

ALARM CODES (PDI)

CODES	DEFINITION	ACTION
00214	LGC USING IMU WHEN POWER TURNED OFF	GUID CONT - AGS
00402 (4 TIMES)	DAP STEERING LOST	GUID CONT - AGS
00511	NEITHER OR BOTH LR ANT POSITION DISCRETES PRESENT	LDG ANT - HOVER, NO ΔH (N63) UPDATE (10 SEC): LDG ANT - DES
01107	PHASE TABLE DISCREPANCY	GUID CONT-AGS (LAND MANUALLY IF DESIRED)
RECURRING 01406	TGO COMP FAIL (P64)	NO GUIDANCE, SWITCH TO P66 OR SWITCH TO AGS
RECURRING 01410	DES GUIDANCE EQUATIONS OVERFLOW (P64)	NO GUIDANCE, SWITCH TO P66 OR SWITCH TO AGS
01412	NON CONVERGING P63 TIG	MSFN UPLINK NEW S.V. & TARGET
01466	INSUFFICIENT THROTTLE SERVICING (P66)	IF RECURS, MAN THR & ATT HOLD (or AGS)
01703	TIG SLIPPED DUE TO INTEGRATION	SLIP PDI ONE REV
2XXXX	ALL P00D00'S (EXCEPT 21406)	GUID CONT - AGS
21406	BAD RETURN FROM TIME TO TGT RTN (P63)	MSFN UPLINK NEW S.V. & RECALL P63
RECURRING 3XXXX	ALL SOFTWARE RESTARTS (BAILLOUT)	CONTINUE-INSURE NO UNSAFE CONDITION DEVELOPS.
N49	RMAX VMAX <.3nm; 2.0fps	1. IF STEADY STATE-RESET 2. REJECT FIRST MARK THEN ACCEPT NEXT COUPLE OF MARKS AND MONITOR FOR NEXT CONVERGENCE >2.0nm OR 12.0fps PRIOR TO CSI OR >.8nm OR 5.0fps AFTER CSI CONSIDERED EXCESSIVE
F97N63	LGC THINKS ENG FAILED	PRO TO SET ΔV MON. DO NOT ENTER BECAUSE IT WILL SLIP TIG IF RECURRING, NO GUIDANCE

MISSION RULES NO-GO'S

	PRE PDI	PDI TO PDI +6+10	PDI +6+10 TO HI GATE	HI GATE TO TD
EPS	ONE DC BUS ONE DESCENT FEEDER SHORTED ONE ASCENT FEEDER SHORTED 4 DESCENT BATS ONE ASCENT BAT BOTH INVERTERS AC BUS A AND B	ABORT ABORT ABORT ABORT ABORT ABORT ABORT	ABORT ABORT ABORT ABORT ABORT ABORT ABORT	ABORT ABORT ABORT GO GO GO GO
ED	ONE PYRO SYSTEM ARMED ONE PYRO SYSTEM DEARMED ONE STAGING RELAY CLOSED ONE PYRO SYSTEM BATTERY	ABORT ABORT ABORT ABORT	ABORT GO ABORT GO	ABORT GO ABORT GO
ECS	CABIN PRESS <4.4 4.0 SUIT LEAK BOTH SUIT FANS BOTH DEMAND REGS BOTH H2O SEPS BOTH DESCENT O2 TANKS BOTH ASC O2 TANKS PRI OR SEC COOLANT LOOP PRI OR SEC H2O FEED BOTH DESCENT H2O TANKS BOTH ASC H2O TANKS	ABORT ABORT ABORT ABORT ABORT ABORT ABORT ABORT ABORT ABORT ABORT	ABORT ABORT ABORT ABORT ABORT ABORT ABORT ABORT ABORT ABORT ABORT	GO ABORT GO GO GO GO GO GO GO GO GO
G&C	PGNS GUID STEER 3 AXIS ATT CONT PGNS RATE CMD & PGNS AUTO AGS RATE CMD 2 ACA AUTO +X & AUTO DPS IGNITION 2 FDAI-ATT/RATE/ERR LR REDNT APS ON P & R GDA TRIM (IMPING CONST VIOL) MANUAL THROTTLE (2 TTCA) & AUTO THROT	ABORT ABORT ABORT ABORT GO OPTION ABORT ABORT ABORT ABORT	ABORT ABORT ABORT ABORT GO OPTION ABORT GO ABORT ABORT	GO OPTION OPTION OPTION GO OPTION GO GO ABORT ABORT
DPS	PROP LEAK (ΔQ FU/OX > 10%) FU OR OX INLET/ULLAGE < 160 BINGO/2%	ABORT ABORT	ABORT ABORT	ABORT ABORT ABORT
APS	PROP LEAK FU/OX INLET PRESS < 62, > 220 APS HE 1 OR 2 DECREASING	ABORT ABORT ABORT	ABORT ABORT ABORT	ABORT ABORT ABORT
RCS	HE/PROP LEAK PROP LEAK (DOWNSTREAM OF MAIN) FU/OX MNFLD A OR B PRESS < 100	ABORT ABORT	ABORT ABORT	GO GO

