Cryocontrol PLC Status

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D0 Engineering Note
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General

Most of the progress made since September 1, 1989 is one of two types: programming or organizing. In general Xpresslink has gained in a programming sense (more I/O blocks, new and revised operation screens, new key macros, broader historical trending), and the ladder has improved in an organizational sense. A database called ".CNTRL RM INFO" has been installed on the control room Mac hard disk in the Control Room folder in the Word Processors folder. This file should be updated regularly.

Allocation: I/O Points and TI565 Memory

The appended four tables have been recently developed and should be updated as necessary.

Dan Markley's "D0 I/O Map" is an updated hybrid of Jeff Wendlandt's "Wiring Status" EN-205, and the multi-authored "Piping Components" EN-193. "BASE" shows which base the device is on (0, 1, or 2). "SLOT/PT" shows which slot and point the device is on. "I/O TYPE" shows what type the device is (digital (D), analog (A), input (I), output (O)). "ADDRESS" shows the TI565 I/O address. "TAG" shows the blueprint device tagname. "DESCRIPTION" shows a short device description. "J.B. R/C" shows wiring location in the junction box in row / column format. "SEX" shows the normal state (open or closed) for digital I/O. "RANGE" is the device span for analog I/O.

"K Memory" contains the definitions of the first 200 K memory locations (as need increases the table can be easily lengthened). The greyed section from K56 - K68, inclusive, should not be used to retain the correlation between the K address and the Y address. The algorithm to find the K memory location in which a given Y address is stored is:

$$\text{K memory location} = \text{Int}([\text{Y address} - 201] / 16) + 50$$

for $200 < \text{Y address} < 1001$ where "Int(x)" returns the integer portion of "x". The outlined areas contain K memory locations reserved for a specific use. Currently K1 - K49 are for the storage of initial WY values. K50 - K99 are for the initial state of Y201 - Y1000. K100 - 149 are reserved for the initial states of C1 - C772.

"V Memory" displays the present and future uses of the first 2500 variable memory locations. The variables necessary for the operation of the first

32 PID loops have been laid out starting at V1000. It is expected that all other variable memory needs can be met by utilizing V1 - V999.

"Relay Memory" shows the uses of the first 300 contacts. Description briefly gives the contact's use. Default is the power up or normal state of the contact. "OPEN" and "CLOSED" relate the meaning of a contact in the open and closed states respectively. C1 - C5 are to be used as control relays (C1 being a dummy). C6 - 99 are for general use, but should be grouped as logically as possible. C100 - C32 are to reflect the manual / auto mode of a loop (C100 being the master relay which can force all loops into manual mode). C33 - C99 are greyed to reserve this section for other loop needs which may arise. C200 -299 are to be used for the control of I/A actuators.

Xpresslink

Although almost every aspect has enjoyed some minor modifications, only the major changes and additions will be noted.

John Urbin has started the development of an ODH control page. NEC Cooling Loops, CC Cooling Loops, and SEC Cooling Loops pages have been developed to the 75% level. Due to the lack of installed hardware it is impossible to complete these at this time. The Cooling Loop, LAr Dewar, and LN2 Dewar pages have gained software LAM's in various states of completion ranging from 20% - 90%.

Ladder Logic

The greatest advances pertaining the the ladder, loops, and special function programs have been orginizational. The general philosophy of loop control has changed resulting in the deletion of all of the earlier loops, all of the special function programs, and much of the ladder. The special function programs used for scaling where elliminated, scaling will be performed in the individual SFGMS as necessary. The LN2 Dewar Pressure Build loop adjusting gain based on the level of the dewar was found to be troublesome and was deleted (it may be rewritten when the loop is thoroughly understood and the gain can be properly set). No explanation will be given for the additions made to the ladder since they have been documented through comments, synonyms, the appended flow charts, and the log book.

DO 110 MAR

BASE	SLOT/PT	I/O	TYPE	ADDRESS	TAG	DESCRIPTION	J.B. R/C	SEX	RANGE
0	1/1	A		WX0001	PT 104 A	NEC PRESS MONITOR TRANSMITTER	3A		
0	1/2	A		2	PT 110 N	NEC CONDENSER OUT PRESSURE TRANSMITTER	4A		
0	1/3	A		3	DPT 122 A	NEC CRYOSTAT LEVEL TRANSMITTER	7A		
0	1/4	A		4	PT 130 A	NEC PRESSURE CONTROL TRANSDUCER	8A		
0	1/5	A		5	PT 133 A	NEC UPPER PRESSURE TRANSMITTER (VPT)	9A		
0	1/6	A		6	PT 134 A	NEC LOWER PRESSURE TRANSMITTER (VPT)	10A		
0	1/7	A		7	PT 204 A	CC PRESSURE MONITOR TRANSMITTER	22A		
0	1/8	A		8	PT 210 N	CC CONDENSER OUTLET PRESSURE TRANSMITTER	23A		
0	2/1	A		WX0009	DPT 222 A	CC LEVEL TRANSMITTER	26A		
0	2/2	A		10	PT 230 A	CC PRESSURE CONTROL TRANSMITTER	27A		
0	2/3	A		11	PT 233 A	CC UPPER PRESSURE TRANSMITTER (VPT)	28A		
0	2/4	A		12	PT 234 A	CC LOWER PRESSURE TRANSMITTER (VPT)	29A		
0	2/5	A		13	DPT 235 A	CC DIFF PRESS TRANS (VPT)	30A		
0	2/6	A		14	PT 240 A	CC MID PRESSURE TRANSMITTER (VPT)	31A		
0	2/7	A		15	PT 304 A	SEC PRESSURE MONITOR TRANSMITTER	41A		
0	2/8	A		16	PT 310 N	SEC CONDENSER OUTLET PRESSURE TRANSMITTER	42A		
0	3/1	A		WX0017	DPT 322 A	SEC LEVEL TRANSMITTER	45A		
0	3/2	A		18	PT 330 A	SEC PRESSURE CONTROL TRANSMITTER	46A		
0	3/3	A		19	PT 333 A	SEC UPPER PRESSURE TRANSMITTER (VPT)	47A		
0	3/4	A		20	PT 334 A	SEC LOWER PRESSURE TRANSMITTER (VPT)	48A		
0	3/5	A		21	DPT 482 N	DIFF PRESS TRANSMITTER CONDENSER IN FLOW	58A		
0	3/6	A		22	PT 501 N	N2 DEWAR PRESSURE TRANSMITTER	2B		
0	3/7	A		23	DPT 547 N	N2 DEWAR LEVEL TRANSMITTER	4B		
0	3/8	A		24	DPT 637 A	ARGON DEWAR LEVEL TRANSMITTER	25B		
0	4/1	A		WX0025	PT 653 A	ARGON DEWAR PRESSURE TRANSMITTER	27B		
0	4/2	A		26	PT 655 N	ARGON DEWAR CONDENSER OUTLET PRESS TRANS	28B		
0	4/3	A		27	DPT 665 A	DIFF PRESS TRANS FOR FLOWMETER (440) LAR	29B		
0	4/4	A		28	DPT 688 N	ARGON DEWAR CONDENSER INLET FLOW	30B		
0	4/5	A		29	PT 717 UV	UV MANIFOLD ABSOLUTE PRESSURE TRANSMITTER	40B		
0	4/6	A		30	PT 724 A	ARGON BACKFILL SUPPLY PRESSURE TRANS	41B		
0	4/7	A		31	DPT 16	INSTRUMENT AIR FILTER DROP	45B		
0	4/8	A		32	PT 35	INSTRUMENT AIR FINAL DISCHARGE	46B		
0	5/1	A		WX0033	HT 36	INSTRUMENT AIR HYGROMETER	47B		
0	5/2	A		34					
0	5/3	A		35	DPT 43		49B		
0	5/4	A		36	PT 49	INSTRUMENT AIR HIGH PRESSURE BACKUP	50B		
0	5/5	A		37	TG 126 V	NEC DIFFUSION PUMP INLET THERMOCOUPLE	1C		
0	5/6	A		38	CC 127 V	NEC DIFFUSION PUMP INLET COLD CATHODE	2C		
0	5/7	A		39	CC 131 V	NEC INSULATING JACKET COLD CATHODE	3C		
0	5/8	A		40	TG 142 V	NEC INSULATING JACKET THERMOCOUPLE	4C		

BASE	SLOT/PT	I/O	TYPE	ADDRESS	TAG	DESCRIPTION	J.B. R/C	SEX	RANGE
0	6/1		AI	WX0041	EI 123 A	NEC LED CRYOSTAT LEVEL INDICATOR	6C		
0	6/2		AI	42	EI 150 A	VOLTAGE ARGON LEVEL INDICATOR	7C		
0	6/3		AI	43	TG 226 V	CC DIFFUSION PUMP INLET THERMOCOUPLE	17C		
0	6/4		AI	44	OC 227 V	CC DIFFUSION PUMP INLET COLD CATHODE	18C		
0	6/5		AI	45	OC 231 V	CC INSULATING JACKET COLD CATHODE	19C		
0	6/6		AI	46	TG 242 V	CC INSULATING JACKET INLET OF DIFF PUMP	20C		
0	6/7		AI	47	EI 223 A	CC CRYOSTAT LED LEVEL INDICATOR	22C		
0	6/8		AI	48	EI 250 A	CC VOLTAGE ARGON LEVEL INDICATOR	23C		
0	7/1		AI	WX0049	TG 326 V	SEC DIFFUSION PUMP INLET	32C		
0	7/2		AI	50	OC 327 V	SEC DIFFUSION PUMP INLET COLD CATHODE	33C		
0	7/3		AI	51	OC 331 V	SEC INSULATING JACKET COLD CATHODE	34C		
0	7/4		AI	52	TG 342 V	SEC INSULATING JACKET DIFFUSION PUMP IN	35C		
0	7/5		AI	53	EI 323 A	SEC CRYOSTAT LED LEVEL INDICATOR	37C		
0	7/6		AI	54	EI 350 A	CC ARGON LEVEL VOLTAGE INDICATOR	38C		
0	7/7		AI	55	TG 629 V	ARGON DEWAR INSULATING JACKET I.C.	42C		
0	7/8		AI	56	TG 718 UV	UTILITY ROUGHING PUMP INLET I.C.	47C		
0	8/1		AI	WX0057	TG 719 UV	MECHANICAL PUMP INLET I.C.	48C		
0	8/2		AI	58	TG 720 V	BLOWER INLET CRYOSTAT INSULATING VAC	49C		
0	8/3		AI	59	OC 721 V	BLOWER INLET CRYOSTAT INSULATING VAC	50C		
0	8/4		AI	60					
0	8/5		AI	61					
0	8/6		AI	62					
0	8/7		AI	63					
0	8/8		AI	64					
0	9/1		AI	WX0065					
0	9/2		AI	66					
0	9/3		AI	67					
0	9/4		AI	68					
0	9/5		AI	69					
0	9/6		AI	70					
0	9/7		AI	71					
0	9/8		AI	72					
0	10/1		AI	WX0073					
0	10/2		AI	74					
0	10/3		AI	75					
0	10/4		AI	76					
0	10/5		AI	77					
0	10/6		AI	78					
0	10/7		AI	79					
0	10/8		AI	80					

