

FLIGHT DATA FILE

Photo/TV Checklist

**Mission Operations Directorate
Systems Division**

**Generic
November 13, 1987**



National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas

MISSION OPERATIONS DIRECTORATE

PHOTO/TV CHECKLIST

GENERIC

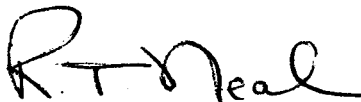
November 13, 1987

PREPARED BY:

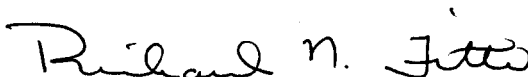


Donald C. Carico
Book Manager

APPROVED BY:



R. T. Neal, Head
EVA/Crew Systems Section



R. N. Fitts, Chief
Mechanical & Crew Systems Branch

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Incorporates the following:

482#: P/TV-124A

AREAS OF TECHNICAL RESPONSIBILITY

Book Manager	DF4/D. C. Carico	483-2594
Photography	DF4/J. Bremer	483-2585
Television	DF4/D. Brooks	483-2565

PHOTO/TV CHECKLIST

LIST OF EFFECTIVE PAGES

GENERIC 11/13/87

Sign Off.....*	ALL/GEN
ii.....*	ALL/GEN
iii.....*	ALL/GEN
iv.....*	ALL/GEN
v.....	ALL/GEN
vi.....	ALL/GEN
1-1.....	ALL/GEN
1-2.....	ALL/GEN
1-3.....	ALL/GEN
1-4.....	ALL/GEN
1-5.....	ALL/GEN
1-6.....	ALL/GEN
1-7.....	ALL/GEN
1-8.....	ALL/GEN
2-1.....	ALL/GEN
2-2.....	ALL/GEN
2-3.....	ALL/GEN
2-4.....	ALL/GEN
2-5.....	ALL/GEN
2-6.....	ALL/GEN
CC 3-1.....*	ALL/GEN
CC 3-2.....* <input checked="" type="checkbox"/>	ALL/GEN
CC 3-3.....*	ALL/GEN
CC 3-4.....*	ALL/GEN
CC 3-5.....*	ALL/GEN
CC 3-6.....* <input checked="" type="checkbox"/>	ALL/GEN
CC 3-7.....*	ALL/GEN
CC 3-8.....*	ALL/GEN

(*) - Omit from flight book
 - Prelift-off information required

PHOTO/TV CUE CARDS

TV

(Front)..... CC 3-2* P/TV-1a/0/A
(Back)..... CC 3-3* P/TV-1b/0/A

ORBITER VTR

(Front)..... CC 3-4* P/TV-2a/0/A
(Back)..... CC 3-5* P/TV-2b/0/A

EARTH OBSERVATIONS TECHNIQUES

(Front)..... CC 3-6* P/TV-3a/0/A
(Back)..... CC 3-7* P/TV-3b/0/A

(*) - Omit from flight book

- Prelift-off information required

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Note: Detailed scene information is published in the Flight Supplement.

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P/TV SYSTEMS

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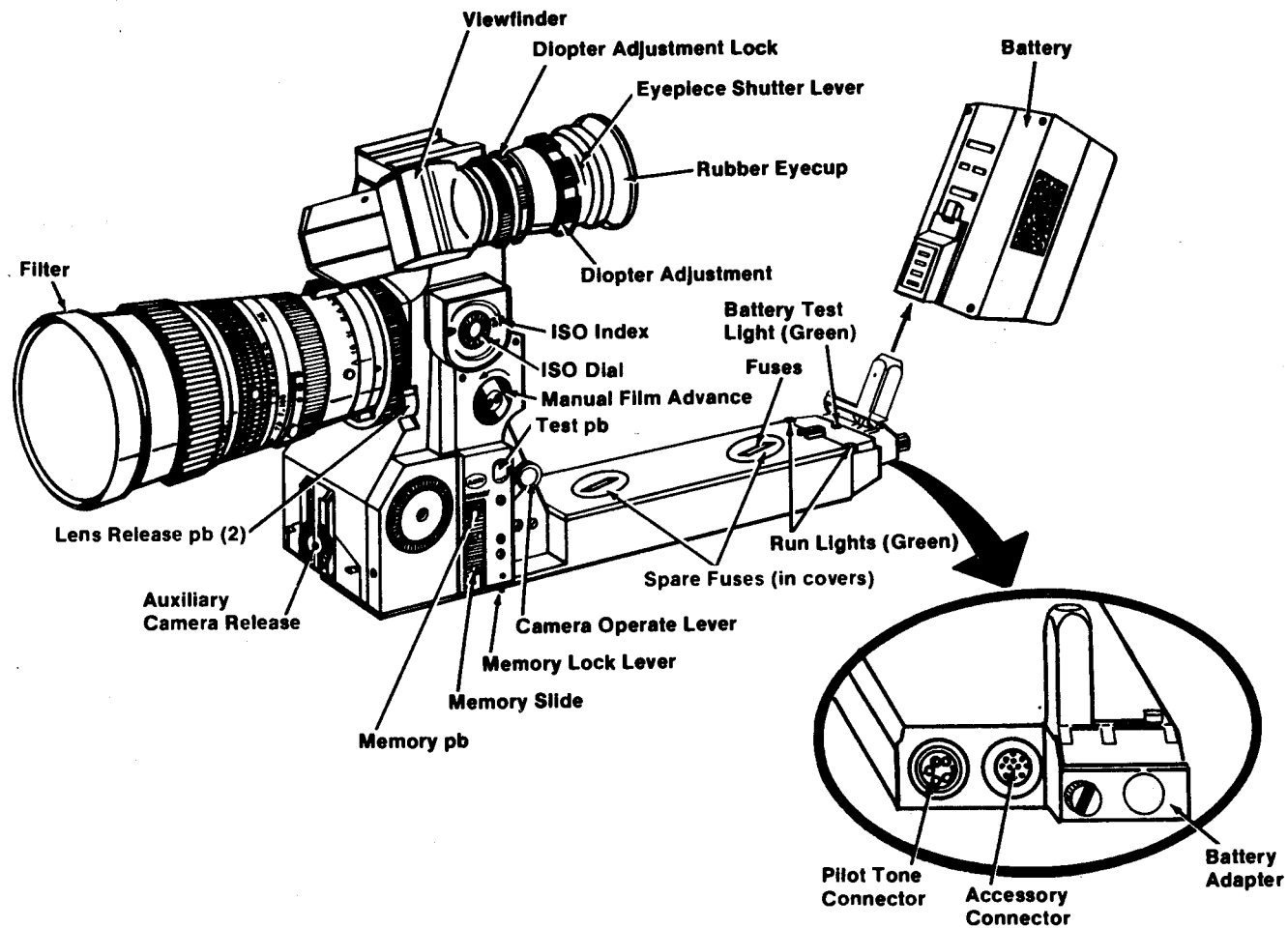
GENERAL TV NOTES