541077
7/14/71

CDR Egress Feet First and Transfer To CSM, LMP Tend Lifeline

CDR Ingress CSM Head First, Face Toward MDC, and Move To LEB
Retrieve C 02 Hoses and Comm Umbilical

CMP Connect C Comm Umbilical To CDR

CDR Configure Audio Panel As Desired (Vac transfer to ECS if necessary, CMP cue card)

CDR Secure Position In LEB & Tend Lifeline For LMP

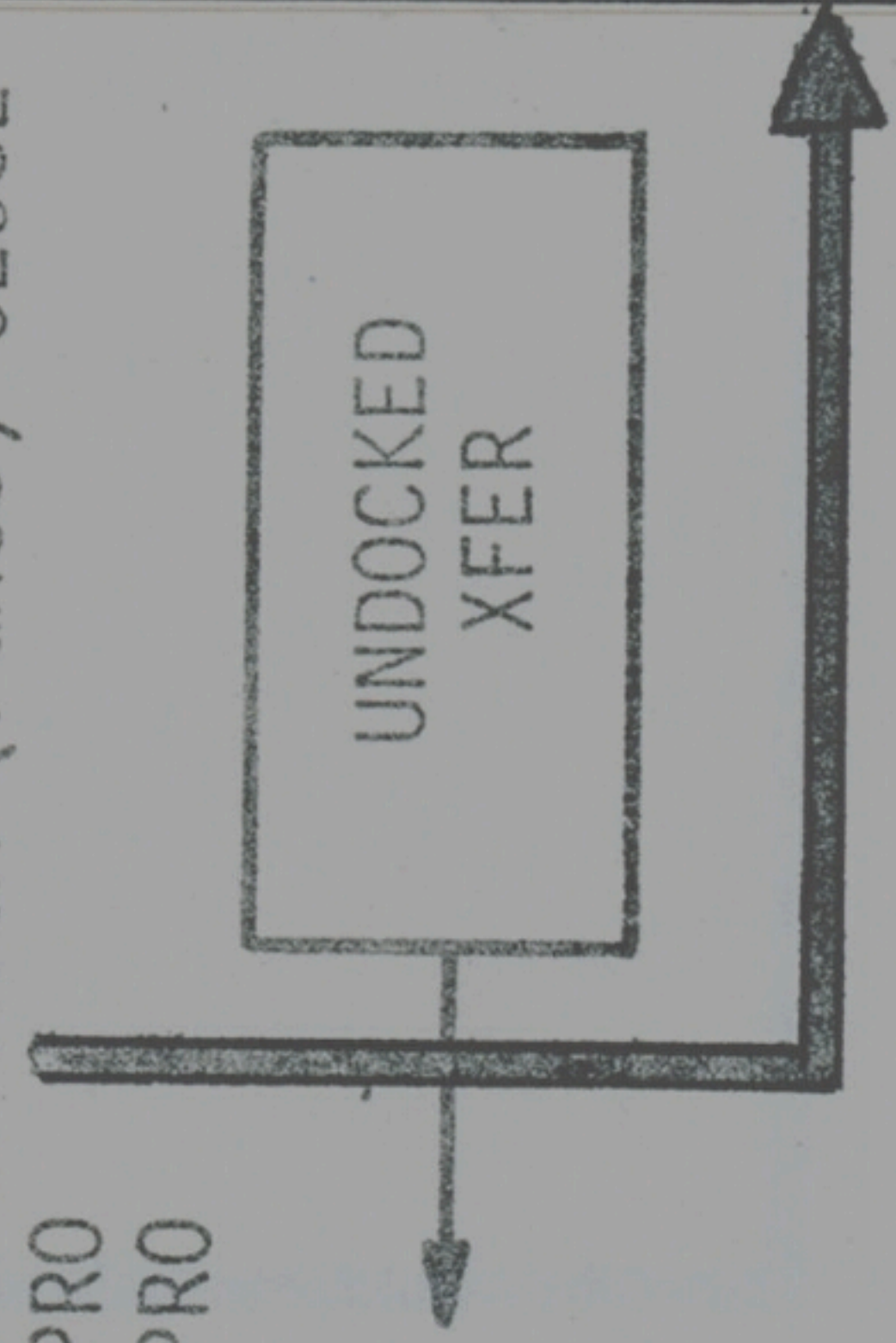
LMP Egress Feet First and Transfer to CSM, Remove ISA, push inside - if T <15 min, return to LM, retrieve SRC on floor