BASE/SLOT/PT	I/O	TYPE	ADDRESS	TAG	DESCRIPTION	J.B. R/C	SEX	RANGE
1	3/1	AO	WY113	I/P 611 A	CONTROL SIGNAL FOR PNEUMATIC VALVE	21B		
1	3/2	AO	114	I/P 612 N	CONTROL SIGNAL FOR PNEUMATIC VALVE	22B		
1	3/3	AO	115	I/P 615 N	CONTROL SIGNAL FOR PNEUMATIC VALVE	23B		
1	3/4	AO	116	I/P 625 I	CONTROL SIGNAL FOR PNEUMATIC VALVE	24B		
1	3/5	AO	117	I/P 638 A	CONTROL SIGNAL FOR PNEUMATIC VALVE	26B		
1	3/6	AO	118					
1	3/7	AO	119					
1	3/8	AO	120					
1	4/1	AO	WY121					
1	4/2	AO	122					
1	4/3	AO	123					
1	4/4	AO	124					
1	4/5	AO	125					
1	4/6	AO	126					
1	4/7	AO	127					
1	4/8	AO	128					
1	5/1	DI	X0129					
1	5/2	DI	130					
1	5/3	DI	131					
1	5/4	DI	132					
1	5/5	DI	133					
1	5/6	DI	134					
1	5/7	DI	135					
1	5/8	DI	136					
1	6/1	DI	X0137					
1	6/2	DI	138					
1	6/3	DI	139					
1	6/4	DI	140					
1	6/5	DI	141					
1	6/6	DI	142					
1	6/7	DI	143					
1	6/8	DI	144					
1	7/1	DI	X0145					
1	7/2	DI	146					
1	7/3	DI	147					
1	7/4	DI	148					
1	7/5	DI	149					
1	7/6	DI	150					
1	7/7	DI	151					
1	7/8	DI	152					

BASE	SLOT/PT	I/O	TYPE	ADDRESS	TAG	DESCRIPTION	J.B. R/C	SEX	RANGE
1	8/1		DI	X0153					
1	8/2		DI	154					
1	8/3		DI	155					
1	8/4		DI	156					
1	8/5		DI	157					
1	8/6		DI	158					
1	8/7		DI	159					
1	8/8		DI	160					
1	9/1		DI	X0161					
1	9/2		DI	162					
1	9/3		DI	163					
1	9/4		DI	164					
1	9/5		DI	165					
1	9/6		DI	166					
1	9/7		DI	167					
1	9/8		DI	168					
1	14/1		DO	Y0201					
1	14/2		DO	202					
1	14/3		DO	203					
1	14/4		DO	204					
1	14/5		DO	205					
1	14/6		DO	206					
1	14/7		DO	207					
1	14/8		DO	208					
1	14/9		DO	209					
1	14/10		DO	210					
1	14/11		DO	211					
1	14/12		DO	212					
1	14/13		DO	213					
1	14/14		DO	214					
1	14/15		DO	215					
1	14/16		DO	216					
1	14/17		DO	217					
1	14/18		DO	218					
1	14/19		DO	219					
1	14/20		DO	220					
1	14/21		DO	221					
1	14/22		DO	222					
1	14/23		DO	223					
1	14/24		DO	224					

BASE	SLOT/PT	I/O	TYPE	ADDRESS	TAG	DESCRIPTION	J.B. R/C	SEX	RANGE
1	14/25		DO	225					
1	14/26		DO	226					
1	14/27		DO	227					
1	14/28		DO	228					
1	14/29		DO	229					
1	14/30		DO	230					
1	14/31		DO	231					
1	14/32		DO	232					
2	1/1		DO	Y0233	EV 501 I	SOL VALVE COOLING LOOP SHUTOFF	1E		
2	1/2		DO	234	EV 513 I	SOL VALVE LN2 SHUTOFF	2E		
2	1/3		DO	235	EV 548 I	SOL VALVE LN2 SHUTOFF TO ARGON DEWAR	3E		
2	1/4		DO	236	EV 570 N	3-WAY AMBIENT HEATER SWITCHING SOL	4E		
2	1/5		DO	237	EV	OUT SWITCH 2	5E		
2	1/6		DO	238	EV	OUT OPTIONAL HEATER	8E		
2	1/7		DO	239	EV 625 I	ARGON DEWAR FILL VALVE	17E		
2	1/8		DO	240	EV 638 I	ARGON DEWAR LIQUID WITHDRAWAL VALVE	18E		
2	2/1		DO	Y0241	EV 706 V	UV TO CRYOSTAT INSUL VAC TIE IN	33E		
2	2/2		DO	242	EV 707 V	UV SHUTOFF VALVE	34E		
2	2/3		DO	243	EV 710 V	FOREPUMP SHUTOFF VALVE	35E		
2	2/4		DO	244	EV 714 V	UV BACKFILLING VALVE	36E		
2	2/5		DO	245	EV 5	INSTRUMENT AIR RECIEVER TANK BLOWDOWN	37E		
2	2/6		DO	246	EV 108 V	NEC INSUL JACKET ROUGHING GATE VALVE	1F		
2	2/7		DO	247	EV 113 A	NEC RELIEF VALVE	2F		
2	2/8		DO	248	EV 115 A	NEC GATE VALVE UV LINE	3F		
2	3/1		DO	Y0249	EV 119 H	4WAY VALVE CONTROLLING PV119A	4F		
2	3/2		DO	250	EH 120 A	NEC FINNED ELECTRIC STRIP HEATER	6F		
2	3/3		DO	251	EV 121 V	NEC DIFF PUMP OUT GATE VALVE	7F		
2	3/4		DO	252	EV 125 V	NEC DIFF PUMP IN GATE VALVE	8F		
2	3/5		DO	253	EV 128 A	NEC VENT MANIFOLD ISO GATE FOR PUMPDOWN	9F		
2	3/6		DO	254	EV 208 V	CC ROUGHING VALVE FOR INSULATING JACKET	17F		
2	3/7		DO	255	EV 213 A	CC RELIEF VALVE	18F		
2	3/8		DO	256	EV 215 A	CC GATE VALVE UV LINE	19F		
2	4/1		DO	Y0257	EV 219 H	4WAY VALVE CONTROLLING PV219A	21F		
2	4/2		DO	258	EH 220 A	CC FINNED ELECTRIC STRIP HEATER	22F		
2	4/3		DO	259	EV 221 V	CC DIFF PUMP OUT VALVE	23F		
2	4/4		DO	260	EV 225 V	CC DIFF PUMP IN VALVE	24F		
2	4/5		DO	261	EV 228 A	CC VENT MANIFOLD ISO GATE FOR PUMPDOWN	25F		
2	4/6		DO	262	EV 308 V	SEC ROUGHING GATE FOR INSULATING JACKET	33F		
2	4/7		DO	263	EV 313 A	SEC RELIEF VALVE	34		
2	4/8		DO	264	EV 315 A	SEC GATE VALVE UV LIN	35		

BASE	SLOT/PT	I/O	TYPE	ADDRESS	TAG	DESCRIPTION	J.B. R/C	SEX	RANGE
2	5/1	DO		Y0265	EV 319 H	4WAY VALVE CONTROLLING PV319A	37F		
2	5/2	DO		266	EH 320 A	SEC FINNED ELECTRIC HEATER	38F		
2	5/3	DO		267	EV 321 V	SEC DIFP PUMP GATE OUT VALVE	39F		
2	5/4	DO		268	EV 325 V	SEC DIFP PUMP IN VALVE	40F		
2	5/5	DO		269	EV 328 A	VENT MANIFOLD ISO GATE FOR PUMPDOWN	41F		
2	5/6	DO		270					
2	5/7	DO		271					
2	5/8	DO		272					
2	6/1	DO		Y0273					
2	6/2	DO		274					
2	6/3	DO		275					
2	6/4	DO		276					
2	6/5	DO		277					
2	6/6	DO		278					
2	6/7	DO		279					
2	6/8	DO		280					
2	7/1	DO		Y0281					
2	7/2	DO		282					
2	7/3	DO		283					
2	7/4	DO		284					
2	7/5	DO		285					
2	7/6	DO		286					
2	7/7	DO		287					
2	7/8	DO		288					
2	8/1	DO		Y0289					
2	8/2	DO		290					
2	8/3	DO		291					
2	8/4	DO		292					
2	8/5	DO		293					
2	8/6	DO		294					
2	8/7	DO		295					
2	8/8	DO		296					
2	9/1	DI		X0297					
2	9/2	DI		298					
2	9/3	DI		299	DPS 560 N	SWITCH FOR FM558N	9E		
2	9/4	DI		300	DPS 563 N	SWITCH FOR FM561N	10E		
2	9/5	DI		301	DPS 666 A	CRYOSTAT FLOWMETER SWITCH(440LA)	19E		
2	9/6	DI		302	PS 696 A	SUMP PIT VPT THERMAL SPILL SENSOR	20E		
2	9/7	DI		303	PS 697 A	SUMP PIT VPT THERMAL SPILL SENSOR	21E		
2	9/8	DI		304	PS 698 A	EMGCY EXHAUST FAN VPT THERMAL SENSOR	22E		

BASE	SLOT/PT	I/O TYPE	ADDRESS	TAG	DESCRIPTION	J.B. R/C	SEX	RANGE
2	10/1	DI	X0305	DPS 702 V	BLOWER DIFF SWITCH INSULATION PUMPS	50E		
2	10/2	DI	306		DRIER "ON"	51E		
2	10/3	DI	307		DRIER "REGENERATION"	52E		
2	10/4	DI	308		INSTRUMENT AIR COMPRESSOR "ON"	53E		
2	10/5	DI	309		UV PUMP "ON"	54E		
2	10/6	DI	310		CRYO INSULATING PUMP "ON"	55E		
2	10/7	DI	311		LEAD H2O PUMP FAIL	56E		
2	10/8	DI	312		BOTH H2O PUMP FAIL	57E		
2	11/1	DI	X0313		EV706V "OPEN"	58E		
2	11/2	DI	314		EV706V "CLOSED"	59E		
2	11/3	DI	315		EV707V "OPEN"	60E		
2	11/4	DI	316		EV707V "CLOSED"	61E		
2	11/5	DI	317		EV710V "OPEN"	62E		
2	11/6	DI	318		EV710V "CLOSED"	63E		
2	11/7	DI	319	PS 812 H	PRESS SWITCH ON HE MAIN SUPPLY LINE	69E		
2	11/8	DI	320	PS 813 H	PRESS SWITCH ON HE RESERVE LINE	70E		
2	12/1	DI	X0321	PS 119 H	CLOSING SUPPLY PRESSURE FOR PV119A	5F		
2	12/2	DI	322	TS 132 E	NEC VENT MANIFOLD TEMPERATURE SWITCH	10F		
2	12/3	DI	323	DPS 138 A	NEC FLOW SWITCH ON FM139A	11F		
2	12/4	DI	324	PS 151 A	SPILL THROUGH VPT SPILL SENSOR	12F		
2	12/5	DI	325	PS 152 A	SPILL THROUGH VPT SPILL SENSOR	13F		
2	12/6	DI	326	PS 219 H	CLOSING SUPPLY PRESS SWITCH FOR PV219A	20F		
2	12/7	DI	327	TS 232 E	CC VENT MANIFOLD TEMP SWITCH	26F		
2	12/8	DI	328	DPS 238 A	FLOW SWITCH ON FM139A	27F		
2	13/1	DI	X0329	PS 251 A	SPILL THROUGH VPT SPILL SENSOR	28F		
2	13/2	DI	330	PS 252 A	SPILL THROUGH VPT SPILL SENSOR	29F		
2	13/3	DI	331	PS 319 H	CLOSING SUPPLY PRES SWITCH FOR PV319A	36F		
2	13/4	DI	332	TS 332 E	SEC VENT MANIFOLD TEMP SWITCH	42F		
2	13/5	DI	333	DPS 338 A	FLOW SWITCH ON FM139A	43F		
2	13/6	DI	334	PS 351 A	SPILL THROUGH VPT SPILL SENSOR	44F		
2	13/7	DI	335	PS 352 A	SPILL THROUGH VPT SPILL SENSOR	45F		
2	13/8	DI	336					
2	14/1	DI	X0337		LEFT DRIER COLUMN SWITCH			
2	14/2	DI	338		RIGHT DRIER COLUMN SWITCH			
2	14/3	DI	339					
2	14/4	DI	340					
2	14/5	DI	341					
2	14/6	DI	342					
2	14/7	DI	343					
2	14/8	DI	344					

