LOX Load Preliminaries: LCC:
PV7 - CL MPS-19
PV9 - CL
PV19- OP MPS-34
PV20- CL MPS-34
PV21- CL þ1Of2/1Of2 þ1Of2/2Of2 -34
PD1 - OP&Latched MPS-13,MPS-15(CL OFF)&MPS-18(RPCs)
PV1 - OP MPS-35
PV2 - OP MPS-36
PV3 - OP MPS-37
PV10- OP
LV40 / LV41 OFF 1 Of 2 MPS-42

Transfer Line Chill:
PV9 - OP
Verify V41S1511E1 & V41S1518E1 ON

ORB MPS Chilldown:

LOX Slow Fill To 2%:
When 3J<34 PSIG

Sensor	Must Be<(DEGF)	Max Time(Seconds)	
3H	-288	30	
Manif. Temp A	-287.5	20	1 Of 2
Manif. Temp B	-287.5	20	Req'd

Monitor Engine Temps For<-280 And
Preburner Pump Disch Temps<205 (2 Of 2)
When 3J>34 PSIG

Sensor	Must Be<(DEGF)	Max Time(Seconds)	
3H	-291	30	
Manif. Temp A	-287.5	20	1 Of 2
Manif. Temp B	-287.5	20	Req'd
Engine Inlets	-280	0	
Preburner Temp	205 DEGR	0	

LOX Fast Fill To 98%:
3H OR Manifold Temp A OR Manif. Temp B Then In
All Cases Stop Flow From Now Till End Of Load.

4G(PSID) Must Be<(DegF)	Max Time(Seconds)
<=47 -291	0
51 -289	0
55 -287	0
59 -285	0
63 -283	0
>=67 -281	0

LOX Topping To 100%:When MPS Delta-P Approx:OV-102

Sensor	Must Be<(DEGF)	Max Time(Seconds)	
3H	-281	20	*66.5 OV-103*
Manif. Temp A	-281	20	1 of 2 *64.8*
Manif. Temp B	-281	20	Req'd *OV-104*

Replenish At 100%:
Verify V41S1511E1 & V41S1518E1 OFF

Sensor	Must Be<(DEGF)	Max Time(Seconds)	
3H	-281	20	
Manif. Temp A	-275	20	1 of 2
Manif. Temp B	-280	20	Req'd
Engine Inlets	-276	20	

Stop Flow:
PV10 - As Is
Pump Running, Bypass Loop Open

Stop Flow Limits:
"T" - OP (TSM Vent) If Below Limits Exceeded,
And Monitor For Anti-Geyser Limits.
Engine Inlet Temps With 3J>=34 PSIG, N/A 3J<34

3J(PSIG) Minus ET Ullage	Max. Temp
>=47	-286
51	-284
55	-282
59	-280
63	-278
<=67	-276

Stop Flow Anti-Geyser Limits:
Anti-Geyser Config If Below Limits Exceeded.

3J - ETUllage:	>=47	51	55	59	63	<=67
Manif. Disc A:	-275	-273	-271	-269	-267	-265
Manif. Disc B:	-280	-278	-276	-274	-272	-270
Any Eng Inlet:	-272	-271	-269	-267	-265	-263

Revert:
PV10 - CL
T-Open
Pump Not Running

Revert / Stop Drain Anti-Geyser Limits:
Anti-Geyser Config If Below Limits Exceeded.

4G Head Press:	>=47	51	55	59	63	<=67
Manif. Disc A:	-275	-273	-271	-269	-267	-265
Manif. Disc B:	-280	-278	-276	-274	-272	-270
Any Eng Inlet:	-272	-271	-269	-267	-265	-263

Head Pressure="4G"=LA-LU
LA = Average(LPOTP(4 of 6,throw out high & low)-14.6)
LU = Average(ET Ullage)

Haz Gas
Pre-Load: LCC:
O2 10,000 PPM & Decreasing HAZ-06

Load:
O2 500 PPM HAZ-07

Orbiter Skin:
FD36 And FD37
OR
(FD36 Or FD37) And Haz Gas Indication H2

SSME Heatshield Spray / 17" Disconnect:
FD38 And FD39
OR
(FD38 Or FD39) AND (MFV<-250 Or HPFTP<-420)
OR
OTV Indication Of Disconnect Fire Camera 09/19/64/172
OR
Engine Shutdown After Engine Ignition- IR 11 / 19 / 30 / 72
ET LH17" LH17" SSME SSME