LMP Ingress CSM Feet First, Face Toward MDC, and Assume Position In Center Couch Area

CDR Connect R Electrical Umbilical to LMP

CMP Close Hatch

 * CB(11) STAB CONT: ATCA (PGNCS)-CLOSE
 * V48E, 12021 PRO
 * LOAD LM WT, PRO
 * V25N07E
 * 1257E
 * 303E
 * 1E
 * V25N07E
 * 1260E
 * 6E
 * 1E
 * V01N01E, 1257E, VER 00303, E
 * 1260E, VER (00006)
 * V48E, PRO, PRO
 * TTCA/TRANS (2) - DISABLE
 * ACA PROP (2) - DISABLE



CSM Maneuver Apex to LM Forward Hatch

CDR, Then LMP, Egress Feet First, Move Along Handrails to CSM
LMP Tend Lifeline

CDR Ingress CSM, Head First, Face Toward MDC, And Move To LEB
Retrieve C 02 Hoses And Comm Umbilical

CMP Connect C Comm Umbilical To CDR

CDR Configure Audio Panel As Desired Secure Position In LEB And Tend Lifeline For LMP

LMP move to CM hatch, remove ISA, push inside, if T <15 min, return to LM - attach small hook to SRC on floor, return to CM

LMP Ingress CSM Feet First, Face Toward MDC, and Assume Position In Center Couch Area

CDR Connect R Electrical Umbilical To LMP

CMP Close Hatch

 LEVA - Lower As Required
 OPS 02 - On
 SUIT ISOL VALVES (Both) - SUIT DISC
 Purge Valves - OPEN (Give Mark To CMP For T+25 Min On OPS)
 Verify O2 Flow & PGA Press 3.4-4.0 Psig
 Disconnect LM O2 Hoses
 Disconnect LM Comm Umbilical
 Stow LM Hoses
 CDR Transfer To CSM LEB (LMP Manage Lifeline)
 LMP Transfer To CSM Center Couch Area (CDR Manage Lifeline)

CSM Maneuver to LM

CDR Egress Feet First, Move to EVA Handrail Clear of Hatch
LMP Tend Lifeline

LMP Egress, Move Up EVA Handrail

CDR and LMP Push Away from LM at Same Time (Give Signal, Pull In, Push Off)

CSM Maneuver Apex to CDR and LMP

CDR and LMP Use CSM Handholds to Move To Side Hatch

CDR Ingress CSM, Head First, Face Toward MDC, And Move To LEB
Retrieve C 02 Hoses And Comm Umbilical