#	DESCRIPTION	#	DESCRIPTION
1	INITIAL POSITION OF WY97	51	INITIAL POSITION OF Y217-Y232
2	INITIAL POSITION OF WY98	52	INITIAL POSITION OF Y233-Y248
3	INITIAL POSITION OF WY99	53	INITIAL POSITION OF Y249-Y264
4	INITIAL POSITION OF WY100	54	INITIAL POSITION OF Y265-Y280
5	INITIAL POSITION OF WY101	55	INITIAL POSITION OF Y281-Y296
6	INITIAL POSITION OF WY102	56	
7	INITIAL POSITION OF WY103	57	
8	INITIAL POSITION OF WY104	58	
9	INITIAL POSITION OF WY105	59	
10	INITIAL POSITION OF WY106	60	
11	INITIAL POSITION OF WY107	61	
12	INITIAL POSITION OF WY108	62	
13	INITIAL POSITION OF WY109	63	
14	INITIAL POSITION OF WY110	64	
15	INITIAL POSITION OF WY111	65	
16	INITIAL POSITION OF WY112	66	
17	INITIAL POSITION OF WY113	67	
18	INITIAL POSITION OF WY114	68	
19	INITIAL POSITION OF WY115	69	INITIAL POSITION OF Y505-Y512
20	INITIAL POSITION OF WY116	70	
21	INITIAL POSITION OF WY117	71	
22	INITIAL POSITION OF WY118	72	
23	INITIAL POSITION OF WY119	73	
24	INITIAL POSITION OF WY120	74	
25	INITIAL POSITION OF WY121	75	
26	INITIAL POSITION OF WY122	76	
27	INITIAL POSITION OF WY123	77	
28	INITIAL POSITION OF WY124	78	
29	INITIAL POSITION OF WY125	79	
30	INITIAL POSITION OF WY126	80	
31	INITIAL POSITION OF WY127	81	
32	INITIAL POSITION OF WY128	82	
33		83	
34		84	
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48		98	
49		99	
50	INITIAL POSITION OF Y201-Y216	100	INITIAL POSITION OF C1-C4

#	DESCRIPTION	#	DESCRIPTION
101	INITIAL POSITION OF C5-C20	151	
102	INITIAL POSITION OF C21-C36	152	
103	INITIAL POSITION OF C37-C52	153	
104	INITIAL POSITION OF C53-C68	154	
105	INITIAL POSITION OF C69-C84	155	
106	INITIAL POSITION OF C85-C100	156	
107	INITIAL POSITION OF C101-C116	157	
108		158	
109		159	
110		160	
111		161	
112		162	
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116		166	
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144		194	
145		195	
146		196	
147		197	
148		198	
149		199	
150		200	

#	DESCRIPTION	#	DESCRIPTION
1		51	
2		52	
3		53	
4		54	
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6		56	
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8		58	
9		59	
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43		93	
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45		95	
46		96	
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48		98	
49		99	
50		100	

V MEMORY

1/4/90

#	DESCRIPTION	#	DESCRIPTION
101		151	
102		152	
103		153	
104		154	
105		155	
106		156	
107		157	
108		158	
109		159	
110		160	
111		161	
112		162	
113		163	
114		164	
115		165	
116		166	
117		167	
118		168	
119		169	
120		170	
121		171	
122		172	
123		173	
124		174	
125		175	
126		176	
127		177	
128		178	
129		179	
130		180	
131		181	
132		182	
133		183	
134		184	
135		185	
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137		187	
138		188	
139		189	
140		190	
141		191	
142		192	
143		193	
144		194	
145		195	
146		196	
147		197	
148		198	
149		199	
150		200	

#	DESCRIPTION	#	DESCRIPTION
201		251	
202		252	
203		253	
204		254	
205		255	
206		256	
207		257	
208		258	
209		259	
210		260	
211		261	
212		262	
213		263	
214		264	
215		265	
216		266	
217		267	
218		268	
219		269	
220		270	
221		271	
222		272	
223		273	
224		274	
225		275	
226		276	
227		277	
228		278	
229		279	
230		280	
231		281	
232		282	
233		283	
234		284	
235		285	
236		286	
237		287	
238		288	
239		289	
240		290	
241		291	
242		292	
243		293	
244		294	
245		295	
246		296	
247		297	
248		298	
249		299	
250		300	

V MEMORY

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#	DESCRIPTION	#	DESCRIPTION
301		351	
302		352	
303		353	
304		354	
305		355	
306		356	
307		357	
308		358	
309		359	
310		360	
311		361	
312		362	
313		363	
314		364	
315		365	
316		366	
317		367	
318		368	
319		369	
320		370	
321		371	
322		372	
323		373	
324		374	
325		375	
326		376	
327		377	
328		378	
329		379	
330		380	
331		381	
332		382	
333		383	
334		384	
335		385	
336		386	
337		387	
338		388	
339		389	
340		390	
341		391	
342		392	
343		393	
344		394	
345		395	
346		396	
347		397	
348		398	
349		399	
350		400	

V MEMORY

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#	DESCRIPTION	#	DESCRIPTION
401		451	
402		452	
403		453	
404		454	
405		455	
406		456	
407		457	
408		458	
409		459	
410		460	
411		461	
412		462	
413		463	
414		464	
415		465	
416		466	
417		467	
418		468	
419		469	
420		470	
421		471	
422		472	
423		473	
424		474	
425		475	
426		476	
427		477	
428		478	
429		479	
430		480	
431		481	
432		482	
433		483	
434		484	
435		485	
436		486	
437		487	
438		488	
439		489	
440		490	
441		491	
442		492	
443		493	
444		494	
445		495	
446		496	
447		497	
448		498	
449		499	
450		500	

#	DESCRIPTION	#	DESCRIPTION
501		551	
502		552	
503		553	
504		554	
505		555	
506		556	
507		557	
508		558	
509		559	
510		560	
511		561	
512		562	
513		563	
514		564	
515		565	
516		566	
517		567	
518		568	
519		569	
520		570	
521		571	
522		572	
523		573	
524		574	
525		575	
526		576	
527		577	
528		578	
529		579	
530		580	
531		581	
532		582	
533		583	
534		584	
535		585	
536		586	
537		587	
538		588	
539		589	
540		590	
541		591	
542		592	
543		593	
544		594	
545		595	
546		596	
547		597	
548		598	
549		599	
550		600	

#	DESCRIPTION	#	DESCRIPTION
601		651	
602		652	
603		653	
604		654	
605		655	
606		656	
607		657	
608		658	
609		659	
610		660	
611		661	
612		662	
613		663	
614		664	
615		665	
616		666	
617		667	
618		668	
619		669	
620		670	
621		671	
622		672	
623		673	
624		674	
625		675	
626		676	
627		677	
628		678	
629		679	
630		680	
631		681	
632		682	
633		683	
634		684	
635		685	
636		686	
637		687	
638		688	
639		689	
640		690	
641		691	
642		692	
643		693	
644		694	
645		695	
646		696	
647		697	
648		698	
649		699	
650		700	

#	DESCRIPTION	#	DESCRIPTION
701		751	
702		752	
703		753	
704		754	
705		755	
706		756	
707		757	
708		758	
709		759	
710		760	
711		761	
712		762	
713		763	
714		764	
715		765	
716		766	
717		767	
718		768	
719		769	
720		770	
721		771	
722		772	
723		773	
724		774	
725		775	
726		776	
727		777	
728		778	
729		779	
730		780	
731		781	
732		782	
733		783	
734		784	
735		785	
736		786	
737		787	
738		788	
739		789	
740		790	
741		791	
742		792	
743		793	
744		794	
745		795	
746		796	
747		797	
748		798	
749		799	
750		800	

#	DESCRIPTION	#	DESCRIPTION
801		851	
802		852	
803		853	
804		854	
805		855	
806		856	
807		857	
808		858	
809		859	
810		860	
811		861	
812		862	
813		863	
814		864	
815		865	
816		866	
817		867	
818		868	
819		869	
820		870	
821		871	
822		872	
823		873	
824		874	
825		875	
826		876	
827		877	
828		878	
829		879	
830		880	
831		881	
832		882	
833		883	
834		884	
835		885	
836		886	
837		887	
838		888	
839		889	
840		890	
841		891	
842		892	
843		893	
844		894	
845		895	
846		896	
847		897	
848		898	
849		899	
850		900	I/A RECEIVE TANK TIME TIL BLWDWN (TCC5)

#	DESCRIPTION	#	DESCRIPTION
901	I/A RECEIVE TANK BLWDWN DURATION (TCC6)	951	
902		952	
903		953	
904		954	
905		955	
906		956	
907		957	
908		958	
909		959	
910		960	
911		961	
912		962	
913		963	
914		964	
915		965	
916		966	
917		967	
918		968	
919		969	
920		970	
921		971	
922		972	
923		973	
924		974	
925		975	
926		976	
927		977	
928		978	
929		979	
930		980	
931		981	
932		982	
933		983	
934		984	
935		985	
936		986	
937		987	
938		988	
939		989	
940		990	
941		991	
942		992	
943		993	
944		994	
945		995	
946		996	
947		997	
948		998	
949		999	
950		1000	LOOP 1 SETPOINT (LSP1)

#	DESCRIPTION	#	DESCRIPTION
1001	LOOP 1 SETPOINT FROM XL	1051	LOOP 2 SETPOINT FROM XL
1002	LOOP 1 SETPOINT STORAGE	1052	LOOP 2 SETPOINT STORAGE
1003	LOOP 1 OUTPUT (LMN1)	1053	LOOP 2 OUTPUT (LMN2)
1004	LOOP 1 OUTPUT FROM XL	1054	LOOP 2 OUTPUT FROM XL
1005	LOOP 1 OUTPUT STORAGE	1055	LOOP 2 OUTPUT STORAGE
1006	LOOP 1 PROCESS VARIABLE (LPV1)	1056	LOOP 2 PROCESS VARIABLE (LPV2)
1007	LOOP 1 GAIN CONSTANT (LKC1)	1057	LOOP 2 GAIN CONSTANT (LKC2)
1008	LOOP 1 RESET CONSTANT (LT11)	1058	LOOP 2 RESET CONSTANT (LT12)
1009	LOOP 1 RATE CONSTANT (LTD1)	1059	LOOP 2 RATE CONSTANT (LTD2)
1010	LOOP 1 BIAS (LMX1)	1060	LOOP 2 BIAS (LMX2)
1011	LOOP 1 FLAG ADDRESS (LVF1)	1061	LOOP 2 FLAG ADDRESS (LVF2)
1012	LOOP 1 DERIV. GAIN LIMIT COEFF. (LKD1)	1062	LOOP 2 DERIV. GAIN LIMIT COEFF. (LKD2)
1013	LOOP 1 RAMP/SOAK FLAGS (LRSF1)	1063	LOOP 2 RAMP/SOAK FLAGS (LRSF2)
1014	LOOP PV LOW LIMIT (LPVL1)	1064	LOOP PV LOW LIMIT (LPVL2)
1015	LOOP 1 PV HIGH LIMIT (LPVH1)	1065	LOOP 2 PV HIGH LIMIT (LPVH2)
1016	LOOP 1 SETPOINT LOW LIMIT (LSPL1)	1066	LOOP 2 SETPOINT LOW LIMIT (LSPL2)
1017	LOOP 1 SETPOINT HIGH LIMIT (LSPH1)	1067	LOOP 2 SETPOINT HIGH LIMIT (LSPH2)
1018	LOOP 1 ERROR (LERR1)	1068	LOOP 2 ERROR (LERR2)
1019	LOOP 1 SAMPLE RATE (LTS1)	1069	LOOP 2 SAMPLE RATE (LTS2)
1020	LOOP 1 MOST SIG. WORD C-FLAG (LCFH1)	1070	LOOP 2 MOST SIG. WORD C-FLAG (LCFH2)
1021	LOOP 1 LEAST SIG. WORD C-FLAG (LCFL1)	1071	LOOP 2 LEAST SIG. WORD C-FLAG (LCFL2)
1022	LOOP 1 ALARM DEADBAND (LADB1)	1072	LOOP 2 ALARM DEADBAND (LADB2)
1023	LOOP 1 LOW-LOW ALARM LIMIT (LLLA1)	1073	LOOP 2 LOW-LOW ALARM LIMIT (LLLA2)
1024	LOOP 1 LOW ALARM LIMIT (LLA1)	1074	LOOP 2 LOW ALARM LIMIT (LLA2)
1025	LOOP 1 HIGH ALARM LIMIT (LHA1)	1075	LOOP 2 HIGH ALARM LIMIT (LHA2)
1026	LOOP 1 HIGH-HIGH ALARM LIMIT (LHHA1)	1076	LOOP 2 HIGH-HIGH ALARM LIMIT (LHHA2)
1027	LOOP 1 ROC ALARM LIMIT (LRCA1)	1077	LOOP 2 ROC ALARM LIMIT (LRCA2)
1028	LOOP 1 YEL. DEV. ALARM LIMIT (LYDA1)	1078	LOOP 2 YEL. DEV. ALARM LIMIT (LYDA2)
1029	LOOP 1 ORG. DEV. ALARM LIMIT (L0DA1)	1079	LOOP 2 ORG. DEV. ALARM LIMIT (L0DA2)
1030		1080	
1031		1081	
1032		1082	
1033		1083	
1034		1084	
1035		1085	
1036		1086	
1037		1087	
1038		1088	
1039		1089	
1040		1090	
1041		1091	
1042		1092	
1043		1093	
1044		1094	
1045		1095	
1046		1096	
1047		1097	
1048		1098	
1049		1099	
1050	LOOP 2 SETPOINT (LSP2)	1100	LOOP 3 SETPOINT (LSP3)

