians following your course.

139. ANIMATION

Repeat last part of action from Scene 3 as first stage separates from second stage which is already firing. Camera pans with second stage as first stage drops out.

The first stage drops off, . . .

140. ANIMATION

Repeat action from Scene 4 on full field. Rendered curved earth of Florida and surrounding areas.
Glider separates from second stage with a burst of extra power (flash effect at tail of glider) second stage drops off and falls down toward ocean below (in perspective).

. . . and the second booster, already lit, accelerates the glider even more until -----

--------. . .

. . . you are on your own, coasting in orbit.

141. ANIMATION

Interior of glider - Pilot reaches for bottle which is floating around in cabin. (Weightlessness effect)

The centrifugal force of your race around the earth balances the pull of gravity: you and everything else on board are <u>weightless</u>.

141A. ANIMATION

He gives up idea of trying to grab bottle and now reaches for control stick.

(PAUSE)

And you have <u>plenty</u> to do!

142. ANIMATION

Dark blue sky pan BG behind action of glider.

Keep the craft oriented.

142A. ANIMATION

A "Jet" fires under nose of glider which lifts nose up - - another "Jet" fires on top and this checks further movement.

A little spurt from the reaction controls corrects for change in pitch, . . .

142B. ANIMATION

A "Jet" in left elevon fires and glider rolls slowly in opposite direction - Another "Jet" fires in right elevon and this stops rolling action.

. . . another jet checks unwanted roll, . . .

142C. ANIMATION

Animate slightly "yawing" action.

. . . a third, yaw.

143. ANIMATION

Pilot in foreground with window on his left. Star studded pan BG moves left slowly behind window. ZOOM window up so that starry sky now fills the screen.

Through the multi-layered windows you see the black sky spattered with bright pin-points of light: the stars do not twinkle up here.

144. ANIMATION

Three-quarter front view of glider as it flies over pan BG of earth studded with city lights but covered with a veil of atmosphere (Diffused EFX) very bright stars are seen above horizon, but <u>they do not twinkle</u>. (Note: The side windows of glider are unprotected while the front window is protected by a covering.)

There's the earth's airglow, like a milky veil over the night-face of the earth. What you discover (PAUSE) on this first mission may advance our knowledge of the space neighborhood in which we live by hundreds of years of ordinary research.

145. ANIMATION

Three-dimensional effect of "Heavenly Bodies." Camera moves through the heavens. (Multiplane effect)

There is an <u>unpredictable</u> <u>but inevitable</u> <u>advantage</u> in exposing a pilot's intelligence to a totally . . . . . .

146. ANIMATION

Dyna-Soar flying high above earth's density. Density effect over earth on pan BG.

. . . new environment so that he may observe and react to new opportunities for scientific advancement.

147. ANIMATION

Glider as seen approximately 50 miles above earth. BG of rendered earth with a scattering of clouds and haze pans left at moderate speed.

We are certain of this: What you and the other pilots learn out there will affect the concept of manned operations in aerospace for years to come.

147A. ANIMATION

Camera moves down slowly toward craft.

This is the one big purpose of Dyna Soar: to exploit aerospace for its potential uses in both scientific and future military systems, with man in control.

(PAUSE)

148. ANIMATION

Repeat set-up of Scene 8 curved earth-rendered Hawaiian Islands and surrounding ocean . . .

For all the thrill of orbital flight . . .

148A. ANIMATION

Glider slowly enters scene . . .

. . . your greatest challenge will come when . . .

148B. ANIMATION

Glider dips down and moves in perspective toward distant horizon.

. . . you dip your glider earthward to re-enter the atmosphere.

149. ANIMATION

Rendered "Flight Corridor" (correct info to be supplied for production). Glider moves in the corridor as it descends.

Your destination: down the flight corridor prescribed by the undeniable facts of hypersonic flight.