- For best color reproduction, select
ALC pb - NORM
Gamma pb - NORM
- Keep bright lights out of FOV.
Dim lights when in or near FOV.
Use light shades when appropriate.
- Use Photo Flood for supplemental scene illumination.
- If daytime, window shades must be installed as appropriate for flight deck scenes.
- Voice on VTR is very helpful.
- Multiple Headset Adapter (MHA) or ADS/VTR cable may be connected to VTR CCU for record/playback access by more than one crewmember.
- In order to view VTR input while recording:
 - A7U MON 1(2) - VTR PLAY
 - VTR RCD - Desired Camr
 - (Other monitor may be used to preview next scene before recording it on VTR.)
- Before inserting each Cassette into VTR, check tape tension.

TV GROUND RULES

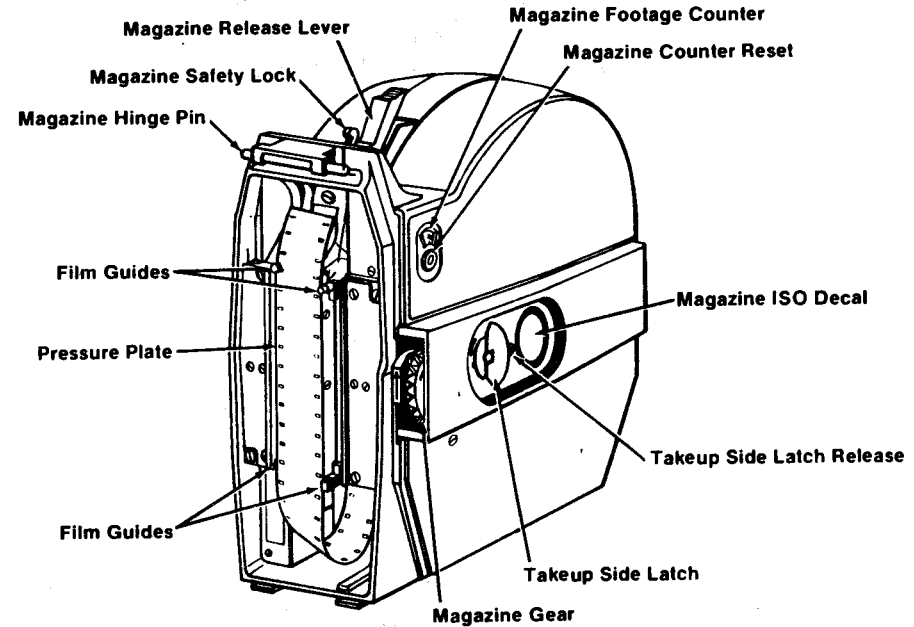
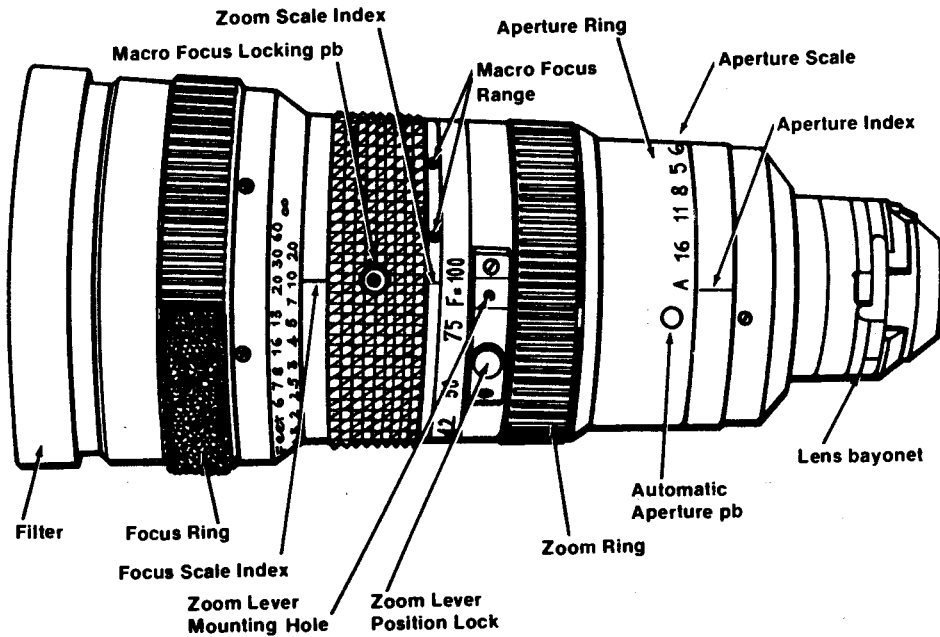
- TV control is by crew unless otherwise specified. Crew may request MCC control of any TV function at any time. TV power command position is required.
- Crew will be notified of all unscheduled TV activities as well as any time MCC takes control of TV Camrs.
- Requesters for new real-time OPS/PAO TV scenes will input requirements to FAO for CAP scheduling.
- MCC will generally inform crew of an upcoming TV pass at the preceding site.
- MCC will suggest TV quality improvements when appropriate by voice or teleprinter message. Because of limited onboard monitoring capability, the crew must depend to a large degree upon MCC quality assessment and improvement suggestions.

