

SECTION 1A

[REDACTED]
SR-71A-1



SR-71 TRAINER

1A-2



INTRODUCTION

This subsection of Section I describes the SR-71B trainer aircraft. The normal and emergency operating procedures, limitations, and performance data for this aircraft are included in the appropriate sections of the SR-71A-1 Flight Manual. The aircraft systems and controls are identical with the like systems and controls in the SR-71A aircraft except as indicated in the following paragraphs. The controls and indicators in the aft cockpit are identical with the like controls in the forward cockpit except as indicated.

THE SR-71B AIRCRAFT

The SR-71B is a trainer aircraft with a full set of engine and flight controls in the aft cockpit. For pilot training purposes, the student pilot (S/P) occupies the forward cockpit and the instructor pilot (I/P) occupies the aft cockpit. For other than training flights the pilot will normally occupy the forward cockpit.

The forward cockpit of the SR-71B appears identical to the forward cockpit of an SR-71A except for the addition of a control transfer panel, an emergency intercom system switch, a panel to indicate autopilot modes selected by the other cockpit, ALERT AND BAILOUT warning lights, and the lack of a TACAN CONT switch and a system 3 liquid nitrogen gage. The aft cockpit duplicates most of the functions in the forward cockpit and retains basic navigational capabilities. The trainer does not have camera equipment, viewsight, radar, or electromagnetic radiation gear. The trainer external configuration is distinguished by a stabilizing fin extending downward along the bottom centerline of each engine nacelle, and the aft cockpit canopy is higher than the forward cockpit canopy.

AIRCRAFT GROSS WEIGHT

The gross weight of the SR-71B trainer aircraft with two pilots and full fuel load is approximately 139,200 pounds. Zero fuel weight is approximately 59,000 pounds. Refer to weight and balance handbook.

ENGINE AND AFTERBURNER

Two throttles are installed in each cockpit. The throttles are interconnected by a cable system which provides each cockpit with the capability of controlling engines from idle cutoff to maximum afterburner.

TEB Remaining Counters

The TEB counters are installed only on the throttle quadrant in the forward cockpit.

EGT Gages

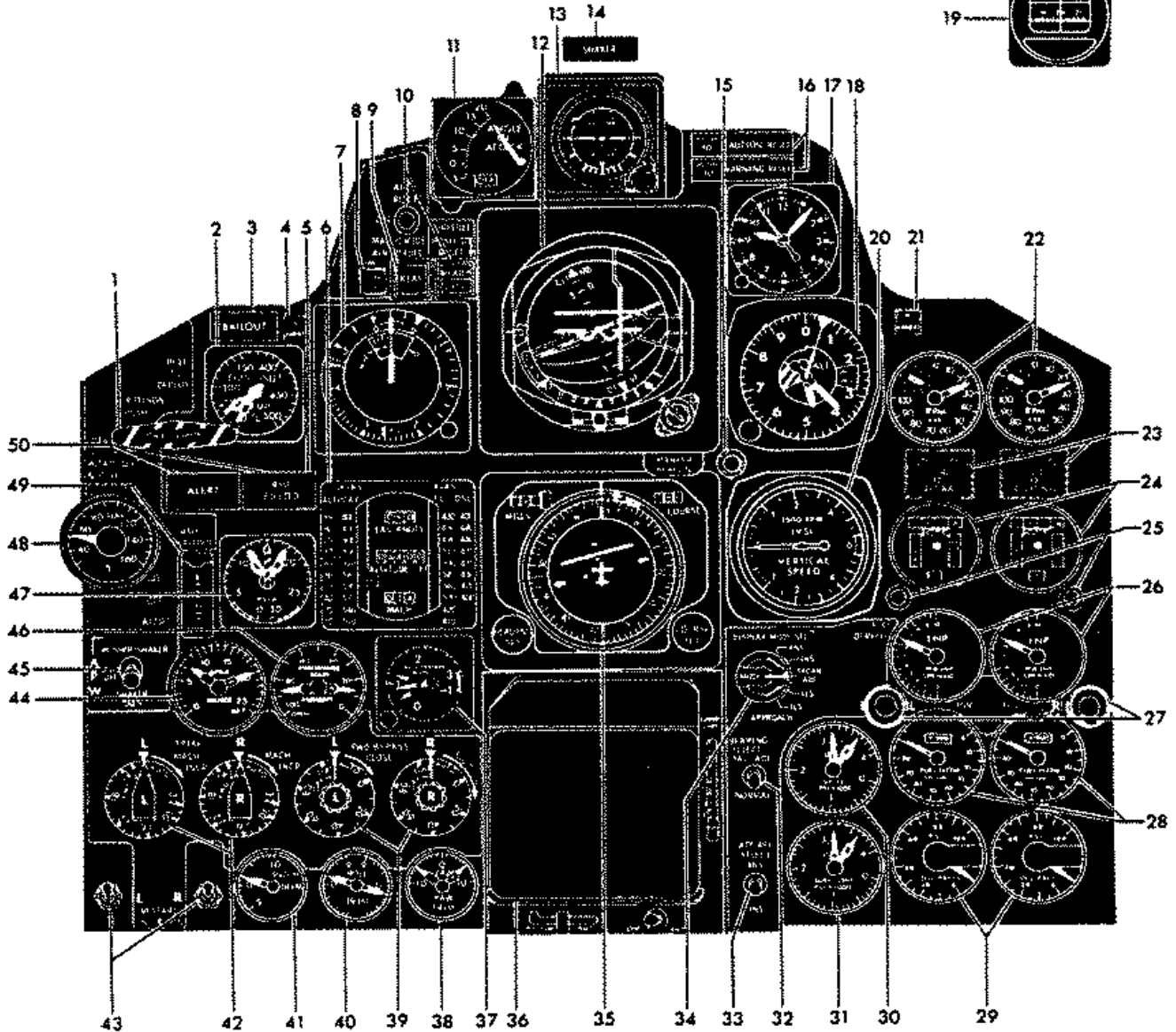
There are two EGT gages, one for each engine, in each cockpit. The two gages in the aft cockpit repeat the forward cockpit temperature indications but do not affect the operation of the fuel derich system. The fuel derich system is actuated only by the forward cockpit gage indications. Because of gage tolerances, the rear cockpit gages can indicate as much as 16°C different from the forward cockpit gages. HOT and COLD flag indicators in each cockpit independently display signals from the automatic EGT control system. The overtemperature warning light in each gage operates independently.

CAUTION

The fuel derich system is activated only by the forward cockpit gage indications. Failure of a forward cockpit EGT gage results in loss of derich protection for the respective engine.