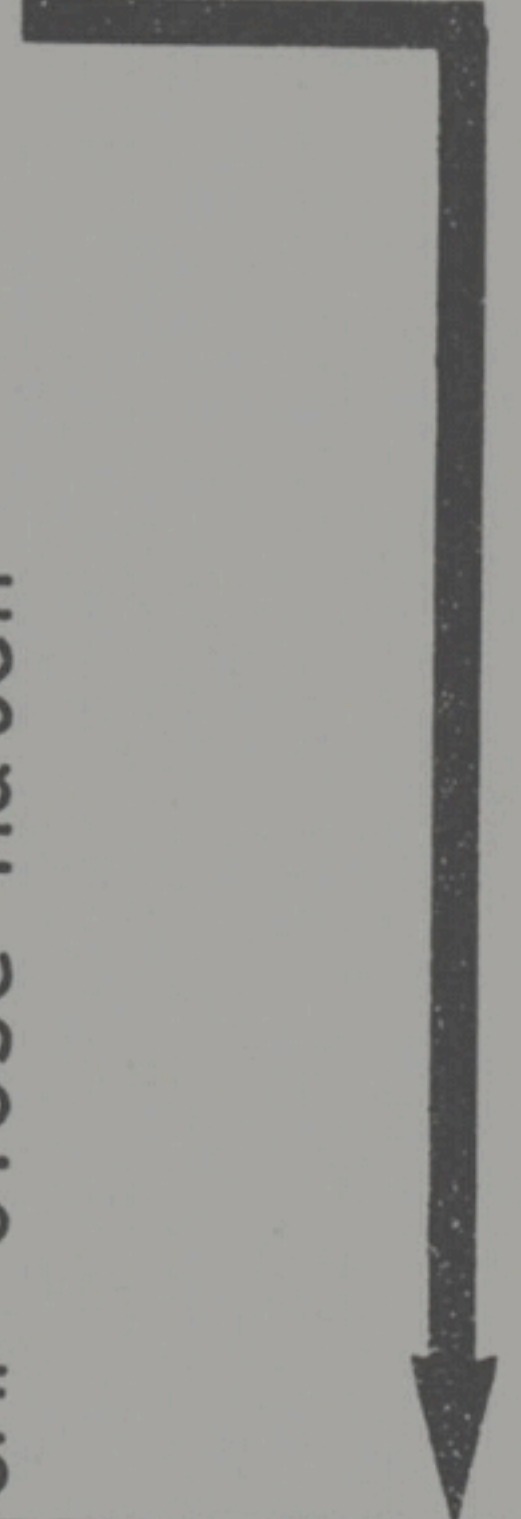
CMP Connect C Comm Umbilical To CDR

CDR Configure Audio Panel As Desired Secure Position in LEB And Tend Lifeline For LMP

LMP Ingress CSM Feet First, Face Toward MDC, and Assume Position In Center Couch Area

CDR Connect R Electrical Umbilical To LMP

CMP Close Hatch



PREP FOR EGRESS

Configure CB's As Required
 Doff IV Gloves, Stow Under Netting Behind LMP
 Doff Helmets, Verify Feedport Cover Installed
 Apply Antifog
 Stow Helmets On Ceiling
 Verify Wristwatch Donned
 FWD Hatch Handle - UNLOCK
 Verify With CMP That Tun1 Is Depressed
 Verify - PGA Zipper Locked
 Stow COAS On Fwd Window Mount
 Stow DEDA & DSKY Desk, Loose Items

EQUIPMENT PREP (OPTIONAL)

Install 2 spring bungees vertically in recharge station for temp stowage of ISA and SRC. Attach both to top horiz bar, secure one to BSLSS tie-down and other to lower snap on LH eng cover.

Place transfer items in ISA:

- SEQ Mags - 6 RHSSC, 2 bot boot box, 1 ISA, 1 camera
- 70mm mags - 7 RHSSC, 6 bot boot box
- PPK's - Aft of SRC's
- Other rock bags optional

Remove ISA, extend straps, tie straps diagonally to minimize size
 Stow ISA behind bungees in recharge sta

Unstow one SRC, stow behind bungees
 Unstow 2nd SRC, stow on floor fwd CDR sta, T-handle fwd, bot face inboard
 Route CDR's outboard restraint cable over top to secure