16mm CAMERA SYSTEM DATA



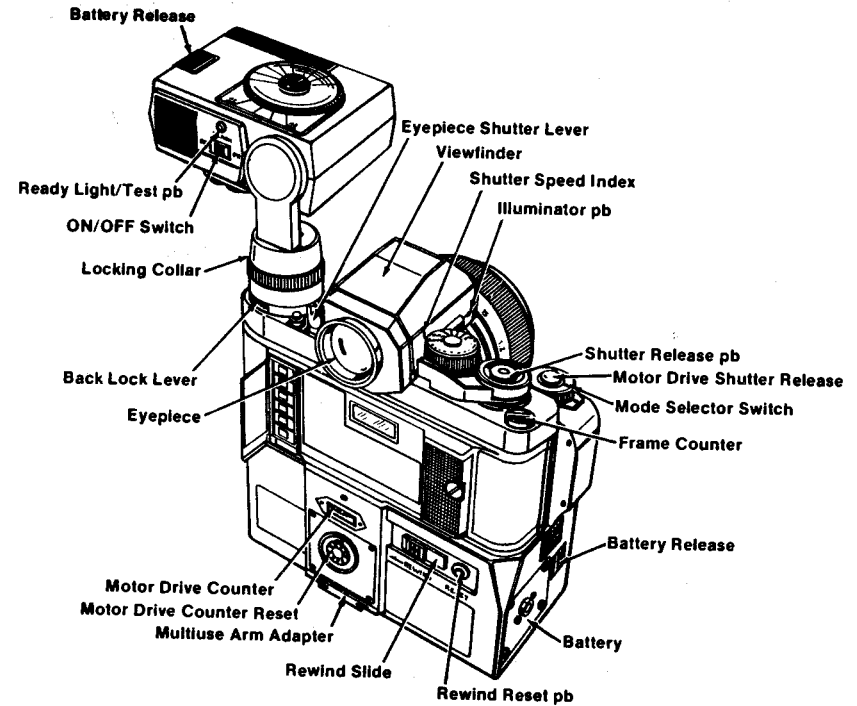
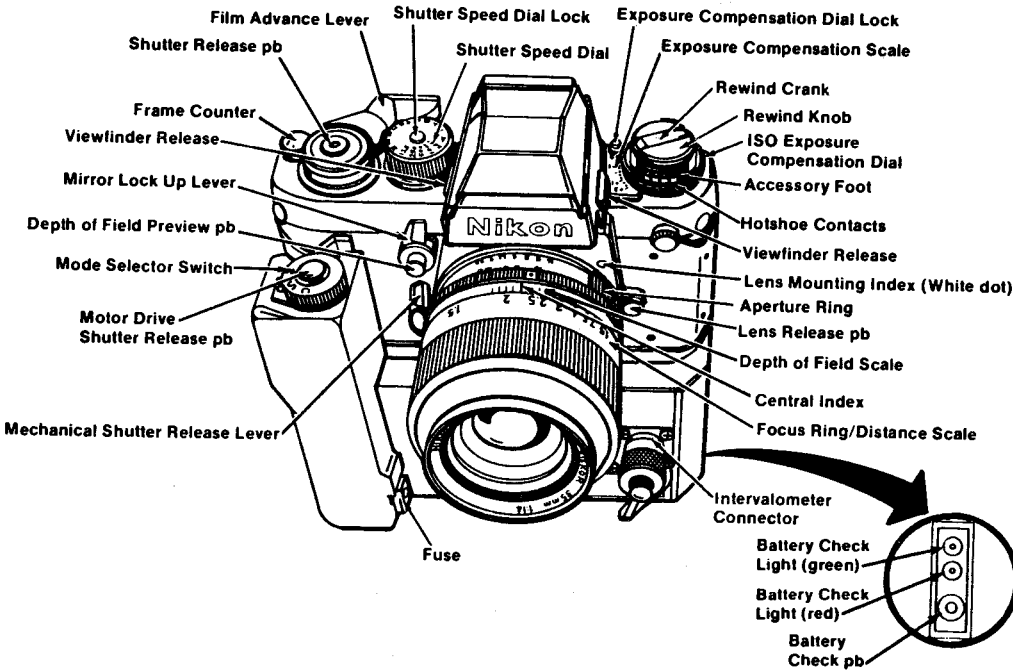
16mm Camera System Display and Control Nomenclature for Reference Use