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INSTRUMENT PANEL - FORWARD COCKPIT

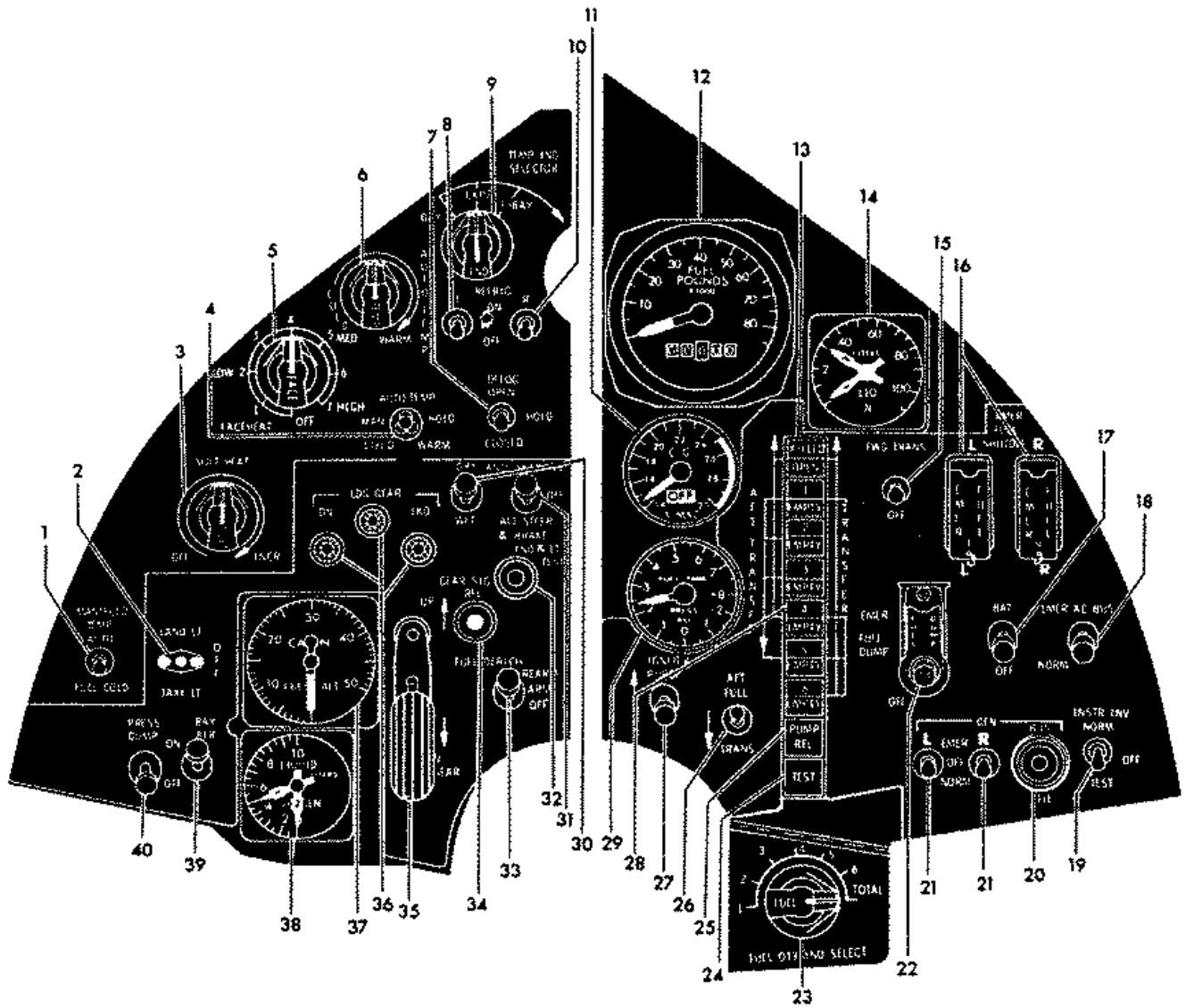


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|-------------------------------------|--|--------------------------------------|
| 1 Drag Chute Handle | 18 Altimeter | 35 Horizontal Situation Indicator |
| 2 Compressor Inlet Temp Gage | 19 Standby Compass (In Canopy) | 36 Navigation Map Projector |
| 3 Egress Light | 20 Inertial-Lead Vertical Speed Indicator | 37 Accelerometer |
| 4 Left Unstart Indicator Light | 21 Right Unstart Indicator Light | 38 Yaw Trim Indicator |
| 5 RSO Ejected Light | 22 Tachometer | 39 Forward Bypass Control Knobs |
| 6 Triple Display Indicator | 23 Fire Warning Lights | 40 Roll Trim Indicator |
| 7 Airspeed-Machmeter | 24 Exhaust Gas Temperature Indicators | 41 Pitch Trim Indicator |
| 8 Nosewheel Steering Engaged Light | 25 Fuel Derich Lights | 42 Spike Control Knobs |
| 9 KEAS Warning Light | 26 Exhaust Nozzle Position Indicators | 43 Inlet Restart Switches |
| 10 Air Refuel Switches | 27 IGV Lights | 44 Spike Position Indicator |
| 11 Angle of Attack Indicator | 28 Fuel Flow Indicators | 45 APW Switch |
| 12 Altitude Director Indicator | 29 Oil Pressure Indicators | 46 Forward Bypass Position Indicator |
| 13 Standby Attitude Indicator | 30 L and R Hydraulic Systems Pressure Gage | 47 Compressor Inlet Pressure Gage |
| 14 Shaker Indicator Light | 31 A and B Hydraulic Systems Pressure Gage | 48 Temperature Indicator |
| 15 Marker Beacon Light | 32 Bearing Select Switch | 49 RSO Bailout Switch |
| 16 Master Caution and Warning Light | 33 Attitude Reference Selector Switch | 50 Egress Lights |
| 17 Elapsed Time Clock | 34 Display Mode Selector Switch | |

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Figure 1A-1

INSTRUMENT SIDE PANELS - FORWARD COCKPIT

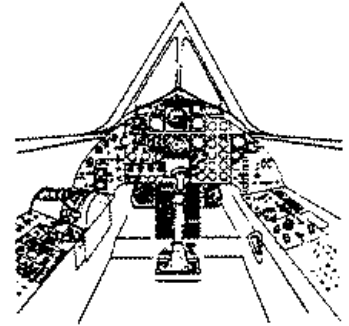


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|--|---------------------------------------|-------------------------------------|
| 1 Manifold Temperature Switch | 14 Liquid Nitrogen Quantity Indicator | 27 Igniter-Purge Switch |
| 2 Landing and Taxi Light Switch | 15 Forward Transfer Switch | 28 Fuel Boost Pump Switches |
| 3 Suit Heat Rheostat | 16 Emergency Fuel Shutoff Switches | 29 Fuel Tank Pressure Indicator |
| 4 Cockpit Temperature Control and O'Ride | 17 Battery Switch | 30 Wet-Dry Switch |
| 5 Face Heat Rheostat | 18 Emergency AC Bus Switch | 31 Brake Switch |
| 6 Cockpit Temperature Control | 19 Instrument Inverter Switch | 32 Indicators and Light Test Switch |
| 7 Defog Switch | 20 Generator Bus Tie Switch | 33 Fuel Derich Switch |
| 8 L Refrigeration Switch | 21 L and R Generator Switches | 34 Gear Signal Release Switch |
| 9 Temperature Indicator Selector Switch | 22 Fuel Dump Switch | 35 Landing Gear Lever |
| 10 R Refrigeration Switch | 23 Fuel Quantity Indicator | 36 Landing Gear Indicator Lights |
| 11 Center of Gravity Indicator | 24 Fuel Boost Pump Light Test Switch | 37 Cabin Altimeter |
| 12 Fuel Quantity Inocator | 25 Pump Release Switch | 38 Liquid Oxygen Quantity Indicator |
| 13 Fuel Crossleed Switch | 26 Manual Aft Transfer Switch | 39 Bay Air Switch |
| | | 40 Cockpit Pressure Dump Switch |