OPS DONNING

Stow PGA Gas Connector Plugs & LCG Plugs in PGA pocket
 Unstow OPS Straps & Purge V1vs (LHSSC) Purge V1vs - Hi
 Don Purge Valves (Upper Red)
 Don OPS Straps (Break Stitches 2 Places Remove Keeper, Extend To Max Length, Route Thru PGA LH D-RING With Adjustable Strap On RH Side)

LMP 1st - Unstow OPS & Checkout * * * *
 Vrfy OPS Reg Decays To 2.5 PSI (~3 Min)
 Unstow OPS 02 Gas Hose
 Remove 02 & Water Hoses
 Secure OPS To OPS Straps (Do Not Twist Strap)
 Connect OPS Hose To PGA (Inboard Blue)
 Conn ECS Hoses (R/R, B/B) & Water Hose
 Fix OPS Flaps To Expose Press Gage
 CDR Repeat OPS DONNING * * * *

CB(11) ECS: CABIN FAN - Open (VERIFY)

Unstow Lifeline/Tethers - RHSSC
 Verify Small Hooks Attached to Lifeline
 Attach Waist Tether Hooks To PGA (Connect To LMP RH Side, Route In Front of LMP & Behind CDR & Connect To CDR LH Side, Verify Hooks Locked)
 Secure Tool B (aft RHSSC) to CDR tether if required

Verify LM 02 Hoses - R/R, B/B
 PGA Diverter Valves - Vertical
 Don Helmets
 Don LEVA's, Verify Helmet Aligned
 CK Conn - Hel, 02, Comm, Purge V1vs
 Verify LM Restraints Removed
 Don EV Gloves, Verify Locked

SUIT INTEGRITY CHECK

SUIT GAS DIVERTER - PULL-EGRESS
 CABIN GAS RETURN - EGRESS
 SUIT CIRCUIT RELIEF - CLOSE

 * SEE NEXT *
 * PAGE FOR *
 * UNDOCKED *
 * XFER *

PRESS REG A - EGRESS
 PRESS REG B - DIRECT 02
 Monitor CUFF GAGE 3.7-4.0 PSIG Then
 PRESS REG B - EGRESS (Cuff Gage Decay <.3 Psig in 1 Min)
 Verify Purge Valves Accessible

SUIT CIRCUIT RELIEF - AUTO (SUIT CKT)
 PRESS DECAYS TO 4.8 PSIA)
 Confirm CSM Side Hatch Open And
 CMP Go For LM Depress

LCG - COLD, As REQ'D
 CB(16) ECS: LCG Pump - Open
 Disconnect LM H2O Hoses
 Inspect EMU

CABIN DEPRESS

CB(16) ECS: CABIN REPRESS-OPEN
 CABIN REPRESS VLV - CLOSE (VERIFY)
 Fwd Dump Valve - OPEN Then AUTO At 3.5 Psia
 Verify LM Suit Press 3.6-4.3 Psia And Decaying Slowly
 Fwd Dump Valve - OPEN
 Monitor Cabin Press To 0 Psia
 Verify LM Suit Press 3.6-4.3 Psia

HATCH OPENING

Unstow SRC behind bungee, CDR attach small hook, lock
 LMP unstow ISA, Attach small hook, lock

Open Hatch
 LMP Verify XFER Items Ready
 VERIFY/PERFORM:

CB(11) STAB/CONT: ATCA (PGNS) - OPEN
 AELD - OPEN
 ATT DIR CONT - OPEN
 CB(16) STAB/CONT: ATCA (AGS) - OPEN
 AELD - OPEN

TURN CARD OVER AND REVIEW XFER METHOD

ABNORMAL VEHICLE DYNAMICS

RAPID IMU REALIGN

Use ACA Hardover to Stabilize Vehicle
 If RCS TCA LT ON-CB QUAD TCA - OPEN
 GUID CONT-AGS, MODE CONT-ATT HOLD, ATT CONT(3)-MODE CONT,
 V77E (PGNS ONLY)
 If Not Stabilized-CB(11) STAB/CONT:ATT DIR CONT-OPEN
 If Not Stabilized-TTCA/TRANSL(2) - DISABLE, DEADBAND - MAX
 If Not Stabilized-ACA PROP(2) - DISABLE