16mm CAMERA SYSTEM DATA



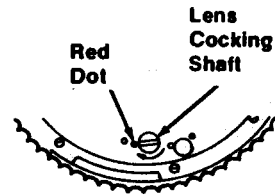
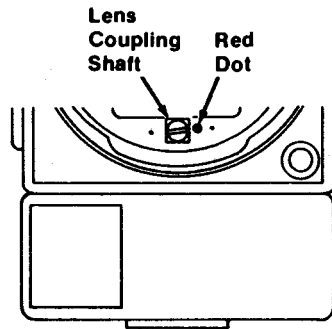
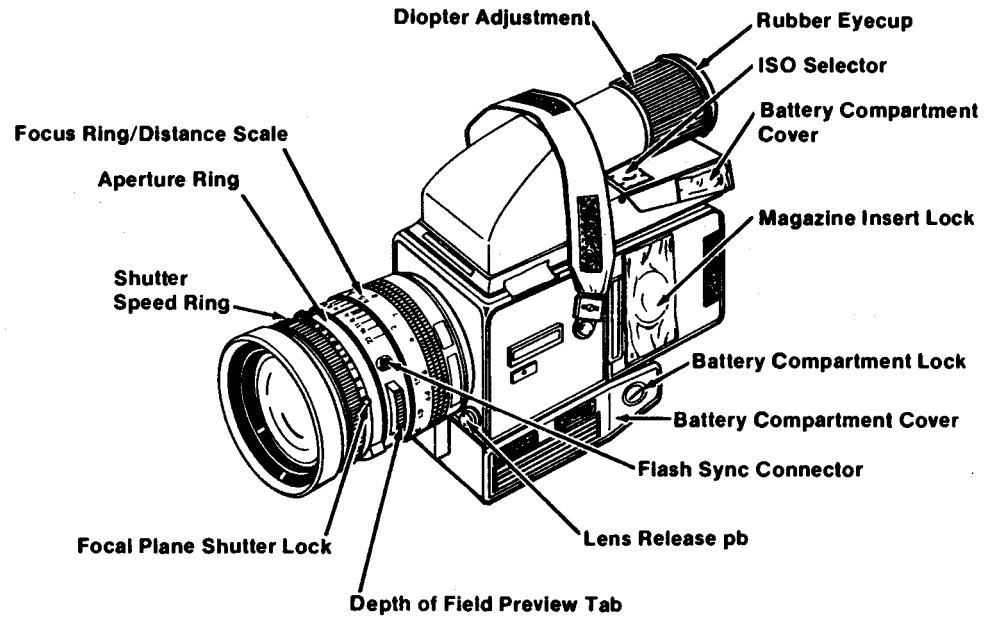
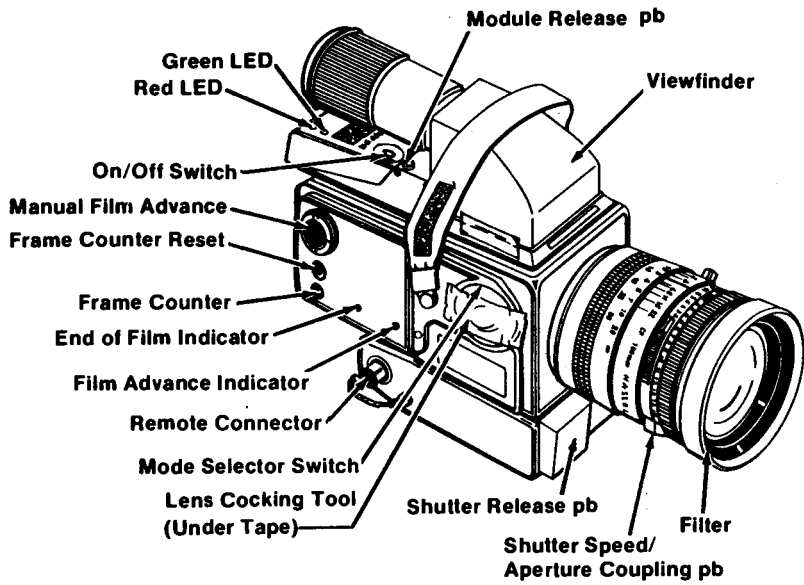
16mm Camera System Display and Control Nomenclature for Reference Use