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Figure 1A-2

ANNUNCIATOR PANEL - FORWARD COCKPIT

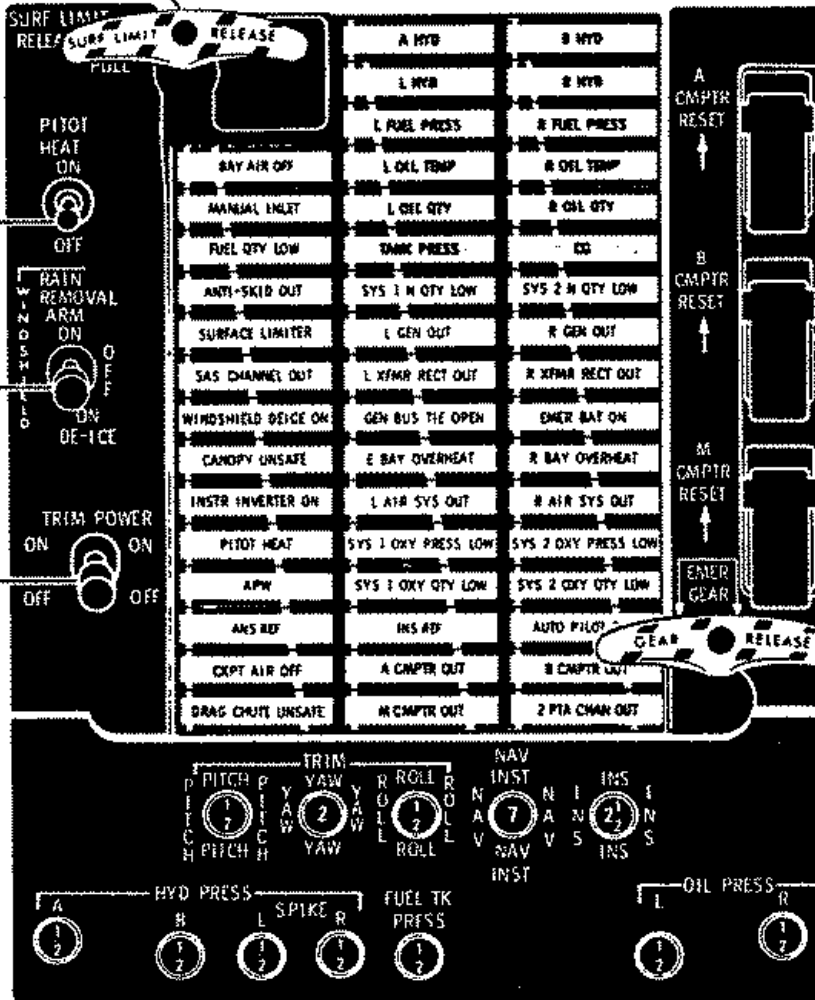


SURFACE LIMITER RELEASE

PITOT HEAT SWITCH

WINDSHIELD DEICING SWITCH

TRIM POWER SWITCH



EMER GEAR RELEASE

CODE
 — RED
 — AMBER



Figure 1A-6

EGT Trim Switches

EGT trim switches are installed in both cockpits. Operation of the aft cockpit switches out of the center position (marked HOLD & FWD CONT) overrides the switch positions in the forward cockpit.

Fuel Derich Arming Switch

A fuel derich arming switch is installed in each cockpit. Only the switch in the cockpit with the FUEL CONT transfer light illuminated on the control transfer panel is functional.

Fuel Derich System Test Switch

A fuel derich test switch is installed in the forward cockpit only. During the derich system test the aft cockpit EGT gages indicate only 200°C above the nominal EGT indication.

Fuel Derich Warning Light

Two fuel derich warning lights, one for each engine, are installed in each cockpit. The aft cockpit lights repeat the forward cockpit lights and are not affected by aft cockpit EGT indications.

IGV Lockout Switches

IGV lockout switches are installed in the forward cockpit only. IGV position lights are installed in each cockpit.

Igniter Purge Switch

The igniter purge switch is installed in the forward cockpit only.

AIR INLET SYSTEM

Inlet Aft Bypass Switches and Indicators

The aft bypass control switches and indicator lights are installed in both cockpits. The aft cockpit switches have an extra position,

labeled FWD CONTROL, which allows the forward cockpit to control the aft bypass doors. Operation of the switches in the aft cockpit out of the FWD CONTROL position overrides the switch positions in the forward cockpit.

Spike and Forward Bypass Control Knobs

The four rotary knobs for spike and forward bypass control are only functional in the cockpit with the SPIKE DOOR transfer light illuminated on the control transfer panel.

Inlet Restart Switches

The forward cockpit restart switches are only functional when the forward cockpit has the SPIKE DOOR transfer light illuminated on the control transfer panel. The RESTART ON position of either aft cockpit restart switch: puts the corresponding inlet in restart; overrides the SPIKE DOOR transfer switches to put the aft cockpit in control of the spikes and forward bypass doors of both inlets, regardless of which cockpit previously had SPIKE DOOR control; and illuminates the MANUAL INLET caution lights in both cockpits and the SPIKE DOOR transfer light on the aft cockpit control transfer panel. When both aft cockpit restart switches are returned to the OFF position, spike and forward bypass control as well as SPIKE DOOR transfer light illumination reverts to the cockpit selected on the control transfer panel.

Throttle Restart Switch

The forward cockpit throttle restart switch is only functional when the forward cockpit has SPIKE DOOR control. The aft cockpit throttle restart switch, when armed, is always functional. In addition, positioning the aft cockpit throttle restart switch out of the OFF position overrides the SPIKE DOOR transfer switches to put the aft cockpit in control of the spikes as well as the forward bypass doors of both inlets regardless of which cockpit previously had SPIKE DOOR control, and illuminates the MANUAL INLET caution lights in both cockpits and the SPIKE

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DOOR transfer light on the aft cockpit control transfer panel. When the aft cockpit throttle restart switch is returned to the OFF position, spike and forward bypass control as well as SPIKE DOOR transfer light illumination reverts to the cockpit selected on the control transfer panel.