#	DESCRIPTION	#	DESCRIPTION
1101	LOOP 3 SETPOINT FROM XL	1151	LOOP 4 SETPOINT FROM XL
1102	LOOP 3 SETPOINT STORAGE	1152	LOOP 4 SETPOINT STORAGE
1103	LOOP 3 OUTPUT (LMN3)	1153	LOOP 4 OUTPUT (LMN4)
1104	LOOP 3 OUTPUT FROM XL	1154	LOOP 4 OUTPUT FROM XL
1105	LOOP 3 OUTPUT STORAGE	1155	LOOP 4 OUTPUT STORAGE
1106	LOOP 3 PROCESS VARIABLE (LPV3)	1156	LOOP 4 PROCESS VARIABLE (LPV4)
1107	LOOP 3 GAIN CONSTANT (LKC3)	1157	LOOP 4 GAIN CONSTANT (LKC4)
1108	LOOP 3 RESET CONSTANT (LT3)	1158	LOOP 4 RESET CONSTANT (LT4)
1109	LOOP 3 RATE CONSTANT (LTD3)	1159	LOOP 4 RATE CONSTANT (LTD4)
1110	LOOP 3 BIAS (LMX3)	1160	LOOP 4 BIAS (LMX4)
1111	LOOP 3 FLAG ADDRESS (LVF3)	1161	LOOP 4 FLAG ADDRESS (LVF4)
1112	LOOP 3 DERIV. GAIN LIMIT COEFF. (LKD3)	1162	LOOP 4 DERIV. GAIN LIMIT COEFF. (LKD4)
1113	LOOP 3 RAMP/SOAK FLAGS (LRSF3)	1163	LOOP 4 RAMP/SOAK FLAGS (LRSF4)
1114	LOOP PV LOW LIMIT (LPVL3)	1164	LOOP PV LOW LIMIT (LPVL4)
1115	LOOP 3 PV HIGH LIMIT (LPVH3)	1165	LOOP 4 PV HIGH LIMIT (LPVH4)
1116	LOOP 3 SETPOINT LOW LIMIT (LSPL3)	1166	LOOP 4 SETPOINT LOW LIMIT (LSPL4)
1117	LOOP 3 SETPOINT HIGH LIMIT (LSPH3)	1167	LOOP 4 SETPOINT HIGH LIMIT (LSPH4)
1118	LOOP 3 ERROR (LERR3)	1168	LOOP 4 ERROR (LERR4)
1119	LOOP 3 SAMPLE RATE (LTS3)	1169	LOOP 4 SAMPLE RATE (LTS4)
1120	LOOP 3 MOST SIG. WORD C-FLAG (LCFH3)	1170	LOOP 4 MOST SIG. WORD C-FLAG (LCFH4)
1121	LOOP 3 LEAST SIG. WORD C-FLAG (LCFL3)	1171	LOOP 4 LEAST SIG. WORD C-FLAG (LCFL4)
1122	LOOP 3 ALARM DEADBAND (LADB3)	1172	LOOP 4 ALARM DEADBAND (LADB4)
1123	LOOP 3 LOW-LOW ALARM LIMIT (LLLA3)	1173	LOOP 4 LOW-LOW ALARM LIMIT (LLLA4)
1124	LOOP 3 LOW ALARM LIMIT (LLA3)	1174	LOOP 4 LOW ALARM LIMIT (LLA4)
1125	LOOP 3 HIGH ALARM LIMIT (LHA3)	1175	LOOP 4 HIGH ALARM LIMIT (LHA4)
1126	LOOP 3 HIGH-HIGH ALARM LIMIT (LHHA3)	1176	LOOP 4 HIGH-HIGH ALARM LIMIT (LHHA4)
1127	LOOP 3 ROC ALARM LIMIT (LRCA3)	1177	LOOP 4 ROC ALARM LIMIT (LRCA4)
1128	LOOP 3 YEL. DEV. ALARM LIMIT (LYDA3)	1178	LOOP 4 YEL. DEV. ALARM LIMIT (LYDA4)
1129	LOOP 3 ORG. DEV. ALARM LIMIT (L0DA3)	1179	LOOP 4 ORG. DEV. ALARM LIMIT (L0DA4)
1130		1180	
1131		1181	
1132		1182	
1133		1183	
1134		1184	
1135		1185	
1136		1186	
1137		1187	
1138		1188	
1139		1189	
1140		1190	
1141		1191	
1142		1192	
1143		1193	
1144		1194	
1145		1195	
1146		1196	
1147		1197	
1148		1198	
1149		1199	
1150	LOOP 4 SETPOINT (LSP4)	1200	LOOP 5 SETPOINT (LSP5)

#	DESCRIPTION	#	DESCRIPTION
1201	LOOP 5 SETPOINT FROM XL	1251	LOOP 6 SETPOINT FROM XL
1202	LOOP 5 SETPOINT STORAGE	1252	LOOP 6 SETPOINT STORAGE
1203	LOOP 5 OUTPUT (LMN5)	1253	LOOP 6 OUTPUT (LMN6)
1204	LOOP 5 OUTPUT FROM XL	1254	LOOP 6 OUTPUT FROM XL
1205	LOOP 5 OUTPUT STORAGE	1255	LOOP 6 OUTPUT STORAGE
1206	LOOP 5 PROCESS VARIABLE (LPV5)	1256	LOOP 6 PROCESS VARIABLE (LPV6)
1207	LOOP 5 GAIN CONSTANT (LKC5)	1257	LOOP 6 GAIN CONSTANT (LKC6)
1208	LOOP 5 RESET CONSTANT (LTI5)	1258	LOOP 6 RESET CONSTANT (LTI6)
1209	LOOP 5 RATE CONSTANT (LTD5)	1259	LOOP 6 RATE CONSTANT (LTD6)
1210	LOOP 5 BIAS (LMX5)	1260	LOOP 6 BIAS (LMX6)
1211	LOOP 5 FLAG ADDRESS (LVF5)	1261	LOOP 6 FLAG ADDRESS (LVF6)
1212	LOOP 5 DERIV. GAIN LIMIT COEFF. (LKD5)	1262	LOOP 6 DERIV. GAIN LIMIT COEFF. (LKD6)
1213	LOOP 5 RAMP/SOAK FLAGS (LRSF5)	1263	LOOP 6 RAMP/SOAK FLAGS (LRSF6)
1214	LOOP PV LOW LIMIT (LPVL5)	1264	LOOP PV LOW LIMIT (LPVL6)
1215	LOOP 5 PV HIGH LIMIT (LPVH5)	1265	LOOP 6 PV HIGH LIMIT (LPVH6)
1216	LOOP 5 SETPOINT LOW LIMIT (LSPL5)	1266	LOOP 6 SETPOINT LOW LIMIT (LSPL6)
1217	LOOP 5 SETPOINT HIGH LIMIT (LSPH5)	1267	LOOP 6 SETPOINT HIGH LIMIT (LSPH6)
1218	LOOP 5 ERROR (LERR5)	1268	LOOP 6 ERROR (LERR6)
1219	LOOP 5 SAMPLE RATE (LTS5)	1269	LOOP 6 SAMPLE RATE (LTS6)
1220	LOOP 5 MOST SIG. WORD C-FLAG (LCFH5)	1270	LOOP 6 MOST SIG. WORD C-FLAG (LCFH6)
1221	LOOP 5 LEAST SIG. WORD C-FLAG (LCFL5)	1271	LOOP 6 LEAST SIG. WORD C-FLAG (LCFL6)
1222	LOOP 5 ALARM DEADBAND (LADB5)	1272	LOOP 6 ALARM DEADBAND (LADB6)
1223	LOOP 5 LOW-LOW ALARM LIMIT (LLLA5)	1273	LOOP 6 LOW-LOW ALARM LIMIT (LLLA6)
1224	LOOP 5 LOW ALARM LIMIT (LLA5)	1274	LOOP 6 LOW ALARM LIMIT (LLA6)
1225	LOOP 5 HIGH ALARM LIMIT (LHA5)	1275	LOOP 6 HIGH ALARM LIMIT (LHA6)
1226	LOOP 5 HIGH-HIGH ALARM LIMIT (LHHA5)	1276	LOOP 6 HIGH-HIGH ALARM LIMIT (LHHA6)
1227	LOOP 5 ROC ALARM LIMIT (LRCA5)	1277	LOOP 6 ROC ALARM LIMIT (LRCA6)
1228	LOOP 5 YEL. DEV. ALARM LIMIT (LYDA5)	1278	LOOP 6 YEL. DEV. ALARM LIMIT (LYDA6)
1229	LOOP 5 ORG. DEV. ALARM LIMIT (LODA5)	1279	LOOP 6 ORG. DEV. ALARM LIMIT (LODA6)
1230		1280	
1231		1281	
1232		1282	
1233		1283	
1234		1284	
1235		1285	
1236		1286	
1237		1287	
1238		1288	
1239		1289	
1240		1290	
1241		1291	
1242		1292	
1243		1293	
1244		1294	
1245		1295	
1246		1296	
1247		1297	
1248		1298	
1249		1299	
1250	LOOP 6 SETPOINT (LSP6)	1300	LOOP 7 SETPOINT (LSP7)