35mm CAMERA SYSTEM DATA



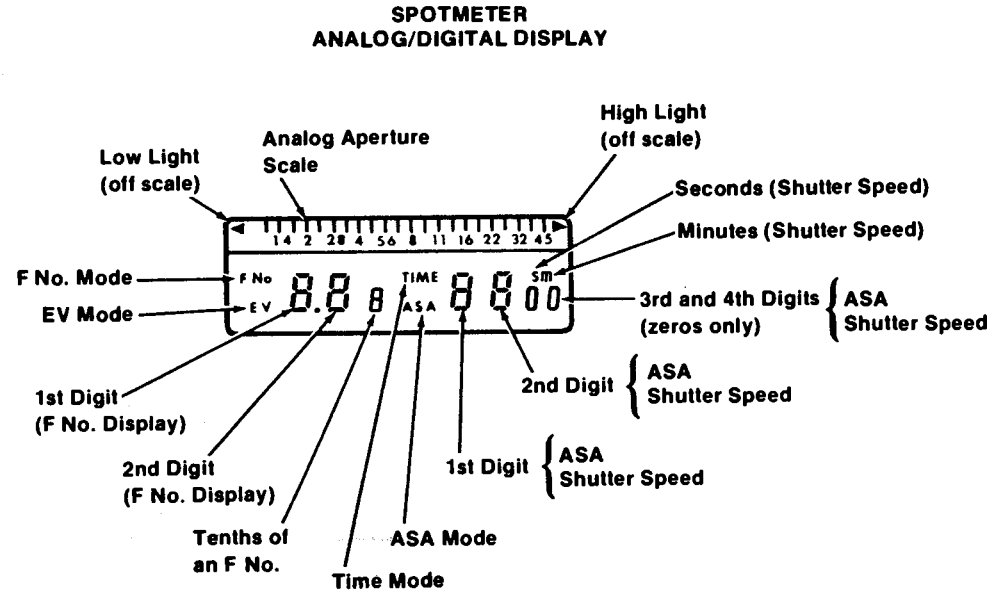
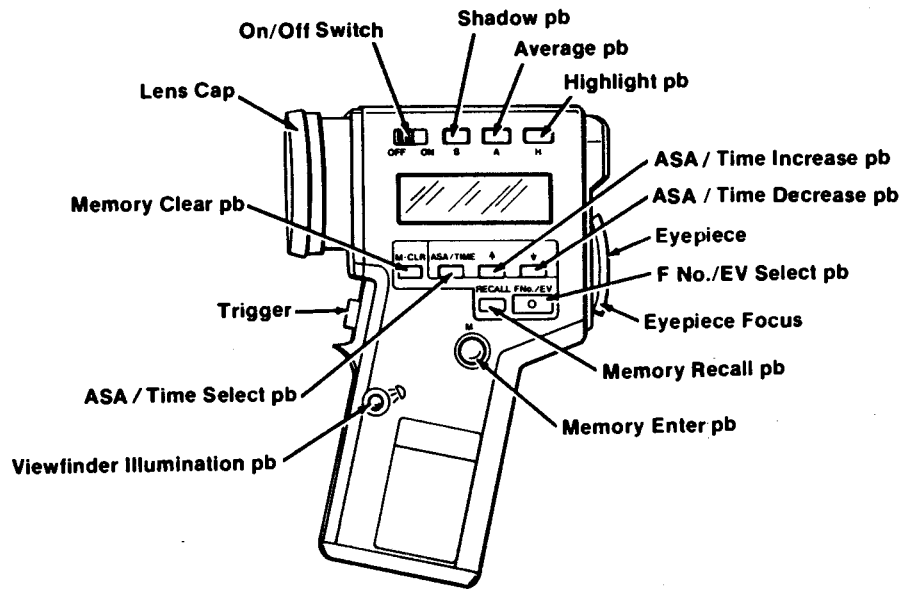
35mm Camera System Display and Control Nomenclature for Reference Use

70mm CAMERA SYSTEM DATA



70mm Camera System Display and Control Nomenclature for Reference Use

SPOTMETER DATA



Spotmeter Display and Control Nomenclature for Reference Use

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P/TV MALFUNCTIONS

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16mm CAMERA SYSTEM MALFUNCTIONS

CAMERA FAILS TO RUN WITH OPERATE SWITCH

LOW BATTERY

- Depress test button
- If no green lt replace batt

BATTERY NOT FULLY SEATED

- Push batt down completely

JAMMED FILM MAGAZINE

- Reload or change out mag

BROKEN OPERATE LEVER

- Lever moves freely
- Depress the aux camr release button using 12 gauge pin from the IFM Pin Kit
- If camr runs when button depressed (approx 1/4 in.), contact MCC

CAMERA FAILS TO RUN WITH HANDGRIP

OPERATE LEVER IN OFF POSITION

- Place operate lever in STANDBY

HANDGRIP NOT CONNECTED

- Connect handgrip plug

BROKEN HANDGRIP MICROSWITCH

- Remove handgrip and stow
- Operate camr with OPERATE switch

LENS WILL NOT FOCUS

VIEWFINDER NOT SET FOR EYE

- Adjust eyepiece

SUBJECT TOO CLOSE FOR LENS

- Check subject distance

ZOOM LENS IN MACRO MODE

- Rotate zoom from MACRO mode

CANNOT SEE THRU VIEWFINDER

VIEWFINDER SHUTTER CLOSED

- Move eyepiece shutter lever

LENS STOPPED DOWN

- Adjust 5.9mm lens to wide open
- Check Zoom Lens aperture set to "A"

EYEPIECE LIGHT TRAP LOCKING RING

UNLOCKED

- Remove rubber eyecup
- Tighten locking ring cw until lt trap fully open

MIRROR SHUTTER NOT ALIGNED

- Actuate camr by depressing test button
- Verify center green lt
- If no green lt change batt
- Depress test button
- Camr should stop with mirror aligned
- Check viewfinder

CAMR OPERATE LEVER WILL NOT MOVE TO OFF

MEMORY LOCK LEVER LOCKED

- Slide memory lock lever to unlock

RED LIGHT IN VIEWFINDER COMES ON and STAYS ON

LOW BATTERY

- Change batt

JAMMED FILM MAGAZINE

- Reload or change out mag

MOTOR SYNC CONTROL INOPERABLE

- Internal electronic failure
- Discontinue use of camr

35mm CAMERA SYSTEM MALFUNCTIONS

CAMERA FAILS TO OPERATE

MOTOR DRIVE COUNTER AT 0

- Reset counter

END OF FILM

- Rewind film
- If red batt check lt on,
manually advance camr to clear red lt
- Reload

REWIND SLIDE NOT RESET

- Depress rewind reset pb

SHUTTER LOCKED IN "A"

- Rotate shutter speed dial
out of "A"
- Return shutter speed to "A"

BATTERY LOOSE

- Remove batt and reinstall
- Verify batt locked
- Depress batt check pb to
verify good batt