Throttle Restart Arming Switch

A throttle restart arming switch is installed in each cockpit. Each restart arming switch operates independently from the other.

Manual Inlet Indicator Light

The MANUAL INLET lights on the annunciator panels in both cockpits illuminate simultaneously when: the crewmember with SPIKE DOOR control moves one or more of the four rotary spike and/or forward bypass control switches out of the AUTO position; the crewmember with SPIKE DOOR control moves any inlet restart switch out of the OFF position regardless of which cockpit previously had SPIKE DOOR control.

FUEL SUPPLY SYSTEM

FUEL SYSTEM CONTROLS, INSTRUMENTS AND INDICATOR LIGHTS

Crossfeed Switch

The cockpits have independent operation of the crossfeed switch, but actual control of the crossfeed valves (and the X-FEED and OPEN light indications in both cockpits) is retained by the cockpit that has the FUEL CONT transfer light illuminated on the control transfer panel. When control of the fuel system is transferred, the crossfeed valve assumes the position commanded in the cockpit taking control.

Fuel Boost Pump Switches and Indicator Lights

Identical square fuel boost pump switches are installed in each cockpit. Manual boost

pump control and the pump release switch are only functional in the cockpit that has the FUEL CONT transfer light illuminated on the control transfer panel. Numerals showing boost pump relays actuated and tank EMPTY lights appear simultaneously in both cockpits, thus providing monitoring of fuel sequencing to both cockpits. When control of the fuel system is transferred, fuel sequencing reverts to automatic, even though it may have been manually supplemented previously. If manual sequencing is desired by the cockpit taking control, boost pump switches must again be manually depressed.

Tank Lights Test Switch

The square pushbutton tank lights TEST switch below the pump release switch in each cockpit tests only the lights in that cockpit. The switch works regardless of which cockpit has the FUEL CONT transfer light illuminated on the control transfer panel.

Forward Fuel Transfer Switch

A two-position forward transfer switch, is installed in each cockpit.

NOTE

Either cockpit can initiate forward fuel transfer regardless of which cockpit has the FUEL CONT light illuminated on the transfer control panel. Both switches must be off to terminate transfer.

Aft Transfer Switch

An aft transfer switch is installed in each cockpit. Both switches must be off to terminate transfer.

Fuel Dump Switch

A fuel dump switch is installed in each cockpit.

NOTE

Operating either fuel dump switch to the FUEL DUMP position will open the fuel dump valves regardless of which cockpit has the FUEL CONT Light illuminated on the transfer control panel. Operating either switch to the EMER DUMP position will dump all remaining fuel. Both switches must be off to terminate dumping.

Emergency Fuel Shutoff Switch

Emergency Fuel Shutoff switches are installed in each cockpit. Operating either switch to off (up) shuts off the fuel to the respective engine.

Fuel Quantity Selector Switch

A fuel quantity selector switch is installed on the right console in the forward cockpit and on the lower portion of the instrument panel in the aft cockpit. Operation of a fuel quantity selector switch and its respective quantity indicator is independent of the selector switch and indicator in the other cockpit.

Liquid Nitrogen Quantity Indicator

A liquid nitrogen quantity indicator is installed in the forward cockpit only. System 3 liquid nitrogen system and indicator are not installed.

Air Refuel Ready Switch

An air refuel ready switch is installed in each cockpit. Positioning this aft cockpit air refuel switch out of the OFF position overrides the forward cockpit switch positions.

Air Refuel Reset Switch and Indicator Light

A square, air refuel mechanism resetting pushbutton, is located on each instrument panel. The switches operate in parallel, so that depressing either switch will reset the signal amplifier and recycle the refueling receptacle locking mechanism.

Disconnect Trigger Switch

A disconnect trigger switch, is installed on each control stick grip. Depressing either trigger switch will initiate a refueling disconnect. Depressing either trigger opens the receptacle latches during air refueling using manual override.

ELECTRICAL SYSTEM

The electrical supply system of the SR-71B aircraft is basically identical with the system in the SR-71A aircraft except for some of the circuit breakers, (see Figure 1A-8). Other than circuit breakers, there are no electrical system controls in the aft cockpit.

NOTE

The following controls are only provided in the forward cockpit.

- L and R generator switches
- Generator bus tie switch
- Battery switch
- Instrument inverter switch
- Emergency ac bus switch

LANDING GEAR SYSTEM

The landing gear is controlled from the forward cockpit by a landing gear lever, and from the aft cockpit by a switch.

Landing Gear Lever

A landing gear lever is located in the forward cockpit only.

Landing Gear Switch

A guarded, lock-wired, three-position toggle switch for operating the landing gear is located on the lower left side of the instrument panel in the aft cockpit. The UP (up) and DOWN (down) positions of the switch override the position of the landing gear lever in the forward cockpit. After use, if the switch is returned to OFF (center) and the landing gear lever in the forward cockpit is not in agreement with the actual position of the landing gear, the gear position does not change but hydraulic pressure and