- 1) AGS INERTIAL FDAI TO 0°, 0°, 0°
 - 2) V41 N20E, E, E, E,
 - 3) V40 N20 0°, 0°, 0° ON AGS FDAI, ENTR
WAIT 11 SEC.
 - 4) P51E, PRO, POOE
 - 5) V25N07E, 77E, 10000E, 1E
 - 6) PERFORM P52, OPTION 3 (AUTO OPTICS ARE GOOD)
- NOTE: FOR TEMPORARY LOSS OF CDR'S BUS, UPDATE
 LGC CLOCK WITH V55 TO COMPLETE RECOVERY.

LIGHT	MEANING	IMMEDIATE ACTION (POSSIBLE OPERATIONAL IMPLICATIONS)
DC BUS BATTERY C&W LTS: ASC PRESS CES AC AGS LGC	CDR BUS FAILURE SUIT/FAN INVERTER RNDZ RDR PRE AMPS HEATER ECS S-BD RCVR	(DPS GOES TO 100% And GDA LOCKED) GUIDE CONT - AGS, SUIT FAN - 2, CDR AUDIO CONT - BU, S-BD-XMTR/RCVR & PWR AMPL - PRIM, INV 2, Activate Sec Glycol Loop TO START DPS: DES ENG CMD OVRD - ON TO STOP DPS: DES ENG CMD OVRD - OFF, ENG ARM - OFF TO START APPS: AGS Auto ON TO STOP APPS: AGS Auto OFF, ABORT STAGE - Reset
DC BUS BATTERY C&W LTS: CES AC CES DC AGS	LMP BUS FAILURE RCS TCA INVERTER PRE AMPS	(DPS GOES TO 100% And GDA LOCKED) GUID CONT - PGNS, SUIT FAN - 1, LMP AUDIO CONT - BU, PWR AMPL - SEC, INV 1 TO START APPS/DPS: ENG START - PUSH TO STOP APPS/DPS: ENG STOP - PUSH
ASC PRESS	Either He PRESS<2775psi (Before Staging)	IF APPS NOT PRESSURIZED - CONSULT MSFN, GO TO MAL PROC APPS-1 IF APPS PRESSURIZED - CLOSE ASC He REG 1 & 2: MONITOR ASC He PRESS; IF BOTH <2775 AND DECREASING - IMMEDIATE LIFTOFF MONITOR FUEL/OXID PRESS: IF EITHER DECREASING - IMMEDIATE LIFTOFF
DES REG	220 psi>He Press>260psi	DES He REG 1 - CLOSE, DES He REG 2 - OPEN Monitor TEMP/PRESS, Maintain in FUEL & OXID>160psi
CES AC	ATCA AC Out of Tolerance	GUID CONT - PGNS, GYRO TEST - POS RT. If Light Stays ON, CWEA Fail. Poss Loss of AGS Control, FDAI Rate Needles Unreliable, RR Usable In LGC Mode Only.
CES DC	ATCA DC Out of Tolerance	GUID CONT - PGNS, GYRO TEST - POS RT. If Lt Stays ON, CWEA Fail, If Lt OFF - Cycle CWEA CB, If Lt Stays OFF, Cycle DECA GMBL AC CB To Unlock Throttle. If Lt Reappears: Poss GDA Lock-up, DPS To 100%, No AGS Attitude Control
AGS	AGS Power Supply Out of Tolerance, AGS Heater Failed ON, AGS Self Test Failed	GUID CONT - PGNS. If PGNS Unavailable: MODE CONT (AGS) - ATT HOLD, AGS RATE CMD OK, But NO ATT HOLD (Free Drift). 412R, Self Test.