#	DESCRIPTION	#	DESCRIPTION
1301	LOOP 7 SETPOINT FROM XL	1351	LOOP 8 SETPOINT FROM XL
1302	LOOP 7 SETPOINT STORAGE	1352	LOOP 8 SETPOINT STORAGE
1303	LOOP 7 OUTPUT (LMN7)	1353	LOOP 8 OUTPUT (LMN8)
1304	LOOP 7 OUTPUT FROM XL	1354	LOOP 8 OUTPUT FROM XL
1305	LOOP 7 OUTPUT STORAGE	1355	LOOP 8 OUTPUT STORAGE
1306	LOOP 7 PROCESS VARIABLE (LPV7)	1356	LOOP 8 PROCESS VARIABLE (LPV8)
1307	LOOP 7 GAIN CONSTANT (LKC7)	1357	LOOP 8 GAIN CONSTANT (LKC8)
1308	LOOP 7 RESET CONSTANT (LT7)	1358	LOOP 8 RESET CONSTANT (LT8)
1309	LOOP 7 RATE CONSTANT (LTD7)	1359	LOOP 8 RATE CONSTANT (LTD8)
1310	LOOP 7 BIAS (LMX7)	1360	LOOP 8 BIAS (LMX8)
1311	LOOP 7 FLAG ADDRESS (LVF7)	1361	LOOP 8 FLAG ADDRESS (LVF8)
1312	LOOP 7 DERIV. GAIN LIMIT COEFF. (LKD7)	1362	LOOP 8 DERIV. GAIN LIMIT COEFF. (LKD8)
1313	LOOP 7 RAMP/SOAK FLAGS (LRSF7)	1363	LOOP 8 RAMP/SOAK FLAGS (LRSF8)
1314	LOOP PV LOW LIMIT (LPVL7)	1364	LOOP PV LOW LIMIT (LPVL8)
1315	LOOP 7 PV HIGH LIMIT (LPVH7)	1365	LOOP 8 PV HIGH LIMIT (LPVH8)
1316	LOOP 7 SETPOINT LOW LIMIT (LSPL7)	1366	LOOP 8 SETPOINT LOW LIMIT (LSPL8)
1317	LOOP 7 SETPOINT HIGH LIMIT (LSPH7)	1367	LOOP 8 SETPOINT HIGH LIMIT (LSPH8)
1318	LOOP 7 ERROR (LERR7)	1368	LOOP 8 ERROR (LERR8)
1319	LOOP 7 SAMPLE RATE (LTS7)	1369	LOOP 8 SAMPLE RATE (LTS8)
1320	LOOP 7 MOST SIG. WORD C-FLAG (LCFH7)	1370	LOOP 8 MOST SIG. WORD C-FLAG (LCFH8)
1321	LOOP 7 LEAST SIG. WORD C-FLAG (LCFL7)	1371	LOOP 8 LEAST SIG. WORD C-FLAG (LCFL8)
1322	LOOP 7 ALARM DEADBAND (LADB7)	1372	LOOP 8 ALARM DEADBAND (LADB8)
1323	LOOP 7 LOW-LOW ALARM LIMIT (LLLA7)	1373	LOOP 8 LOW-LOW ALARM LIMIT (LLLA8)
1324	LOOP 7 LOW ALARM LIMIT (LLA7)	1374	LOOP 8 LOW ALARM LIMIT (LLA8)
1325	LOOP 7 HIGH ALARM LIMIT (LHA7)	1375	LOOP 8 HIGH ALARM LIMIT (LHA8)
1326	LOOP 7 HIGH-HIGH ALARM LIMIT (LHHA7)	1376	LOOP 8 HIGH-HIGH ALARM LIMIT (LHHA8)
1327	LOOP 7 ROC ALARM LIMIT (LRCA7)	1377	LOOP 8 ROC ALARM LIMIT (LRCA8)
1328	LOOP 7 YEL. DEV. ALARM LIMIT (LYDA7)	1378	LOOP 8 YEL. DEV. ALARM LIMIT (LYDA8)
1329	LOOP 7 ORG. DEV. ALARM LIMIT (L0DA7)	1379	LOOP 8 ORG. DEV. ALARM LIMIT (L0DA8)
1330		1380	
1331		1381	
1332		1382	
1333		1383	
1334		1384	
1335		1385	
1336		1386	
1337		1387	
1338		1388	
1339		1389	
1340		1390	
1341		1391	
1342		1392	
1343		1393	
1344		1394	
1345		1395	
1346		1396	
1347		1397	
1348		1398	
1349		1399	
1350	LOOP 8 SETPOINT (LSP8)	1400	LOOP 9 SETPOINT (LSP9)

#	DESCRIPTION	#	DESCRIPTION
1401	LOOP 9 SETPOINT FROM XL	1451	LOOP 10 SETPOINT FROM XL
1402	LOOP 9 SETPOINT STORAGE	1452	LOOP 10 SETPOINT STORAGE
1403	LOOP 9 OUTPUT (LMN9)	1453	LOOP 10 OUTPUT (LMN10)
1404	LOOP 9 OUTPUT FROM XL	1454	LOOP 10 OUTPUT FROM XL
1405	LOOP 9 OUTPUT STORAGE	1455	LOOP 10 OUTPUT STORAGE
1406	LOOP 9 PROCESS VARIABLE (LPV9)	1456	LOOP 10 PROCESS VARIABLE (LPV10)
1407	LOOP 9 GAIN CONSTANT (LKC9)	1457	LOOP 10 GAIN CONSTANT (LKC10)
1408	LOOP 9 RESET CONSTANT (LTI9)	1458	LOOP 10 RESET CONSTANT (LTI10)
1409	LOOP 9 RATE CONSTANT (LTD9)	1459	LOOP 10 RATE CONSTANT (LTD10)
1410	LOOP 9 BIAS (LMX9)	1460	LOOP 10 BIAS (LMX10)
1411	LOOP 9 FLAG ADDRESS (LVF9)	1461	LOOP 10 FLAG ADDRESS (LVF10)
1412	LOOP 9 DERIV. GAIN LIMIT COEFF. (LKD9)	1462	LOOP 10 DERIV. GAIN LIMIT COEFF. (LKD10)
1413	LOOP 9 RAMP/SOAK FLAGS (LRSF9)	1463	LOOP 10 RAMP/SOAK FLAGS (LRSF10)
1414	LOOP PV LOW LIMIT (LPVL9)	1464	LOOP PV LOW LIMIT (LPVL10)
1415	LOOP 9 PV HIGH LIMIT (LPVH9)	1465	LOOP 10 PV HIGH LIMIT (LPVH10)
1416	LOOP 9 SETPOINT LOW LIMIT (LSPL9)	1466	LOOP 10 SETPOINT LOW LIMIT (LSPL10)
1417	LOOP 9 SETPOINT HIGH LIMIT (LSPH9)	1467	LOOP 10 SETPOINT HIGH LIMIT (LSPH10)
1418	LOOP 9 ERROR (LERR9)	1468	LOOP 10 ERROR (LERR10)
1419	LOOP 9 SAMPLE RATE (LTS9)	1469	LOOP 10 SAMPLE RATE (LTS10)
1420	LOOP 9 MOST SIG. WORD C-FLAG (LCFH9)	1470	LOOP 10 MOST SIG. WORD C-FLAG (LCFH10)
1421	LOOP 9 LEAST SIG. WORD C-FLAG (LCFL9)	1471	LOOP 10 LEAST SIG. WORD C-FLAG (LCFL10)
1422	LOOP 9 ALARM DEADBAND (LADB9)	1472	LOOP 10 ALARM DEADBAND (LADB10)
1423	LOOP 9 LOW-LOW ALARM LIMIT (LLLA9)	1473	LOOP 10 LOW-LOW ALARM LIMIT (LLLA10)
1424	LOOP 9 LOW ALARM LIMIT (LLA9)	1474	LOOP 10 LOW ALARM LIMIT (LLA10)
1425	LOOP 9 HIGH ALARM LIMIT (LHA9)	1475	LOOP 10 HIGH ALARM LIMIT (LHA10)
1426	LOOP 9 HIGH-HIGH ALARM LIMIT (LHHA9)	1476	LOOP 10 HIGH-HIGH ALARM LIMIT (LHHA10)
1427	LOOP 9 ROC ALARM LIMIT (LRCA9)	1477	LOOP 10 ROC ALARM LIMIT (LRCA10)
1428	LOOP 9 YEL. DEV. ALARM LIMIT (LYDA9)	1478	LOOP 10 YEL. DEV. ALARM LIMIT (LYDA10)
1429	LOOP 9 ORG. DEV. ALARM LIMIT (LODA9)	1479	LOOP 10 ORG. DEV. ALARM LIMIT (LODA10)
1430		1480	
1431		1481	
1432		1482	
1433		1483	
1434		1484	
1435		1485	
1436		1486	
1437		1487	
1438		1488	
1439		1489	
1440		1490	
1441		1491	
1442		1492	
1443		1493	
1444		1494	
1445		1495	
1446		1496	
1447		1497	
1448		1498	
1449		1499	
1450	LOOP 10 SETPOINT (LSP10)	1500	LOOP 11 SETPOINT (LSP11)

#	DESCRIPTION	#	DESCRIPTION
1501	LOOP 11 SETPOINT FROM XL	1551	LOOP 12 SETPOINT FROM XL
1502	LOOP 11 SETPOINT STORAGE	1552	LOOP 12 SETPOINT STORAGE
1503	LOOP 11 OUTPUT (LMN11)	1553	LOOP 12 OUTPUT (LMN12)
1504	LOOP 11 OUTPUT FROM XL	1554	LOOP 12 OUTPUT FROM XL
1505	LOOP 11 OUTPUT STORAGE	1555	LOOP 12 OUTPUT STORAGE
1506	LOOP 11 PROCESS VARIABLE (LPV11)	1556	LOOP 12 PROCESS VARIABLE (LPV12)
1507	LOOP 11 GAIN CONSTANT (LKC11)	1557	LOOP 12 GAIN CONSTANT (LKC12)
1508	LOOP 11 RESET CONSTANT (LTI11)	1558	LOOP 12 RESET CONSTANT (LTI12)
1509	LOOP 11 RATE CONSTANT (LTD11)	1559	LOOP 12 RATE CONSTANT (LTD12)
1510	LOOP 11 BIAS (LMX11)	1560	LOOP 12 BIAS (LMX12)
1511	LOOP 11 FLAG ADDRESS (LVF11)	1561	LOOP 12 FLAG ADDRESS (LVF12)
1512	LOOP 11 DERIV. GAIN LIMIT COEFF. (LKD11)	1562	LOOP 12 DERIV. GAIN LIMIT COEFF. (LKD12)
1513	LOOP 11 RAMP/SOAK FLAGS (LRSF11)	1563	LOOP 12 RAMP/SOAK FLAGS (LRSF12)
1514	LOOP PV LOW LIMIT (LPVL11)	1564	LOOP PV LOW LIMIT (LPVL12)
1515	LOOP 11 PV HIGH LIMIT (LPVH11)	1565	LOOP 12 PV HIGH LIMIT (LPVH12)
1516	LOOP 11 SETPOINT LOW LIMIT (LSPL11)	1566	LOOP 12 SETPOINT LOW LIMIT (LSPL12)
1517	LOOP 11 SETPOINT HIGH LIMIT (LSPH11)	1567	LOOP 12 SETPOINT HIGH LIMIT (LSPH12)
1518	LOOP 11 ERROR (LERR11)	1568	LOOP 12 ERROR (LERR12)
1519	LOOP 11 SAMPLE RATE (LTS11)	1569	LOOP 12 SAMPLE RATE (LTS12)
1520	LOOP 11 MOST SIG. WORD C-FLAG (LCFH11)	1570	LOOP 12 MOST SIG. WORD C-FLAG (LCFH12)
1521	LOOP 11 LEAST SIG. WORD C-FLAG (LCFL11)	1571	LOOP 12 LEAST SIG. WORD C-FLAG (LCFL12)
1522	LOOP 11 ALARM DEADBAND (LADB11) -	1572	LOOP 12 ALARM DEADBAND (LADB12)
1523	LOOP 11 LOW-LOW ALARM LIMIT (LLLA11)	1573	LOOP 12 LOW-LOW ALARM LIMIT (LLLA12)
1524	LOOP 11 LOW ALARM LIMIT (LLA11)	1574	LOOP 12 LOW ALARM LIMIT (LLA12)
1525	LOOP 11 HIGH ALARM LIMIT (LHA11)	1575	LOOP 12 HIGH ALARM LIMIT (LHA12)
1526	LOOP 11 HIGH-HIGH ALARM LIMIT (LHHA11)	1576	LOOP 12 HIGH-HIGH ALARM LIMIT (LHHA12)
1527	LOOP 11 ROC ALARM LIMIT (LRCA11)	1577	LOOP 12 ROC ALARM LIMIT (LRCA12)
1528	LOOP 11 YEL. DEV. ALARM LIMIT (LYDA11)	1578	LOOP 12 YEL. DEV. ALARM LIMIT (LYDA12)
1529	LOOP 11 ORG. DEV. ALARM LIMIT (L0DA11)	1579	LOOP 12 ORG. DEV. ALARM LIMIT (L0DA12)
1530		1580	
1531		1581	
1532		1582	
1533		1583	
1534		1584	
1535		1585	
1536		1586	
1537		1587	
1538		1588	
1539		1589	
1540		1590	
1541		1591	
1542		1592	
1543		1593	
1544		1594	
1545		1595	
1546		1596	
1547		1597	
1548		1598	
1549		1599	
1550	LOOP 12 SETPOINT (LSP12)	1600	LOOP 13 SETPOINT (LSP13)