149A. ANIMATION

As the above action continues SOFT POP-ON and OFF the following instruments:

"Range to Go"(Map on panel)

"Altitude Indicator"

"Angle of Attack Indicator"

"Velocity Indicator"

"Pitch-Yaw-Roll Indicator"

"Skin Temperature Guage"

If you lose altitude too fast, you may be in imminent danger of becoming a cinder; . . . if you swoop above your flight corridor you may lose aero-dynamic lift, and so tumble to earth. To help you in these rushing moments, your instruments not only tell where you are, but also have "command" elements that indicate what action is to be taken to get back on optimum course.

150. ANIMATION

CU of rear of glider showing "Rudder" and "Elevon" action over sky pan BG.

Now that the air is getting denser, rudder and elevons take their bite, moving at the slightest

151. ANIMATION

CU of hand making adjustments with "stick control" realistic action.

suggestion from your single control stick . . . --- the same one you used for reaction jet control in space.

152. ANIMATION

Repeat action of Scene 9 - Rapidly moving diagonal sky pan BG. Underside angle of glider in steep dive. "Glow" builds up around glider with nose turning "white-hot" and decreasing in intensity as it moves back on glider.

This is the ultimate test; this searing plunge down the penetration corridor: a test of man and machine in the long, long glide.

153. ANIMATION

Repeat Scene 10 set-up. View looking over the rear of glider toward rendering of distant California coast line. Clouds are scattered around below glider. Early light effect glowing close to earth going into darker colors as it blends into outer space. Move BG slightly to give effect of flight.

As the pilot, you "manage" your potential and kinetic energy of altitude and speed, maneuvering to hold the temperature of nose cap and wing leading edges to an acceptable level . . . (SHORT PAUSE) . . . Even so, they are hotter than the elements of an electric kitchen range!

DISSOLVE

(PAUSE)

154. ANIMATION

Rendering of Edwards AFB - antennas are placed at strategic points, one scans the horizon while the other scans the elevation.

Below, radar eyes watch the sky for you.

155. ANIMATION

Rendered inside view of glider with pilot at controls. Window is covered at start of scene. Establish scene then pop-off front window covering and we see Edwards.

For the first time, you have a clear view forward, as the heat shield of the forward window jettisons.

156. ANIMATION

High rendered view of Edwards as glider executes 360 degree descending turn.

Near the airstrip, you send the glider into a three-hundred-sixty-degree turn to use up the last bit of excess energy before . . .

157. ANIMATION

Repeat Scene 124. Rendered landing strip at Edwards AFB as glider makes a high speed turn into a landing. (Animation)

flaring out for a smooth touchdown: . . .

158. ANIMATION

Repeat Scene 12 - View from pilot's position inside glider showing his view of Edwards below.

(SLIGHT PAUSE)

159. ANIMATION

Repeat Scene 125 - Rendered pan of landing strip at Edwards. Pan moves left to right as glider (on sliding cel) makes a touch-down and chute pops open.

DISSOLVE

. . . a skidding slide across a dry lakebed at Edwards Air Force Base, California. And you're back . . . --- without having missed a single meal!

160. ANIMATION

Dyna Soar flying over rendered sky BG.

What of the future? What new, exciting possibilities will open up out of the technique of dynamic soaring? That remains to be seen, but <u>of this</u> we may be sure: Man will gain confidence in his new-found mobility.

161. ANIMATION

Rendered view high above earth. Satellite moving slowly in space as glider animates up from spot on earth toward satellite.

162. ANIMATION

Rendered space station in outer space. (Dark blue sky with scattered stars) Several gliders move about in space - some go to space station as others move away from station.

He will derive a new dimension in which to operate.

Future outgrowths of Dyna Soar may very well assume vital roles in our national defense.

(PAUSE)

163. ANIMATION

Rendered view of outer space to give feeling of tremendous space. Hold on glider in foreground and use a ZOOM UP effect to give feeling that we are moving through space -- finally glider animates out into infinity.

END TITLES UP

Dyna Soar is a natural step into the future, with the promise of opening to man the vast extensions of maneuverable flight <u>in space itself</u>!

MUSIC UP

mmf