BATTERY DEAD

- Depress batt check pb
- If red lt on or no light replace batt

CAMERA PARTIALLY ADVANCED

- Complete manual film advance

CANNOT SEE THRU VIEWFINDER

EYEPIECE SHUTTER CLOSED

- Red shutter visible in eyepiece
- Move eyepiece shutter lever cw

SHUTTER LOCKED IN "A"

- Rotate shutter speed dial
out of "A"
- Return shutter speed to "A"

MIRROR LOCKED UP

- Rotate mirror lockup lever to
the vertical position

FLASH READY LIGHT BLINKS CONTINUOUSLY BEFORE EXPOSURE

FLASH NOT ATTACHED PROPERLY

- Remove flash and reinstall
- Verify locking collar rotated
fully cw

ISO DIAL SET > ISO 400

- Reset ISO dial and/or exposure
compensation dial

READY LIGHT COMES ON SLOWLY (CHARGE TIME > 20 SEC)

FLASH BATTERIES WEAK

- Change out all flash batts

READY LIGHT DOES NOT COME ON

FLASH BATTERIES DEAD

- Change out all flash batts

70mm CAMERA SYSTEM MALFUNCTIONS

CAMERA FAILS TO OPERATE

DARKSLIDE INSTALLED

- Remove darkslide

MAGAZINE OUT OF FILM

- ✓ Rear mag signal red
- Replace with new mag

BATTERY DEAD

- Remove both batts
- Install one spare batt

FUSE BLOWN

- Replace fuse with spare
- Install new film mag

LENS PARTIALLY REMOVED

- Rotate lens cw
- Actuate camr and check ops

INTERNAL HANGUP

- Remove film mag and stow camr
- Do not attempt to remove lens unless camr has completed cycle

LENS WILL NOT FOCUS

VIEWFINDER EYEPIECE NOT SET FOR EYE

- Set eyepiece adjustment

SUBJECT TOO CLOSE FOR LENS

- Check subject distance

CANNOT SEE THRU VIEWFINDER

MIRROR LOCKED UP

- Turn mode selector to 0
- Actuate camr

LENS STOPPED DOWN

- Release depth-of-field preview tab

CANNOT INSTALL LENS

LENS SHUTTER TRIPPED

- Use lens cocking tool to recock lens

CAMERA BODY TRIPPED

- ✓ Lens coupling shaft aligned with red dot
- Reinstall Lens

CANNOT REMOVE LENS

CAMERA BODY TRIPPED

- Turn mode selector to 0
- Actuate camr
- If camr completes cycle remove lens
- If no action assume dead batt or blown fuse

DATA MODULE RED LED ON

DATA MODULE BATTERIES LOW

- Install new mag
- Check green LED

DATA MODULE GREEN LED FAILS TO COME ON

DATA MODULE BATTERIES DEAD

- Install new mag
- Check green LED

SPOTMETER SYSTEM MALFUNCTIONS

DISPLAY OFF/NO READING

ON/OFF SWITCH OFF

- Turn switch to ON

BATTERY NOT MAKING CONTACT

- Remove batt
- Check batt contacts
- Replace batt
- Reset FNo./EV select pb to display F No.

DEAD BATTERY

- Stow spotmeter
- No spare batts onboard

DISPLAY ON/NO READING

ON/OFF SWITCH OFF

- Turn switch to ON

METER IN ASA MODE

- Set ASA/TIME select pb to TIME

NO F NO. IN DISPLAY READING

SPOTMETER IN EV MODE

- Set ASA/TIME select pb to TIME
- Depress FNo./EV select pb with pen until F No. appears in display

FLASHING DISPLAY

WEAK BATTERY

- Stow spotmeter
- No spare batts onboard

"E" IN DISPLAY READING

LIGHT READING IS OFF SCALE

- Take a new reading

INAPPROPRIATE SHUTTER SPEED SET IN METER

- Check shutter speed
- Adjust with increase/decrease pb's

INCORRECT ASA SET IN METER

- Check ASA
- Adjust with increase/decrease pb's
- Return meter to TIME mode

"A", "S", or "H" IN DISPLAY READING

A, S, OR H PB'S DEPRESSED

- Depress memory clear pb
- Take a new reading

CANNOT CHANGE DISPLAY FROM EV TO F NO.

METER IN ASA MODE

- Set ASA/TIME select pb to TIME
- Depress F No./EV select pb with pen until F No. appears in display

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CUE CARDS

TV Cue Card Configuration (Front).....	CC 3-2
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(Back).....	CC 3-5
Earth Observation Techniques (Front).....	CC 3-6
(Back).....	CC 3-7

TOP

ACTIVATION

TV SYS MON PWR - ON
 TV PWR - PNL, MNA, CMD
 CAMR PWR - ON
 Test Pattern - Set up and adjust

OPERATION

Auto mode Sel Camr - NORM, NORM

Semi Manual Mode IRIS - OPEN/CLOSE (✓Two ALC lts - on)

Full Manual Mode (-508 camr only) IRIS - OPEN/CLOSE

Manual Modes off

GAMMA - WHITE STRCH/BLACK STRCH

Any ALC pb - push

CAUTION

Do not leave cameras unattended in Manual mode.
 Direct sunlight may damage camera