#	DESCRIPTION	#	DESCRIPTION
1601	LOOP 13 SETPOINT FROM XL	1651	LOOP 14 SETPOINT FROM XL
1602	LOOP 13 SETPOINT STORAGE	1652	LOOP 14 SETPOINT STORAGE
1603	LOOP 13 OUTPUT (LMN13)	1653	LOOP 14 OUTPUT (LMN14)
1604	LOOP 13 OUTPUT FROM XL	1654	LOOP 14 OUTPUT FROM XL
1605	LOOP 13 OUTPUT STORAGE	1655	LOOP 14 OUTPUT STORAGE
1606	LOOP 13 PROCESS VARIABLE (LPV13)	1656	LOOP 14 PROCESS VARIABLE (LPV14)
1607	LOOP 13 GAIN CONSTANT (LKC13)	1657	LOOP 14 GAIN CONSTANT (LKC14)
1608	LOOP 13 RESET CONSTANT (LTI13)	1658	LOOP 14 RESET CONSTANT (LTI14)
1609	LOOP 13 RATE CONSTANT (LTD13)	1659	LOOP 14 RATE CONSTANT (LTD14)
1610	LOOP 13 BIAS (LMX13)	1660	LOOP 14 BIAS (LMX14)
1611	LOOP 13 FLAG ADDRESS (LVF13)	1661	LOOP 14 FLAG ADDRESS (LVF14)
1612	LOOP 13 DERIV. GAIN LIMIT COEFF. (LKD13)	1662	LOOP 14 DERIV. GAIN LIMIT COEFF. (LKD14)
1613	LOOP 13 RAMP/SOAK FLAGS (LRSF13)	1663	LOOP 14 RAMP/SOAK FLAGS (LRSF14)
1614	LOOP PV LOW LIMIT (LPVL13)	1664	LOOP PV LOW LIMIT (LPVL14)
1615	LOOP 13 PV HIGH LIMIT (LPVH13)	1665	LOOP 14 PV HIGH LIMIT (LPVH14)
1616	LOOP 13 SETPOINT LOW LIMIT (LSPL13)	1666	LOOP 14 SETPOINT LOW LIMIT (LSPL14)
1617	LOOP 13 SETPOINT HIGH LIMIT (LSPH13)	1667	LOOP 14 SETPOINT HIGH LIMIT (LSPH14)
1618	LOOP 13 ERROR (LERR13)	1668	LOOP 14 ERROR (LERR14)
1619	LOOP 13 SAMPLE RATE (LTS13)	1669	LOOP 14 SAMPLE RATE (LTS14)
1620	LOOP 13 MOST SIG. WORD C-FLAG (LCFH13)	1670	LOOP 14 MOST SIG. WORD C-FLAG (LCFH14)
1621	LOOP 13 LEAST SIG. WORD C-FLAG (LCFL13)	1671	LOOP 14 LEAST SIG. WORD C-FLAG (LCFL14)
1622	LOOP 13 ALARM DEADBAND (LADB13)	1672	LOOP 14 ALARM DEADBAND (LADB14)
1623	LOOP 13 LOW-LOW ALARM LIMIT (LLLA13)	1673	LOOP 14 LOW-LOW ALARM LIMIT (LLLA14)
1624	LOOP 13 LOW ALARM LIMIT (LLA13)	1674	LOOP 14 LOW ALARM LIMIT (LLA14)
1625	LOOP 13 HIGH ALARM LIMIT (LHA13)	1675	LOOP 14 HIGH ALARM LIMIT (LHA14)
1626	LOOP 13 HIGH-HIGH ALARM LIMIT (LHHA13)	1676	LOOP 14 HIGH-HIGH ALARM LIMIT (LHHA14)
1627	LOOP 13 ROC ALARM LIMIT (LRCA13)	1677	LOOP 14 ROC ALARM LIMIT (LRCA14)
1628	LOOP 13 YEL. DEV. ALARM LIMIT (LYDA13)	1678	LOOP 14 YEL. DEV. ALARM LIMIT (LYDA14)
1629	LOOP 13 ORG. DEV. ALARM LIMIT (L0DA13)	1679	LOOP 14 ORG. DEV. ALARM LIMIT (L0DA14)
1630		1680	
1631		1681	
1632		1682	
1633		1683	
1634		1684	
1635		1685	
1636		1686	
1637		1687	
1638		1688	
1639		1689	
1640		1690	
1641		1691	
1642		1692	
1643		1693	
1644		1694	
1645		1695	
1646		1696	
1647		1697	
1648		1698	
1649		1699	
1650	LOOP 14 SETPOINT (LSP14)	1700	LOOP 15 SETPOINT (LSP15)

#	DESCRIPTION	#	DESCRIPTION
1701	LOOP 15 SETPOINT FROM XL	1751	LOOP 16 SETPOINT FROM XL
1702	LOOP 15 SETPOINT STORAGE	1752	LOOP 16 SETPOINT STORAGE
1703	LOOP 15 OUTPUT (LMN15)	1753	LOOP 16 OUTPUT (LMN16)
1704	LOOP 15 OUTPUT FROM XL	1754	LOOP 16 OUTPUT FROM XL
1705	LOOP 15 OUTPUT STORAGE	1755	LOOP 16 OUTPUT STORAGE
1706	LOOP 15 PROCESS VARIABLE (LPV15)	1756	LOOP 16 PROCESS VARIABLE (LPV16)
1707	LOOP 15 GAIN CONSTANT (LKC15)	1757	LOOP 16 GAIN CONSTANT (LKC16)
1708	LOOP 15 RESET CONSTANT (LTI15)	1758	LOOP 16 RESET CONSTANT (LTI16)
1709	LOOP 15 RATE CONSTANT (LTD15)	1759	LOOP 16 RATE CONSTANT (LTD16)
1710	LOOP 15 BIAS (LMX15)	1760	LOOP 16 BIAS (LMX16)
1711	LOOP 15 FLAG ADDRESS (LVF15)	1761	LOOP 16 FLAG ADDRESS (LVF16)
1712	LOOP 15 DERIV. GAIN LIMIT COEFF. (LKD15)	1762	LOOP 16 DERIV. GAIN LIMIT COEFF. (LKD16)
1713	LOOP 15 RAMP/SOAK FLAGS (LRSF15)	1763	LOOP 16 RAMP/SOAK FLAGS (LRSF16)
1714	LOOP PV LOW LIMIT (LPVL15)	1764	LOOP PV LOW LIMIT (LPVL16)
1715	LOOP 15 PV HIGH LIMIT (LPVH15)	1765	LOOP 16 PV HIGH LIMIT (LPVH16)
1716	LOOP 15 SETPOINT LOW LIMIT (LSPL15)	1766	LOOP 16 SETPOINT LOW LIMIT (LSPL16)
1717	LOOP 15 SETPOINT HIGH LIMIT (LSPH15)	1767	LOOP 16 SETPOINT HIGH LIMIT (LSPH16)
1718	LOOP 15 ERROR (LERR15)	1768	LOOP 16 ERROR (LERR16)
1719	LOOP 15 SAMPLE RATE (LTS15)	1769	LOOP 16 SAMPLE RATE (LTS16)
1720	LOOP 15 MOST SIG. WORD C-FLAG (LCFH15)	1770	LOOP 16 MOST SIG. WORD C-FLAG (LCFH16)
1721	LOOP 15 LEAST SIG. WORD C-FLAG (LCFL15)	1771	LOOP 16 LEAST SIG. WORD C-FLAG (LCFL16)
1722	LOOP 15 ALARM DEADBAND (LADB15)	1772	LOOP 16 ALARM DEADBAND (LADB16)
1723	LOOP 15 LOW-LOW ALARM LIMIT (LLLA15)	1773	LOOP 16 LOW-LOW ALARM LIMIT (LLLA16)
1724	LOOP 15 LOW ALARM LIMIT (LLA15)	1774	LOOP 16 LOW ALARM LIMIT (LLA16)
1725	LOOP 15 HIGH ALARM LIMIT (LHA15)	1775	LOOP 16 HIGH ALARM LIMIT (LHA16)
1726	LOOP 15 HIGH-HIGH ALARM LIMIT (LHHA15)	1776	LOOP 16 HIGH-HIGH ALARM LIMIT (LHHA16)
1727	LOOP 15 ROC ALARM LIMIT (LRCA15)	1777	LOOP 16 ROC ALARM LIMIT (LRCA16)
1728	LOOP 15 YEL. DEV. ALARM LIMIT (LYDA15)	1778	LOOP 16 YEL. DEV. ALARM LIMIT (LYDA16)
1729	LOOP 15 ORG. DEV. ALARM LIMIT (LODA15)	1779	LOOP 16 ORG. DEV. ALARM LIMIT (LODA16)
1730		1780	
1731		1781	
1732		1782	
1733		1783	
1734		1784	
1735		1785	
1736		1786	
1737		1787	
1738		1788	
1739		1789	
1740		1790	
1741		1791	
1742		1792	
1743		1793	
1744		1794	
1745		1795	
1746		1796	
1747		1797	
1748		1798	
1749		1799	
1750	LOOP 16 SETPOINT (LSP16)	1800	LOOP 17 SETPOINT (LSP17)