UNSTAGED (M45)
STAGED (M47)

(M37)

(M31)

(M27)

(M27)

(M17)

LIGHT	MEANING	IMMEDIATE ACTION (POSSIBLE OPERATIONAL IMPLICATIONS)
LGC	LGC Power, Scaler, or Counter Fail	GUID CONT - AGS. Poss No Auto Eng Shutdown. If RESTART Lt ON, LGC Fail. CB(11)AEA - CLOSE (M10)
ISS	IMU, ICDU or PIPA (Thrusting) FAIL	GUID CONT - AGS. Pos No Auto Eng Shutdown. IF PROG Lt NOT On, CWEA Fail. CB(11) AEA - CLOSE (M9)
RCS TCA	One Or More Thrusters Fail Off, Collinear Thrusters Firing Simultaneously	If Stable, Recycle CWEA. If Unstable (or unusual thruster activity) or PDI 10% THROT Affected CB QUAD TCA - Open, LGC THR PAIR CMDS - DISABLE During ullage (PDI), if RCS TCA lite and quad flag comes on: Pull CB for 1st flag. If 2nd flag appears, pull CB, DISABLE and reclose 1st CB (M42)
RCS A REG RCS B REG	165psi > Reg Press > 218psi	Monitor MANF PRESS, When < 100psi: Bad System MAIN SOV - CLOSE, CRSFD - OPEN (M42)
ASC HI REG	Manf Press > 220psi	ASC He REG 1 & 2 CLOSE, When < 220psi, Open Each REG Separately. (M38)
ASC QTY	< 10 Sec Burn Time	MAIN SOV (2) - OPEN, ASC FEED 2 (2) - CLOSE (M38)
ENG GMBL	GMBL Cmd/Response Discrepancy	ENGN GMBL - OFF. If Lt Still ON: ENG GMBL - ENABLE (CWEA FAIL) (M25)
INVERTER	AC VOLTS < 112 398 > FREQ > 402	Check AC VOLTS & FREQ. Switch to INV - 2. Bus A&B BUS TIE INV 1 (2) - OPEN (INV 1 Feeder Short). BUS B: BUS TIE INV 2 - OPEN (BUS B Short) BUS A&B: BUS TIE INV 1 (2) - CLOSE. Select INV 1. BUS A: BUS TIE INV 2 - OPEN (INV 2 Feeder Short). BUS A: BUS TIE INV 1 - OPEN (BUS A Short, Lt Stays ON; Close BUS B: BUS TIE INV 2 Before Selecting INV 2). (M50) (M49)
BATTERY	BATT OVERTEMP REV CURRENT > 10A OVERCURRENT	UNSTAGED: Check All BATS VOLTS, AMPS & TB'S If VOLTS, AMPS OK: Faulty BAT - OFF Then ON If VOLTS, AMPS NOT OK: Faulty BAT - OFF STAGED: Check BAT 5, 6 VOLTS, AMPS & TB'S If VOLTS, AMPS NOT OK: CB (11&16) CROSS TIE BUS - CLOSE Faulty BAT: NORMAL FEED - OFF, Good BAT: BACKUP FEED - ON BEFORE PDI: Do NOT Set MASTER ARM-ON, STAGE RELAY - RESET, Appropriate LOGIC POWER CB - OPEN AFTER PDI: Do NOT Set MASTER ARM - ON, STAGE RELAY - RESET If STAGE SEQ RELAYS LT Still ON: ASC He PRESS - FIRE, Monitor ASC Fuel/Oxid Press. If APS Pressurizes, ABORT (M73)
ED RELAY	ED Relays K1 To K6 CLOSE With MASTER ARM - OFF	AT PDI: MASTER ARM - OFF, Open LOGIC PWR CB On System Which Had SEQ LT - ON, MASTER ARM - ON. At Ignition Monitor DPS She And FUEL/OXID PRESS. She Tank Inoperative: STOP PB - PUSH, ENG ARM - OFF. She Tank OK: MASTER ARM - OFF, LOGIC PWR CB - CLOSE <small>ASC He PRESS - FIRE, If APS Pressurizes, ABORT</small>
STAGE SEQ RELAY LT. OFF AT PDI	Possible Relay Fail	Monitor He PRESS & RCS QUANTITY. Affected Sys: LGC THR PAIR CMDS (4) - DISABLE, MAIN SOV - CLOSE, CB(11 or 16) QUAD TCA (4) - Open. Monitor MANF PRESS Go to Ma1 Proc RCS 1 (M41)
RCS	A OR B He Press < 1700	

CONTINGENCY FEE (20%)
For Job

Joy

Сороси