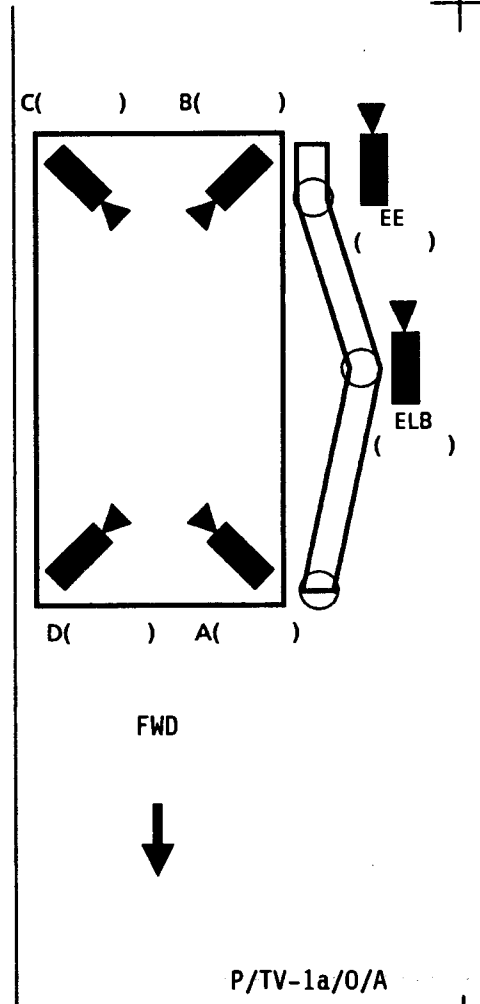
Split Screen MON 1(2) - MUX 1(2)
 MUX 1L(2L); MUX 1R(2R) - Sel Camr; NORM, NORM

TV DNLK (LIVE) Coordinate MCC Coverage
 Config A/G Audio (if reqd)
 On MCC go: DNLK - Sel Camr, MUX, or VTR

DEACT

TV ✓Cabin CAMR IRIS - CL
 CAMR PWR - OFF
 TV PWR - PNL, OFF, CMD
 MON PWR - OFF

Fabrication instructions: Cover CCTV camera diagram blanks with Scotch tape



TOP BACK OF 'TV'

HOOK
VELCRO

P/TV-1b/O/A

ACTIVATION

ORBITER VTR

VTR PWR - ON

OPERATION

RECORD

VTR RCD - Sel CAMR or MUX

VIDEO

VTR pb - PLAY/RCD (simo)

AUDIO

Connect ADS/VTR Cable between COMM CCU and VTR CCU receptacles

CONFIG

RCD ATU

Cable - RCD
AUD PWR - AUD
Desired loop - T/R or RCV, tw-0
Other loops - OFF
VTR AUD MODE - HOT MIKE

DNLK

Cable - PLBK
AUD PWR - AUD
Sel A/G 2 - T/R
Other loops - not T/R
AUD XMIT/ICOM MODE - VOX/VOX
AUD VOX SENS - MAX

SETUP
(PLBK)

Activate TV Sys, VTR
VTR AUDIO CONFIG, DNLK (if reqd)

NOTE

For extended onboard playback of VTR or other non-synchronized inputs,
S76 Comm alerts may be avoided by inhibiting Camr overtemp C&W
SPEC 60 ITEM 1 +0740847 EXEC
10 EXEC

After playback completion, Camr overtemp detection must be enabled
SPEC 60 ITEM 1 +0740847 EXEC
9 EXEC

PLAYBACK

DNLK

Coordinate MCC coverage
On MCC go: DNLK - VTR PLAY
VTR pb - PLAY

MON

MON 1(2) - VTR PLAY
VTR pb - PLAY

DEACT

VTR pb - STOP, wait 10 sec
VTR PWR - OFF

P/TV-2a/0/A

TOP
BACK OF 'ORBITER VTR'