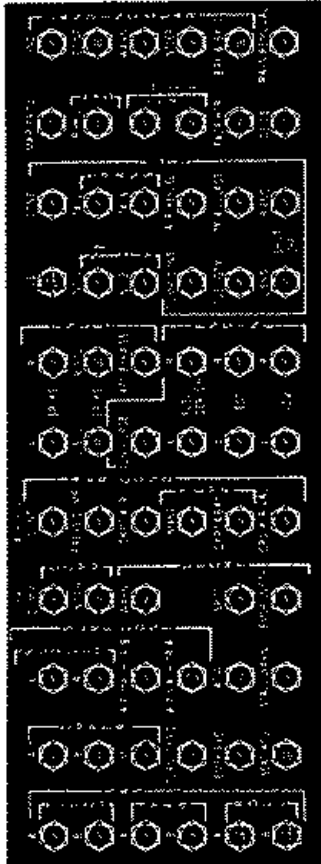
SECTION IA

CIRCUIT BREAKER FUNCTION TABLE - TRAINER

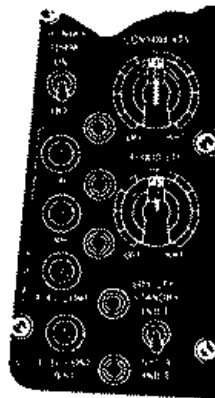
CIRCUIT BREAKER	EFFECT OF POWER INTERRUPTION
Essential DC BUS (Forward Cockpit)	
WARN	Disabled: All forward cockpit warning and caution lights except nacelle fire and landing gear warning lights, and 2 PFA CHAN OUT, SAS OUT, and A, B & M CMPTR OUT caution lights.
Essential DC BUS (Aft Cockpit)	
AFCS CONT XFR	Disabled: AFCS transfer control and light. AFCS control reverts to forward cockpit.
TEMP IND	Disabled: Aft cockpit temperature indication for cockpit, R-Bay and E-Bay.
SPK-DR IND	Disabled: Aft cockpit left and right spike and door position indicators.
MAP PROJ	Disabled: Aft cockpit map projector.
WARN LTS	Disabled: All aft cockpit warning and caution lights except nacelle fire and landing gear warning lights, and 2 PFA CHAN OUT, SAS OUT, and A, B & M CMPTR OUT caution lights.
TRANS CONT	Disabled: NAV/TAC/ILS INSTR, FUEL CONT, and SPIKE DOOR transfer control and lights. NAV/TAC/ILS INSTR, FUEL CONT, and SPIKE DOOR control reverts to the forward cockpit.
AFCS A LT	Disabled: A PITCH and A YAW SENSOR/SERVO, A ROLL SERVO, ROLL SENSOR, A CMPTR OUT, 2 PFA CHAN OUT, SAS OUT and BIT TEST lights. (Both cockpits)
AFCS B & M LTS	Disabled: B PITCH and B YAW SENSOR/SERVO, M PITCH and M YAW SENSOR, B ROLL SERVO, B CMPTR OUT, M CMPTR OUT, and BIT FAIL lights. (Both cockpits)
Essential AC BUS (Aft Cockpit)	
L EGT IND	Disabled: Aft cockpit left EGT indicator.
R EGT IND	Disabled: Aft cockpit right EGT indicator.
L ENP	Disabled: Aft cockpit left nozzle position indicator.
R ENP	Disabled: Aft cockpit right nozzle position indicator.
L CIT IND	Disabled: Aft cockpit left compressor inlet temperature indication.
R CIT IND	Disabled: Aft cockpit right compressor inlet temperature indication.
PANEL LTS	Disabled: LEGEND, LEGEND BRT & TEST and CONSOLE circuit breakers on left console.
MAP PROJ	Disabled: Aft cockpit map projector speed control.
INSTR LTS	Disabled: LH INSTR, RH INSTR and ATTACK circuit breakers on left console.
CIP	Disabled: Aft cockpit left and right compressor inlet pressure indicators. Barber pole continues to function.
LEGEND	Disabled: Aft cockpit switch legends when in the dimming range.
LEGEND BRT & TEST	Disabled: Aft cockpit switch legends when in bright and in Warning lights test.
CONSOLE	Disabled: Aft cockpit console lights
LH INSTR	Disabled: Aft cockpit ADI, HSI and left hand instrument panel lighting.
RH INSTR	Disabled: Aft cockpit right hand instrument panel lighting.
ATTACK	Disabled: Aft cockpit angle of attack indicator light.
26 VOLT EMERGENCY AC BUS (Forward Cockpit)	
HSI CRS & HDG	Disabled: Manual course and heading inputs to HSI in cockpit with NAV/TAC/ILS INSTR control are not repeated in the other cockpit.

Figure 1A-8

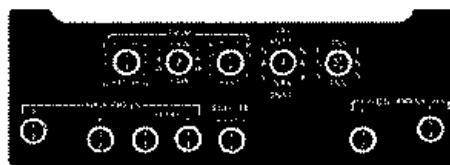
CIRCUIT BREAKER PANELS



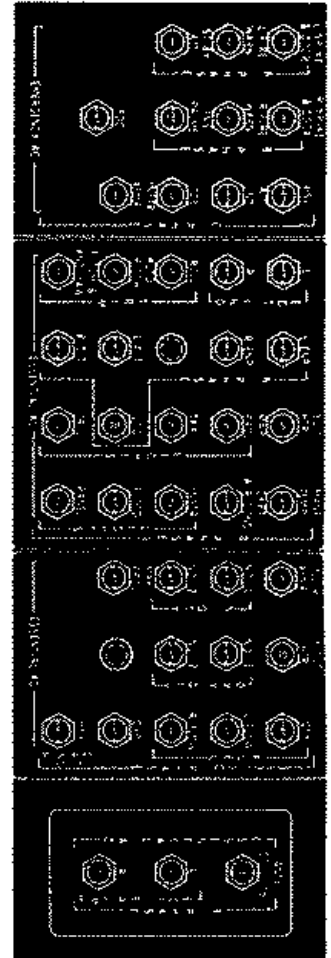
Forward Cockpit - Left Console



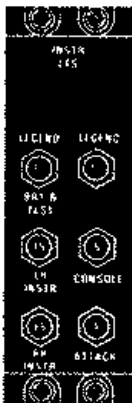
Forward Cockpit - Left Console



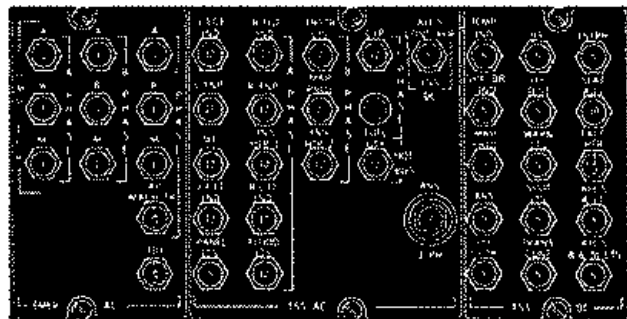
Forward Cockpit - Center Stand



Forward Cockpit - Right Console



Aft Cockpit - Left Console



Aft Cockpit - Right Console

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Figure 1A-9

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electrical command of gear position is removed from the landing gear system. If the switch is returned to OFF and the landing gear lever in the forward cockpit is in the position of the landing gear or is moved to the position of the landing gear, the landing gear lever and system again become operative. The switch is normally lock-wired in the OFF position and must be in that position for normal gear operation from the forward cockpit. Location of the switch in its center position can be verified by noting the appearance of a yellow dot in the end of the switch which should be visible through an aperture in the guard when it is lowered.

Manual Landing Gear Release Handle

A manual landing gear release handle is installed in each cockpit; the two handles are interconnected mechanically and pulling either handle will release the landing gear latches.

Landing Gear Warning Cutout Button

A landing gear warning cutout pushbutton is installed in each cockpit. Depressing the button in either cockpit will disable the warning circuit in both cockpits.

Gear Unsafe Warning Light

The gear unsafe warning light, labeled GEAR NOT LOCKED, is located on the lower left portion of the instrument panel in the aft cockpit only. The light functions similarly to the light in the gear handle in the forward cockpit, lighting red whenever the gear is not in the position called for by the gear handle position or the aft cockpit landing gear switch.

NOSEWHEEL STEERING SYSTEMNosewheel Steering Button

A nosewheel steering pushbutton is provided on the control stick grip in each cockpit. Either pushbutton may be depressed to engage or release nosewheel steering. A nosewheel steering engaged light is installed in each cockpit.

WHEEL BRAKE SYSTEMBrake Switch

A brake switch is located in both cockpits. Positioning the switch in the aft cockpit out of the OFF position overrides the forward cockpit switch positions. To control the wheel brake system from the forward cockpit, the aft cockpit brake switch must be in the OFF (center) position.