#	DESCRIPTION	#	DESCRIPTION
1801	LOOP 17 SETPOINT FROM XL	1851	LOOP 18 SETPOINT FROM XL
1802	LOOP 17 SETPOINT STORAGE	1852	LOOP 18 SETPOINT STORAGE
1803	LOOP 17 OUTPUT (LMN17)	1853	LOOP 18 OUTPUT (LMN18)
1804	LOOP 17 OUTPUT FROM XL	1854	LOOP 18 OUTPUT FROM XL
1805	LOOP 17 OUTPUT STORAGE	1855	LOOP 18 OUTPUT STORAGE
1806	LOOP 17 PROCESS VARIABLE (LPV17)	1856	LOOP 18 PROCESS VARIABLE (LPV18)
1807	LOOP 17 GAIN CONSTANT (LKC17)	1857	LOOP 18 GAIN CONSTANT (LKC18)
1808	LOOP 17 RESET CONSTANT (LTI17)	1858	LOOP 18 RESET CONSTANT (LTI18)
1809	LOOP 17 RATE CONSTANT (LTD17)	1859	LOOP 18 RATE CONSTANT (LTD18)
1810	LOOP 17 BIAS (LMX17)	1860	LOOP 18 BIAS (LMX18)
1811	LOOP 17 FLAG ADDRESS (LVF17)	1861	LOOP 18 FLAG ADDRESS (LVF18)
1812	LOOP 17 DERIV. GAIN LIMIT COEFF. (LKD17)	1862	LOOP 18 DERIV. GAIN LIMIT COEFF. (LKD18)
1813	LOOP 17 RAMP/SOAK FLAGS (LRSF17)	1863	LOOP 18 RAMP/SOAK FLAGS (LRSF18)
1814	LOOP PV LOW LIMIT (LPVL17)	1864	LOOP PV LOW LIMIT (LPVL18)
1815	LOOP 17 PV HIGH LIMIT (LPVH17)	1865	LOOP 18 PV HIGH LIMIT (LPVH18)
1816	LOOP 17 SETPOINT LOW LIMIT (LSPL17)	1866	LOOP 18 SETPOINT LOW LIMIT (LSPL18)
1817	LOOP 17 SETPOINT HIGH LIMIT (LSPH17)	1867	LOOP 18 SETPOINT HIGH LIMIT (LSPH18)
1818	LOOP 17 ERROR (LERR17)	1868	LOOP 18 ERROR (LERR18)
1819	LOOP 17 SAMPLE RATE (LTS17)	1869	LOOP 18 SAMPLE RATE (LTS18)
1820	LOOP 17 MOST SIG. WORD C-FLAG (LCFH17)	1870	LOOP 18 MOST SIG. WORD C-FLAG (LCFH18)
1821	LOOP 17 LEAST SIG. WORD C-FLAG (LCFL17)	1871	LOOP 18 LEAST SIG. WORD C-FLAG (LCFL18)
1822	LOOP 17 ALARM DEADBAND (LADB17)	1872	LOOP 18 ALARM DEADBAND (LADB18)
1823	LOOP 17 LOW-LOW ALARM LIMIT (LLLA17)	1873	LOOP 18 LOW-LOW ALARM LIMIT (LLLA18)
1824	LOOP 17 LOW ALARM LIMIT (LLA17)	1874	LOOP 18 LOW ALARM LIMIT (LLA18)
1825	LOOP 17 HIGH ALARM LIMIT (LHA17)	1875	LOOP 18 HIGH ALARM LIMIT (LHA18)
1826	LOOP 17 HIGH-HIGH ALARM LIMIT (LHHA17)	1876	LOOP 18 HIGH-HIGH ALARM LIMIT (LHHA18)
1827	LOOP 17 ROC ALARM LIMIT (LRCA17)	1877	LOOP 18 ROC ALARM LIMIT (LRCA18)
1828	LOOP 17 YEL. DEV. ALARM LIMIT (LYDA17)	1878	LOOP 18 YEL. DEV. ALARM LIMIT (LYDA18)
1829	LOOP 17 ORG. DEV. ALARM LIMIT (LODA17)	1879	LOOP 18 ORG. DEV. ALARM LIMIT (LODA18)
1830		1880	
1831		1881	
1832		1882	
1833		1883	
1834		1884	
1835		1885	
1836		1886	
1837		1887	
1838		1888	
1839		1889	
1840		1890	
1841		1891	
1842		1892	
1843		1893	
1844		1894	
1845		1895	
1846		1896	
1847		1897	
1848		1898	
1849		1899	
1850	LOOP 18 SETPOINT (LSP18)	1900	LOOP 19 SETPOINT (LSP19)

#	DESCRIPTION	#	DESCRIPTION
1901	LOOP 19 SETPOINT FROM XL	1951	LOOP 20 SETPOINT FROM XL
1902	LOOP 19 SETPOINT STORAGE	1952	LOOP 20 SETPOINT STORAGE
1903	LOOP 19 OUTPUT (LMN19)	1953	LOOP 20 OUTPUT (LMN20)
1904	LOOP 19 OUTPUT FROM XL	1954	LOOP 20 OUTPUT FROM XL
1905	LOOP 19 OUTPUT STORAGE	1955	LOOP 20 OUTPUT STORAGE
1906	LOOP 19 PROCESS VARIABLE (LPV19)	1956	LOOP 20 PROCESS VARIABLE (LPV20)
1907	LOOP 19 GAIN CONSTANT (LKC19)	1957	LOOP 20 GAIN CONSTANT (LKC20)
1908	LOOP 19 RESET CONSTANT (LTI19)	1958	LOOP 20 RESET CONSTANT (LTI20)
1909	LOOP 19 RATE CONSTANT (LTD19)	1959	LOOP 20 RATE CONSTANT (LTD20)
1910	LOOP 19 BIAS (LMX19)	1960	LOOP 20 BIAS (LMX20)
1911	LOOP 19 FLAG ADDRESS (LVF19)	1961	LOOP 20 FLAG ADDRESS (LVF20)
1912	LOOP 19 DERIV. GAIN LIMIT COEFF. (LKD19)	1962	LOOP 20 DERIV. GAIN LIMIT COEFF. (LKD20)
1913	LOOP 19 RAMP/SOAK FLAGS (LRSF19)	1963	LOOP 20 RAMP/SOAK FLAGS (LRSF20)
1914	LOOP PV LOW LIMIT (LPVL19)	1964	LOOP PV LOW LIMIT (LPVL20)
1915	LOOP 19 PV HIGH LIMIT (LPVH19)	1965	LOOP 20 PV HIGH LIMIT (LPVH20)
1916	LOOP 19 SETPOINT LOW LIMIT (LSPL19)	1966	LOOP 20 SETPOINT LOW LIMIT (LSPL20)
1917	LOOP 19 SETPOINT HIGH LIMIT (LSPH19)	1967	LOOP 20 SETPOINT HIGH LIMIT (LSPH20)
1918	LOOP 19 ERROR (LERR19)	1968	LOOP 20 ERROR (LERR20)
1919	LOOP 19 SAMPLE RATE (LTS19)	1969	LOOP 20 SAMPLE RATE (LTS20)
1920	LOOP 19 MOST SIG. WORD C-FLAG (LCFH19)	1970	LOOP 20 MOST SIG. WORD C-FLAG (LCFH20)
1921	LOOP 19 LEAST SIG. WORD C-FLAG (LCFL19)	1971	LOOP 20 LEAST SIG. WORD C-FLAG (LCFL20)
1922	LOOP 19 ALARM DEADBAND (LADB19)	1972	LOOP 20 ALARM DEADBAND (LADB20)
1923	LOOP 19 LOW-LOW ALARM LIMIT (LLLA19)	1973	LOOP 20 LOW-LOW ALARM LIMIT (LLLA20)
1924	LOOP 19 LOW ALARM LIMIT (LLA19)	1974	LOOP 20 LOW ALARM LIMIT (LLA20)
1925	LOOP 19 HIGH ALARM LIMIT (LHA19)	1975	LOOP 20 HIGH ALARM LIMIT (LHA20)
1926	LOOP 19 HIGH-HIGH ALARM LIMIT (LHHA19)	1976	LOOP 20 HIGH-HIGH ALARM LIMIT (LHHA20)
1927	LOOP 19 ROC ALARM LIMIT (LRCA19)	1977	LOOP 20 ROC ALARM LIMIT (LRCA20)
1928	LOOP 19 YEL. DEV. ALARM LIMIT (LYDA19)	1978	LOOP 20 YEL. DEV. ALARM LIMIT (LYDA20)
1929	LOOP 19 ORG. DEV. ALARM LIMIT (LODA19)	1979	LOOP 20 ORG. DEV. ALARM LIMIT (LODA20)
1930		1980	
1931		1981	
1932		1982	
1933		1983	
1934		1984	
1935		1985	
1936		1986	
1937		1987	
1938		1988	
1939		1989	
1940		1990	
1941		1991	
1942		1992	
1943		1993	
1944		1994	
1945		1995	
1946		1996	
1947		1997	
1948		1998	
1949		1999	
1950	LOOP 20 SETPOINT (LSP20)	2000	LOOP 21 SETPOINT (LSP21)

#	DESCRIPTION	#	DESCRIPTION
2001	LOOP 21 SETPOINT FROM XL	2051	LOOP 22 SETPOINT FROM XL
2002	LOOP 21 SETPOINT STORAGE	2052	LOOP 22 SETPOINT STORAGE
2003	LOOP 21 OUTPUT (LMN21)	2053	LOOP 22 OUTPUT (LMN22)
2004	LOOP 21 OUTPUT FROM XL	2054	LOOP 22 OUTPUT FROM XL
2005	LOOP 21 OUTPUT STORAGE	2055	LOOP 22 OUTPUT STORAGE
2006	LOOP 21 PROCESS VARIABLE (LPV21)	2056	LOOP 22 PROCESS VARIABLE (LPV22)
2007	LOOP 21 GAIN CONSTANT (LKC21)	2057	LOOP 22 GAIN CONSTANT (LKC22)
2008	LOOP 21 RESET CONSTANT (LTI21)	2058	LOOP 22 RESET CONSTANT (LTI22)
2009	LOOP 21 RATE CONSTANT (LTD21)	2059	LOOP 22 RATE CONSTANT (LTD22)
2010	LOOP 21 BIAS (LMX21)	2060	LOOP 22 BIAS (LMX22)
2011	LOOP 21 FLAG ADDRESS (LVF21)	2061	LOOP 22 FLAG ADDRESS (LVF22)
2012	LOOP 21 DERIV. GAIN LIMIT COEFF. (LKD21)	2062	LOOP 22 DERIV. GAIN LIMIT COEFF. (LKD22)
2013	LOOP 21 RAMP/SOAK FLAGS (LRSF21)	2063	LOOP 22 RAMP/SOAK FLAGS (LRSF22)
2014	LOOP PV LOW LIMIT (LPVL21)	2064	LOOP PV LOW LIMIT (LPVL22)
2015	LOOP 21 PV HIGH LIMIT (LPVH21)	2065	LOOP 22 PV HIGH LIMIT (LPVH22)
2016	LOOP 21 SETPOINT LOW LIMIT (LSPL21)	2066	LOOP 22 SETPOINT LOW LIMIT (LSPL22)
2017	LOOP 21 SETPOINT HIGH LIMIT (LSPH21)	2067	LOOP 22 SETPOINT HIGH LIMIT (LSPH22)
2018	LOOP 21 ERROR (LERR21)	2068	LOOP 22 ERROR (LERR22)
2019	LOOP 21 SAMPLE RATE (LTS21)	2069	LOOP 22 SAMPLE RATE (LTS22)
2020	LOOP 21 MOST SIG. WORD C-FLAG (LCFH21)	2070	LOOP 22 MOST SIG. WORD C-FLAG (LCFH22)
2021	LOOP 21 LEAST SIG. WORD C-FLAG (LCFL21)	2071	LOOP 22 LEAST SIG. WORD C-FLAG (LCFL22)
2022	LOOP 21 ALARM DEADBAND (LADB21)	2072	LOOP 22 ALARM DEADBAND (LADB22)
2023	LOOP 21 LOW-LOW ALARM LIMIT (LLLA21)	2073	LOOP 22 LOW-LOW ALARM LIMIT (LLLA22)
2024	LOOP 21 LOW ALARM LIMIT (LLA21)	2074	LOOP 22 LOW ALARM LIMIT (LLA22)
2025	LOOP 21 HIGH ALARM LIMIT (LHA21)	2075	LOOP 22 HIGH ALARM LIMIT (LHA22)
2026	LOOP 21 HIGH-HIGH ALARM LIMIT (LHHA21)	2076	LOOP 22 HIGH-HIGH ALARM LIMIT (LHHA22)
2027	LOOP 21 ROC ALARM LIMIT (LRCA21)	2077	LOOP 22 ROC ALARM LIMIT (LRCA22)
2028	LOOP 21 YEL. DEV. ALARM LIMIT (LYDA21)	2078	LOOP 22 YEL. DEV. ALARM LIMIT (LYDA22)
2029	LOOP 21 ORG. DEV. ALARM LIMIT (L0DA21)	2079	LOOP 22 ORG. DEV. ALARM LIMIT (L0DA22)
2030		2080	
2031		2081	
2032		2082	
2033		2083	
2034		2084	
2035		2085	
2036		2086	
2037		2087	
2038		2088	
2039		2089	
2040		2090	
2041		2091	
2042		2092	
2043		2093	
2044		2094	
2045		2095	
2046		2096	
2047		2097	
2048		2098	
2049		2099	
2050	LOOP 22 SETPOINT (LSP22)	2100	LOOP 23 SETPOINT (LSP23)