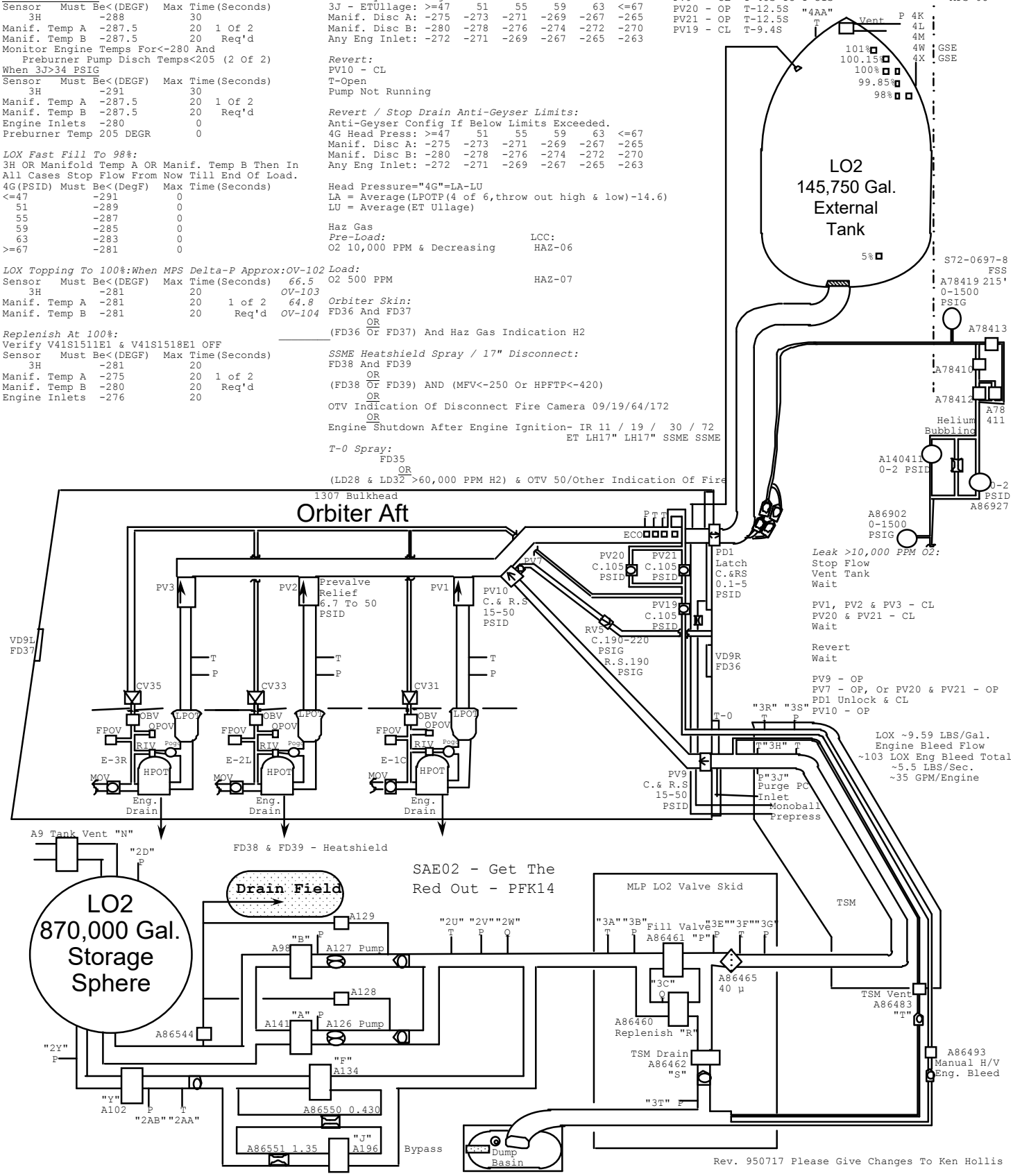
T-0 Spray:
FD35
OR
(LD28 & LD32 >60,000 PPM H2) & OTV 50/Other Indication Of Fire

Anti-Geyser Configuration:
PV1, PV2 & PV3 - CL
PV20 & PV21 - CL

Anti-Geyser Limits:

4G (PSID)	: <=47	51	55	59	63	>=67
Manif. Disc A:	-275	-273	-271	-269	-267	-265
Manif. Disc B:	-280	-278	-276	-274	-272	-270
Any Eng Inlet:	-272	-271	-269	-267	-265	-263

Term Count:
T-2H Vfy 3H>-291,Manif.TempA>-277,Manif.Temp B>-282
LO2 ECO's Wet T-2H to T-31S MPS-21
T-15M Verify Orb Vlv Pwr On Cks OK - SAE02
To T-4M55S - 30 Minutes Temp<=-287.7, 60 Min after
loss of bleed,Initial Thermal Cond.=90 Minutes.
2Of3 LOX LPOTP Temp<=-287.7 Until T-4M55S MPS-24
PV10 - CL T-4M55S To T-31S MPS-07
2Of3 -289.2<=Eng.Temp T-4M55S To T-31S MPS-25
PV9 - CL T-48S To T-31S MPS-08
PV20 - OP T-12.5S "4AA"
PV21 - OP T-12.5S
PV19 - CL T-9.4S



Rev. 950717 Please Give Changes To Ken Hollis