Antiskid Disconnect Trigger Switch

With S/B R-2695, antiskid system operation is interrupted while either trigger switch is held depressed.

DRY-WET Switch

The dry-wet switch for braking selection is installed in the forward cockpit only.

DRAG CHUTE SYSTEM

Normal and emergency deployment of the drag chute can be initiated from either cockpit.

Drag Chute Switch

A guarded three-position DRAG CHUTE switch is provided in the upper left side of the instrument panel in the aft cockpit. (See Figure 1A-10.) Its guarded OFF (center) position corresponds to the stowed position of the drag chute handle in the forward cockpit. The guard must be raised to move the switch to the CHUTE DEPLOY (up) position, or to the CHUTE JETTISON (down) position. The switch is automatically reset to the OFF position when the guard is lowered. Location of the switch in its center position can be verified by noting the appearance of a yellow dot in the end of the switch which should be visible through an aperture in the guard when it is lowered. The control in the aft cockpit can always be used to operate the drag chute mechanism. The aft cockpit switch must be placed in its guarded OFF position to transfer control of the drag chute mechanism to the forward cockpit crewmember for normal deployment or jettisoning.

NOTE

If the aft cockpit deploys the drag chute and the forward cockpit handle remains stowed, returning the aft cockpit drag chute switch to OFF will jettison the drag chute.

**INSTRUMENT PANEL -
Aft Cockpit SR-71B**

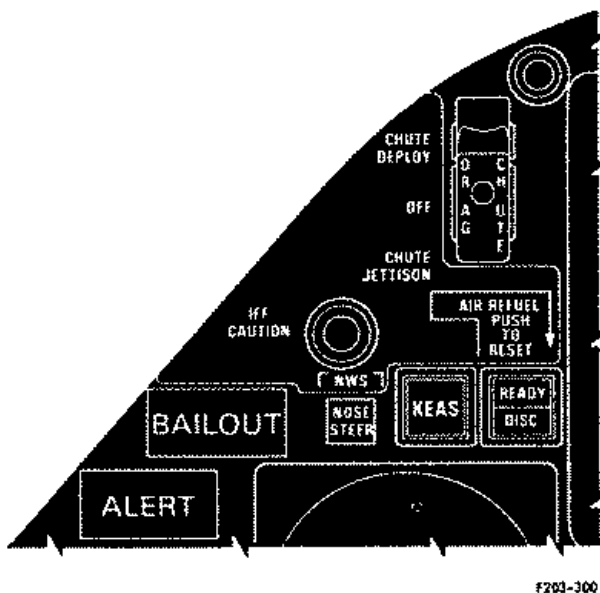


Figure 1A-10

Drag Chute Emergency Deployment

In the aft cockpit, an EMER CHUTE DEPLOY Tee-handle is provided at the lower left edge of the annunciator panel. This handle is attached to the same cable and mechanism which is used to deploy the chute manually from the forward cockpit, and approximately the same pull force and handle motion are required.

FLIGHT CONTROL SYSTEM

The forward cockpit and aft cockpit flight controls are connected in tandem and work together.

Surface Limiter Control Handle

A surface limiter control handle is installed in each cockpit. The two handles are interconnected so that they move together; consequently, either pilot may operate the surface limiter system.

MANUAL TRIM SYSTEM

Trim Power Switch

A trim power switch is installed in each cockpit. The switches operate in series so that both must be ON to apply power to the trim motors. Operating either cockpit switch to OFF will turn off trim power.

Pitch and Yaw Trim Switch

A pitch and yaw trim switch is located on the control stick grip in each cockpit. The aft cockpit switch overrides the forward cockpit switch if they are operated simultaneously. Operation of either control stick trigger switch disables the control stick trim switch in both cockpits.

Roll Trim Switch

A roll trim switch is installed in each cockpit. Operating the aft cockpit roll trim switch overrides the forward cockpit switch if they are operated simultaneously.

Right Hand Rudder Synchronization Switch

A right hand rudder synchronization switch is installed in each cockpit. The switches are in parallel so that operating either switch will actuate the trim motor. Both must be in center (off) position to stop the trim motor.

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DIGITAL AUTOMATIC FLIGHT AND
INLET CONTROL SYSTEM (DAFICS)DAFICS PREFLIGHT BUILT IN TEST (BIT)

The DAFICS Preflight BIT switch only operates in the cockpit with the AFCS control transfer light illuminated on the control transfer panel. DAFICS Preflight BIT TEST/FAIL light indications (including ANR failure) appear simultaneously in both cockpits. The DAFICS Preflight BIT tests for switch input faults only in: SAS and autopilot switch inputs from the cockpit with AFCS control; inlet control switch inputs from the cockpit with SPIKE DOOR control; and one APW switch input (aft cockpit unless the aft cockpit APW switch is in CONT FWD).

Computer Reset Switches

Individual computer reset switches are installed in both cockpits. The computers can be restarted manually at any time with the computer RESET switches in either cockpit.

SAS/AUTOPILOT FUNCTION SELECTOR

Identical DAFICS function selector panels are installed in both cockpits. The cockpit with the AFCS transfer light illuminated on the control transfer panel has control of the SAS and autopilot.

SAS CONTROLS AND INDICATORS

SAS will not disengage when AFCS control is transferred provided the channel engage switches are on in the cockpit assuming control. The SAS channel engage switches and the ROLL SENSOR/SERVO recycle functions only operate in the cockpit with AFCS control. PITCH and YAW pushbutton SENSOR/SERVO recycle functions operate in either cockpit regardless of which cockpit has AFCS control. Identical SENSOR/SERVO

light indications appear simultaneously in both cockpits. The SAS LITE TEST switch on each SAS control panel operates independently but illuminates the Preflight Bit TEST/FAIL lights in both cockpits.

WARNING

Only the positions of the SAS channel engage switches in the cockpit that has AFCS control effect the SENSOR/SERVO and SAS OUT caution lights. No warning is displayed if the SAS channel engage switches are not ON in the cockpit that does not have AFCS control. If the SAS engage switch(es) are OFF in the cockpit that does not have AFCS control, transferring AFCS control to that cockpit results in loss of SAS until the switch(es) are engaged.

AUTOPILOT SYSTEM

The cockpit with the AFCS transfer indicator light illuminated on the control transfer panel has control of the SAS and autopilot. The autopilot will disconnect if AFCS control is transferred to the opposite cockpit. Autopilot mode engage switches, trim wheels, and alignment indices only function on the SAS control panel in the cockpit with AFCS control.

Autopilot Indicator Panel

An autopilot indicator panel is located to the left of the SAS control panel in each cockpit. Autopilot mode lights only illuminate in the cockpit not in control of the AFCS to allow monitoring of the autopilot modes selected in the other cockpit.