HOOK
VELCRO

P/TV-2b/0/A

CC 3-5

P/TV/ALL/GEN

HOOK
VELCRO

EARTH OBSERVATION TECHNIQUES

HOOK
VELCRO

All Exposures at 1/250 sec

TERRAIN FEATURES	OBLIQUE VIEWS										
<p>For sites: Use exact SPOC f/stop Instantaneous: Use SPOC f/stop with modification Dark Terrain: Open lens 1 f/stop (to smaller f#) Bright Terrain: Close lens 1 f/stop (to larger f#)</p>	<table border="0"> <thead> <tr> <th data-bbox="1015 297 1138 319">CONDITION</th> <th data-bbox="1285 297 1662 319">MODIFICATION TO SPOC f/stop</th> </tr> </thead> <tbody> <tr> <td data-bbox="1015 329 1223 352">Hazy/Light Dust</td> <td data-bbox="1285 329 1536 352">- Close 1/2 f/stop</td> </tr> <tr> <td data-bbox="1015 362 1236 385">Dense Smoke/Dust</td> <td data-bbox="1285 362 1511 385">- Close 1 f/stop</td> </tr> <tr> <td data-bbox="1015 395 1168 418">Dust Storms</td> <td data-bbox="1285 395 1701 418">- Use Clouds f/stops, not SPOC</td> </tr> </tbody> </table>	CONDITION	MODIFICATION TO SPOC f/stop	Hazy/Light Dust	- Close 1/2 f/stop	Dense Smoke/Dust	- Close 1 f/stop	Dust Storms	- Use Clouds f/stops, not SPOC		
CONDITION	MODIFICATION TO SPOC f/stop										
Hazy/Light Dust	- Close 1/2 f/stop										
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Dust Storms	- Use Clouds f/stops, not SPOC										
<p>OCEANOGRAPHIC FEATURES</p> <table border="0"> <tr> <td data-bbox="237 511 635 534">Bright Sun Glint (Full field)</td> <td data-bbox="766 511 825 534">f/16</td> </tr> <tr> <td data-bbox="237 576 648 599">Mottled Sun Glint (Full field)</td> <td data-bbox="766 576 850 599">f11/16</td> </tr> <tr> <td data-bbox="237 641 687 664">Partial Sun Glint (Edge of field)</td> <td data-bbox="766 641 825 664">f/11</td> </tr> <tr> <td data-bbox="237 705 388 728">Ocean Color</td> <td data-bbox="766 705 834 728">f8/11</td> </tr> <tr> <td data-bbox="237 769 427 792">Low Sun (<30°)</td> <td data-bbox="766 769 850 792">f5.6/8</td> </tr> </table>	Bright Sun Glint (Full field)	f/16	Mottled Sun Glint (Full field)	f11/16	Partial Sun Glint (Edge of field)	f/11	Ocean Color	f8/11	Low Sun (<30°)	f5.6/8	<p>COLOR IR PHOTOGRAPHY</p> <p>70mm Camr/250mm Lens/Color IR Mag Yellow Wratten 12 Filter Use exact SPOC f/stop</p> <p>Subjects: Croplands, altitudinal vegetation bands, and deforestation/revegetation patterns. Check notes section of MET list for specific sites</p>
Bright Sun Glint (Full field)	f/16										
Mottled Sun Glint (Full field)	f11/16										
Partial Sun Glint (Edge of field)	f/11										
Ocean Color	f8/11										
Low Sun (<30°)	f5.6/8										
<p>ATMOSPHERIC FEATURES</p> <p>Clouds: Use SPOC f/stop with modification. Close lens 1½ f/stop (to larger f#)</p> <p>Earth Limb: Use 250mm lens. Avoid Sun disc in frame. Take several photos</p> <p>Sunset: Begin when 1/4 of Sun above horizon f8/11 Sunrise: Begin 90 sec before sunrise f8/11</p>	<p>STEREO PHOTOGRAPHY (60% overlap)</p> <p>Locate key feature & make 3 exposures</p> <ol style="list-style-type: none"> 1 Feature enters field of view 2 Feature crosses center 3 Feature exits field of view <p>Intervals for _____ nm orbital altitude (see back):</p> <table border="0"> <thead> <tr> <th data-bbox="1109 1033 1250 1056"><u>Hasselblad</u></th> <th data-bbox="1438 1033 1520 1056"><u>Linhof</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="1083 1066 1301 1089">250mm - _____ sec</td> <td data-bbox="1393 1066 1611 1089">250mm - _____ sec</td> </tr> <tr> <td data-bbox="1083 1099 1301 1122">100mm - _____ sec</td> <td data-bbox="1393 1099 1611 1122">90mm - _____ sec</td> </tr> <tr> <td data-bbox="1083 1132 1301 1155">50mm - _____ sec</td> <td></td> </tr> </tbody> </table>	<u>Hasselblad</u>	<u>Linhof</u>	250mm - _____ sec	250mm - _____ sec	100mm - _____ sec	90mm - _____ sec	50mm - _____ sec			
<u>Hasselblad</u>	<u>Linhof</u>										
250mm - _____ sec	250mm - _____ sec										
100mm - _____ sec	90mm - _____ sec										
50mm - _____ sec											

P/TV-3a/0/A

For flight only: Cover 'STEREO PHOTOGRAPHY' blanks
 with Scotch tape

TOP
BACK OF 'EARTH OBSERVATION TECHNIQUES'

STEREO PHOTOGRAPHY INTERVALS
(60% overlap)

HOOK
VELCRO

HOOK
VELCRO

HASSELBLAD		
LENS	ORBITAL ALTITUDE (nm)	STEREO INTERVAL (sec)
250mm	160-220	3
	220-270	4
	270-300	5
	300-360	6
100mm	120-140	7
	140-155	8
	155-175	9
	175-215	10
	215-250	12
	250-285	14
50mm	285-320	16
	110-124	13
	124-132	14
	132-140	15
	140-150	16
	150-158	17
	158-168	18
	168-176	19
176-186	20	

LINHOF		
LENS	ORBITAL ALTITUDE (nm)	STEREO INTERVAL (sec)
250mm	160-200	7
	200-220	8
	220-250	9
	250-270	10
	270-300	11
90mm	120-130	13
	130-140	14
	140-155	15
	155-160	16
	160-180	17
	180-200	20
	200-250	25

P/TV-3b/0/A

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FLIGHT DATA FILE
CORE DISTRIBUTION
10/07/87

JSC
AP/Director
AP3/Support (2)
Pub. Information
CA7/Chief
DF24/INCO (4)
DF4/Crew Sys. (2)
DF75/Sys. Analysis Sect.
DG6/Rockwell
DH4/DFD MGR
FAO
T/L
Flt. Act Br (11)
DH6/Branch Off.
EC/Chief
EC6/Shuttle Support Branch (2)
EF2/Chief
EH3/Chief
Support
EH4/Chief
EX/DFD Rep.
JM2/Technical Library (3)
NS/Safety Div.
SD2/Surgeon Support (3)
SP4/Head
TM/Mgr
VF/Manager
VF3/Support
VF5/CPCB Rep.
VP/GFE Project Office
ZR1/MMC Library (2)
SD-DET2 (2)

Allied/Bendix Aerospace
OAG Suite 450
10210 Greenbelt Rd
Seabrook, MD 20706
Attn: J. F. Ryan (3)

Boeing
HS-04/D. Bennett

NASA Headquarters
MC/C. Lee

Kennedy Space Center
LSO-038/Tech. Data
LSO-207/J. Likon
LSO-209/Eng Learning Ctr,
VAB Rm MK3
TP-TMS-A/Astronaut Office (2)
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