Control Stick Command Switch

A control stick command (CSC) switch is installed in each cockpit. The switch is only functional in the cockpit with AFCS control.

Autopilot Disconnect Switch

An autopilot trigger disconnect switch is installed in each cockpit. Depressing either switch disengages the autopilot regardless of which cockpit has AFCS control.

A/P OFF Light

An A/P OFF light is installed in each cockpit. Depressing the light in either cockpit extinguishes the AUTOPILOT OFF annunciator light in both cockpits.

APW AND HIGH ANGLE OF ATTACK WARNING SYSTEMS**APW System Stick Warning Switch**

A three-position APW system stick warning control switch is provided on the left side of the annunciator panel in the rear cockpit. The functions of the PUSHER/SHAKER (up) and SHAKER ONLY (down) positions are the same as for the APW control switch in the forward cockpit. Selection of either switch position overrides the position of the forward cockpit switch. Selection of the CONT FWD (center) position transfers control of the APW stick warning system to the forward cockpit.

PITOT-STATIC SYSTEMS**Pitot Heat Switch**

The pitot heat switch is installed in the forward cockpit only.

FLIGHT INSTRUMENTS

The front cockpit flight instruments are duplicated in the aft cockpit except as indicated. (See Figures 1A-1 and 1A-3.)

Attitude Reference Selector Switch

Each cockpit can independently select the attitude reference source for the ADI in that cockpit. DAFICS autopilot and analytical

redundancy inputs are determined by the position of the attitude reference switch in the cockpit with the AFCS transfer light illuminated on the control transfer panel.

HORIZONTAL SITUATION INDICATOR

The HSI displays and the corresponding ADI steering indications selected by the cockpit with the NAV/TAC/LS INSTR transfer light illuminated on the control transfer panel are repeated in the other cockpit.

COMMUNICATION & AVIONIC EQUIPMENT**Microphone Switches**

The forward cockpit microphone switches are identical with the like switches in the SR-71A aircraft forward cockpit. The aft cockpit has four microphone switches, one on the control stick, one on the inboard throttle, and one on each side of the floorboard near the scuff plates. The floor-mounted switch on the right side is only for operation of the interphone.

EMERGENCY INTERCOMMUNICATIONS SYSTEM

A separate, press to talk emergency system is provided for communicating between the two cockpits when ac power is lost. There is no hot microphone capability when the emergency ICS is activated. The system is controlled by identical square, self-illuminated pushbutton switches located on the light control panel in the forward cockpit and on a separate panel on the left console in the aft cockpit. The top half of the pushbuttons are labeled EMERG ICS. The EMERG ICS is put into operation by depressing either or both control pushbutton(s), which (1) illuminates a green ON legend on the pushbutton face in both cockpits, (2) connects the intercom directly to the battery bus and (3) isolates all other sources of audio from the headsets of the pilots.

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Depressing the same pushbutton switch again deselects the EMERG ICS. If neither cockpit has EMERG ICS selected the amber OFF light in both cockpit pushbutton switches illuminates and the isolated audio sources are reconnected.

Power is furnished to the emergency ICS by the 28v dc battery through the EMER INTPH circuit breaker located in the E bay.

UHF COMMUNICATIONS AND NAVIGATION SYSTEM

UHF Control Transfer Switch

The UHF control transfer switch is located on the left console in the aft cockpit.

UHF Remote Frequency Indicator

The UHF remote frequency indicator is located on the aft cockpit instrument panel.

UHF Modulator/Demodulator Control Panel

The UHF modulator/demodulator (MODEM) control panel is located on the left console in the aft cockpit.

UHF Distance Indicator

The UHF distance indicator is located on the upper right of the instrument panel in the aft cockpit.

HF RADIO

The HF radio is located on the left console in the aft cockpit.

INSTRUMENT LANDING SYSTEM

An ILS control panel is installed on the right console in both cockpits. Only the ILS control panel in the cockpit with the NAV/TAC/ILS INSTR transfer light illuminated on the control transfer panel is operative. A marker beacon indicator is installed in each cockpit.

IFF

The IFF control panel is located on the right console in the aft cockpit.

TACAN

A TACAN control panel is installed on the right console in each cockpit.

WINDSHIELD

The aft cockpit windshield is similar to the forward cockpit but does not have hot-air deicing provisions or the liquid rain-removal system.

Defog Switch

Defog air is controlled independently in each cockpit. The defog switch in the aft cockpit is located on the left side of the annunciator panel.

Windshield Deice On Caution Light

The forward cockpit WINDSHIELD DEICE ON caution light is the only annunciator caution light installed on only one annunciator panel. Only the master caution light in the forward cockpit illuminates when the WINDSHIELD DEICE ON light illuminates.

CANOPIES

Canopy Unsafe Warning Light

The CANOPY UNSAFE warning light in both cockpits illuminates when either one or both of the canopies is not latched down and/or properly sealed.

REAR VIEW PERISCOPE

A rear view periscope is installed on each canopy. The field of view of the front periscope is partially blocked by the aft cockpit.

LIGHTING EQUIPMENT**EXTERIOR LIGHTS**

All exterior lights including the landing, taxi, anti-collision, fuselage, and the tail light are controlled by switches located in the front cockpit only.

AFT COCKPIT INTERIOR LIGHTING

The instrument panel lights, console panel lights and floodlights are controlled by rheostat switches located on the lighting panel on the left console. A two position thunderstorm light switch is located on the lighting panel. Separate rheostat switches are provided on the aft cockpit lighting panel for the segment (alpha-numeric) lights on the INS control panel and the angle of attack gage.

The green landing gear indicator lights, the GEAR NOT LOCKED, NOSE STEER, KEAS, air refuel READY/DISC, SHAKER, IGV and DERICH lights in the aft cockpit are dimmed when the forward cockpit console lights switch is out of the OFF position. The remaining aft cockpit warning and caution lights are dimmed when the aft cockpit console lights switch is out of the OFF position.

ENVIRONMENTAL CONTROL SYSTEM

The following controls are only provided in the forward cockpit:

- Refrigeration switches
- Cockpit temperature control switch
- Cockpit air temperature control and override switch
- Manifold temperature control switch
- Bay air switch
- Cockpit pressure dump switch

A cabin pressure selector switch, cabin altimeter, temperature indicator, and temperature indicator selector switch are installed in each cockpit. The cockpit air handle is in the aft cockpit.

Temperature Indicator and Selector Switch

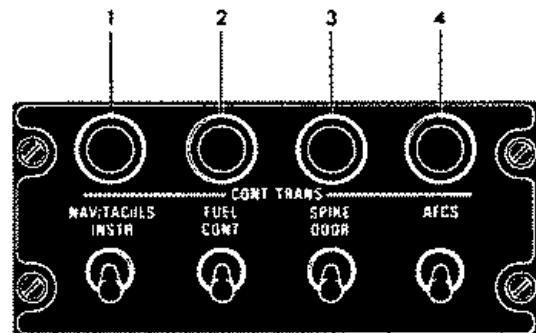
In the aft cockpit, the temperature indicator is located on the lower left side of the instrument panel and the temperature selector switch is on the right console. The temperature indicator and temperature selector switch for each cockpit operates independently.

LIFE SUPPORT SYSTEMS**Suit Heat Rheostat**

The pressure suit heat control is installed only in the forward cockpit.

Visor Heat Rheostat

Visor heat is controlled independently in each cockpit. The visor heat rheostat in the aft cockpit is located on the right console.

CONTROL TRANSFER PANEL - SR-71B

- | | |
|---|--|
| 1 NAV/TAC/ILS control transfer switch and indicator light | 3 SPIKE DOOR control transfer switch and indicator light |
| 2 FUEL CONT control transfer switch and indicator light | 4 AFCS control transfer switch and indicator light |

F203-301

Figure 1A-11

SECTION 1A

CONTROL TRANSFER PANELS

A control transfer panel is located on the left console in both cockpits. Each panel contains four two-position toggle switches and four associated control transfer indicator lights. The switches allow either crewmember to give or take control of the aircraft system(s) associated with each switch. (See Figure 1A-11.) Changing the position of a control transfer switch once (fore or aft) on either control transfer panel transfers control from whichever cockpit previously had control to the other cockpit. Control of a system is indicated in the cockpit with control by illumination of the associated transfer indicator light. Control transfer and transfer indicator lights are powered by the Essential DC bus through the TRANS CONT and AFCS CONT XFR 28v dc circuit breakers.

NOTE

In the event of control transfer relay malfunction or loss of power in one of the four transfer circuits, control of the associated system reverts to the forward cockpit.

NAV/TAC/ILS INSTR Control

The cockpit with the NAV/TAC/ILS INSTR transfer light illuminated has control of the Display Mode Select switch, Bearing Select switch, HSI Course and Heading Set knobs, and the TACAN and ILS control panels. The ADI steering commands and HSI displays selected by the controlling cockpit are repeated in the other cockpit.

Fuel System Control

The cockpit with the FUEL CONT transfer light illuminated has control of those components within the fuel system that are operated manually: derich, crossfeed, boost pumps and pump release.

NOTE

When control of the fuel system is transferred, fuel sequencing reverts to automatic, even though it may have been manually supplemented previously. If manual sequencing is desired by the cockpit taking control, boost pump switches must again be manually depressed.

The crossfeed valve assumes the position commanded in the cockpit taking control.

Inlet Spike and Forward Bypass Control

The cockpit with the SPIKE DOOR transfer light illuminated has control of the inlet spike and forward bypass door control knobs. The forward cockpit restart switches and throttle restart switch are only functional when the forward cockpit has SPIKE DOOR control.

NOTE

When out of the OFF position, either aft cockpit restart switch or the aft cockpit throttle restart switch overrides the SPIKE DOOR transfer switch to put the aft cockpit in control of the spikes and forward bypass doors of both inlets and illuminates the MANUAL INLET caution lights in both cockpits and the SPIKE DOOR transfer light on the aft cockpit control transfer panel. When all aft restart switches are returned to the OFF position, SPIKE DOOR control as well as SPIKE DOOR transfer light illumination reverts to the cockpit selected on the control transfer panel.

Automatic Flight Control System Control

The cockpit with the AFCS transfer light illuminated has control of the stability augmentation system, autopilot controls, and the DAFICS Preflight BIT switch.

INERTIAL NAVIGATION SYSTEM (INS)**Inertial Control Panel**

The INS control panel is located on the left console in the aft cockpit.

Heading Slew Knob

The heading slew knob is located on the outboard aft portion of the right console in the aft cockpit.

INS Segment Lights Control

The INS segment (alpha-numeric) lights on the inertial control panel are controlled by the INS SEG LTS rheostat on the lighting control panel.

ASTROINERTIAL NAVIGATION SYSTEM

The Astroinertial Navigation System (ANS) control panel is located on the right console in the aft cockpit. Navigational accuracy may be degraded to the extent that position accuracy cannot be updated by reference to viewsight and radar system data.

Star tracking may be degraded because the field of view of the astrotracker is reduced by the position of the astrotracker window behind the aft canopy.

SENSOR EQUIPMENT

There is no sensor equipment installed in the trainer aircraft.

MISSION RECORDER

The mission recorder is controlled by a square, self-illuminated, pushbutton switch labeled MRS on the top half of the pushbutton and located on the right console in the aft cockpit. Depressing the pushbutton turns on the mission recorder, illuminating the lower left quarter of the pushbutton ON

in green: depressing a lighted pushbutton turns off the recorder. In case a failure occurs in the 28-VDC or 400-cycle power supply to the recorder, the bottom right quarter of the pushbutton face lights FAIL in red. If power is subsequently restored the recorder will resume operation; however, the FAIL light will not go out, having to be reset on the ground.

EGRESS COORDINATION SYSTEM

The bailout switch located on the left side of the instrument panel in the forward cockpit is labeled RSO (rear seat occupant) BAILOUT; the bailout switch in the corresponding location in the aft cockpit is labeled S/P (student pilot) BAILOUT. Each switch is covered by a red guard and has three positions, OFF (center), ALERT (down), and GO (up). An ALERT and BAILOUT light are located on the left side of the instrument panel in both cockpits. Operating either bailout switch to the GO position causes the BAILOUT light in the other cockpit to illuminate. Operating either switch to the ALERT position illuminates the ALERT light in the other cockpit. The bailout switch is normally in the OFF position, with the guard down. When the aft cockpit seat ejects, RSO EJECTED illuminates in the forward cockpit, signifying that the forward cockpit pilot may eject safely; if the forward cockpit seat ejects first, the rear seat occupant must rely on sound and vision to determine when the forward seat is gone.

EMERGENCY WARNING EQUIPMENT**MASTER WARNING SYSTEM**

The annunciator panel lights in the aft cockpit duplicate all the warnings and cautions displayed on the forward cockpit annunciator panel except one. The WINDSHIELD DEICE ON annunciator caution light is only installed in the forward cockpit.

SECTION IA

Master Warning and Master Caution Lights

Depressing the master warning or master caution light extinguishes the master caution or warning light and causes the associated annunciator light to illuminate steady in that cockpit only.

A supplementary post-type warning and master caution light is located at the top of the instrument panel in the aft cockpit. These lights are fitted with a plastic lighttube so that they are visible when the canopy is down and the seat is in an elevated position.

Indicators and Warning Lights Test Button

The indicator and warning lights test button, labeled IND & LT TEST, is installed in each cockpit. Depressing the button in either cockpit will test the indicators and lights in both cockpits.

MISCELLANEOUS EQUIPMENTDinghy Stabber

A dinghy stabber is located on the glareshield in the forward cockpit and on the right side of the canopy in the aft cockpit.