#	DESCRIPTION	#	DESCRIPTION
2101	LOOP 23 SETPOINT FROM XL	2151	LOOP 24 SETPOINT FROM XL
2102	LOOP 23 SETPOINT STORAGE	2152	LOOP 24 SETPOINT STORAGE
2103	LOOP 23 OUTPUT (LMN23)	2153	LOOP 24 OUTPUT (LMN24)
2104	LOOP 23 OUTPUT FROM XL	2154	LOOP 24 OUTPUT FROM XL
2105	LOOP 23 OUTPUT STORAGE	2155	LOOP 24 OUTPUT STORAGE
2106	LOOP 23 PROCESS VARIABLE (LPV23)	2156	LOOP 24 PROCESS VARIABLE (LPV24)
2107	LOOP 23 GAIN CONSTANT (LKC23)	2157	LOOP 24 GAIN CONSTANT (LKC24)
2108	LOOP 23 RESET CONSTANT (LTI23)	2158	LOOP 24 RESET CONSTANT (LTI24)
2109	LOOP 23 RATE CONSTANT (LTD23)	2159	LOOP 24 RATE CONSTANT (LTD24)
2110	LOOP 23 BIAS (LMX23)	2160	LOOP 24 BIAS (LMX24)
2111	LOOP 23 FLAG ADDRESS (LVF23)	2161	LOOP 24 FLAG ADDRESS (LVF24)
2112	LOOP 23 DERIV. GAIN LIMIT COEFF. (LKD23)	2162	LOOP 24 DERIV. GAIN LIMIT COEFF. (LKD24)
2113	LOOP 23 RAMP/SOAK FLAGS (LRSF23)	2163	LOOP 24 RAMP/SOAK FLAGS (LRSF24)
2114	LOOP PV LOW LIMIT (LPVL23)	2164	LOOP PV LOW LIMIT (LPVL24)
2115	LOOP 23 PV HIGH LIMIT (LPVH23)	2165	LOOP 24 PV HIGH LIMIT (LPVH24)
2116	LOOP 23 SETPOINT LOW LIMIT (LSPL23)	2166	LOOP 24 SETPOINT LOW LIMIT (LSPL24)
2117	LOOP 23 SETPOINT HIGH LIMIT (LSPH23)	2167	LOOP 24 SETPOINT HIGH LIMIT (LSPH24)
2118	LOOP 23 ERROR (LERR23)	2168	LOOP 24 ERROR (LERR24)
2119	LOOP 23 SAMPLE RATE (LTS23)	2169	LOOP 24 SAMPLE RATE (LTS24)
2120	LOOP 23 MOST SIG. WORD C-FLAG (LCFH23)	2170	LOOP 24 MOST SIG. WORD C-FLAG (LCFH24)
2121	LOOP 23 LEAST SIG. WORD C-FLAG (LCFL23)	2171	LOOP 24 LEAST SIG. WORD C-FLAG (LCFL24)
2122	LOOP 23 ALARM DEADBAND (LADB23)	2172	LOOP 24 ALARM DEADBAND (LADB24)
2123	LOOP 23 LOW-LOW ALARM LIMIT (LLA23)	2173	LOOP 24 LOW-LOW ALARM LIMIT (LLA24)
2124	LOOP 23 LOW ALARM LIMIT (LLA23)	2174	LOOP 24 LOW ALARM LIMIT (LLA24)
2125	LOOP 23 HIGH ALARM LIMIT (LHA23)	2175	LOOP 24 HIGH ALARM LIMIT (LHA24)
2126	LOOP 23 HIGH-HIGH ALARM LIMIT (LHHA23)	2176	LOOP 24 HIGH-HIGH ALARM LIMIT (LHHA24)
2127	LOOP 23 ROC ALARM LIMIT (LRCA23)	2177	LOOP 24 ROC ALARM LIMIT (LRCA24)
2128	LOOP 23 YEL. DEV. ALARM LIMIT (LYDA23)	2178	LOOP 24 YEL. DEV. ALARM LIMIT (LYDA24)
2129	LOOP 23 ORG. DEV. ALARM LIMIT (LODA23)	2179	LOOP 24 ORG. DEV. ALARM LIMIT (LODA24)
2130		2180	
2131		2181	
2132		2182	
2133		2183	
2134		2184	
2135		2185	
2136		2186	
2137		2187	
2138		2188	
2139		2189	
2140		2190	
2141		2191	
2142		2192	
2143		2193	
2144		2194	
2145		2195	
2146		2196	
2147		2197	
2148		2198	
2149		2199	
2150	LOOP 24 SETPOINT (LSP24)	2200	LOOP 25 SETPOINT (LSP25)

#	DESCRIPTION	#	DESCRIPTION
2201	LOOP 25 SETPOINT FROM XL	2251	LOOP 26 SETPOINT FROM XL
2202	LOOP 25 SETPOINT STORAGE	2252	LOOP 26 SETPOINT STORAGE
2203	LOOP 25 OUTPUT (LMN25)	2253	LOOP 26 OUTPUT (LMN26)
2204	LOOP 25 OUTPUT FROM XL	2254	LOOP 26 OUTPUT FROM XL
2205	LOOP 25 OUTPUT STORAGE	2255	LOOP 26 OUTPUT STORAGE
2206	LOOP 25 PROCESS VARIABLE (LPV25)	2256	LOOP 26 PROCESS VARIABLE (LPV26)
2207	LOOP 25 GAIN CONSTANT (LKC25)	2257	LOOP 26 GAIN CONSTANT (LKC26)
2208	LOOP 25 RESET CONSTANT (LTI25)	2258	LOOP 26 RESET CONSTANT (LTI26)
2209	LOOP 25 RATE CONSTANT (LTD25)	2259	LOOP 26 RATE CONSTANT (LTD26)
2210	LOOP 25 BIAS (LMX25)	2260	LOOP 26 BIAS (LMX26)
2211	LOOP 25 FLAG ADDRESS (LVF25)	2261	LOOP 26 FLAG ADDRESS (LVF26)
2212	LOOP 25 DERIV. GAIN LIMIT COEFF. (LKD25)	2262	LOOP 26 DERIV. GAIN LIMIT COEFF. (LKD26)
2213	LOOP 25 RAMP/SOAK FLAGS (LRSF25)	2263	LOOP 26 RAMP/SOAK FLAGS (LRSF26)
2214	LOOP PV LOW LIMIT (LPVL25)	2264	LOOP PV LOW LIMIT (LPVL26)
2215	LOOP 25 PV HIGH LIMIT (LPVH25)	2265	LOOP 26 PV HIGH LIMIT (LPVH26)
2216	LOOP 25 SETPOINT LOW LIMIT (LSPL25)	2266	LOOP 26 SETPOINT LOW LIMIT (LSPL26)
2217	LOOP 25 SETPOINT HIGH LIMIT (LSPH25)	2267	LOOP 26 SETPOINT HIGH LIMIT (LSPH26)
2218	LOOP 25 ERROR (LERR25)	2268	LOOP 26 ERROR (LERR26)
2219	LOOP 25 SAMPLE RATE (LTS25)	2269	LOOP 26 SAMPLE RATE (LTS26)
2220	LOOP 25 MOST SIG. WORD C-FLAG (LCFH25)	2270	LOOP 26 MOST SIG. WORD C-FLAG (LCFH26)
2221	LOOP 25 LEAST SIG. WORD C-FLAG (LCFL25)	2271	LOOP 26 LEAST SIG. WORD C-FLAG (LCFL26)
2222	LOOP 25 ALARM DEADBAND (LADB25)	2272	LOOP 26 ALARM DEADBAND (LADB26)
2223	LOOP 25 LOW-LOW ALARM LIMIT (LLLA25)	2273	LOOP 26 LOW-LOW ALARM LIMIT (LLLA26)
2224	LOOP 25 LOW ALARM LIMIT (LLA25)	2274	LOOP 26 LOW ALARM LIMIT (LLA26)
2225	LOOP 25 HIGH ALARM LIMIT (LHA25)	2275	LOOP 26 HIGH ALARM LIMIT (LHA26)
2226	LOOP 25 HIGH-HIGH ALARM LIMIT (LHHA25)	2276	LOOP 26 HIGH-HIGH ALARM LIMIT (LHHA26)
2227	LOOP 25 ROC ALARM LIMIT (LRCA25)	2277	LOOP 26 ROC ALARM LIMIT (LRCA26)
2228	LOOP 25 YEL. DEV. ALARM LIMIT (LYDA25)	2278	LOOP 26 YEL. DEV. ALARM LIMIT (LYDA26)
2229	LOOP 25 ORG. DEV. ALARM LIMIT (LODA25)	2279	LOOP 26 ORG. DEV. ALARM LIMIT (LODA26)
2230		2280	
2231		2281	
2232		2282	
2233		2283	
2234		2284	
2235		2285	
2236		2286	
2237		2287	
2238		2288	
2239		2289	
2240		2290	
2241		2291	
2242		2292	
2243		2293	
2244		2294	
2245		2295	
2246		2296	
2247		2297	
2248		2298	
2249		2299	
2250	LOOP 26 SETPOINT (LSP26)	2300	LOOP 27 SETPOINT (LSP27)

#	DESCRIPTION	#	DESCRIPTION
2301	LOOP 27 SETPOINT FROM XL	2251	LOOP 28 SETPOINT FROM XL
2302	LOOP 27 SETPOINT STORAGE	2252	LOOP 28 SETPOINT STORAGE
2303	LOOP 27 OUTPUT (LMN27)	2253	LOOP 28 OUTPUT (LMN28)
2304	LOOP 27 OUTPUT FROM XL	2254	LOOP 28 OUTPUT FROM XL
2305	LOOP 27 OUTPUT STORAGE	2255	LOOP 28 OUTPUT STORAGE
2306	LOOP 27 PROCESS VARIABLE (LPV27)	2256	LOOP 28 PROCESS VARIABLE (LPV28)
2307	LOOP 27 GAIN CONSTANT (LKC27)	2257	LOOP 28 GAIN CONSTANT (LKC28)
2308	LOOP 27 RESET CONSTANT (LTI27)	2258	LOOP 28 RESET CONSTANT (LTI28)
2309	LOOP 27 RATE CONSTANT (LTD27)	2259	LOOP 28 RATE CONSTANT (LTD28)
2310	LOOP 27 BIAS (LMX27)	2260	LOOP 28 BIAS (LMX28)
2311	LOOP 27 FLAG ADDRESS (LVF27)	2261	LOOP 28 FLAG ADDRESS (LVF28)
2312	LOOP 27 DERIV. GAIN LIMIT COEFF. (LKD27)	2262	LOOP 28 DERIV. GAIN LIMIT COEFF. (LKD28)
2313	LOOP 27 RAMP/SOAK FLAGS (LRSF27)	2263	LOOP 28 RAMP/SOAK FLAGS (LRSF28)
2314	LOOP PV LOW LIMIT (LPVL27)	2264	LOOP PV LOW LIMIT (LPVL28)
2315	LOOP 27 PV HIGH LIMIT (LPVH27)	2265	LOOP 28 PV HIGH LIMIT (LPVH28)
2316	LOOP 27 SETPOINT LOW LIMIT (LSPL27)	2266	LOOP 28 SETPOINT LOW LIMIT (LSPL28)
2317	LOOP 27 SETPOINT HIGH LIMIT (LSPH27)	2267	LOOP 28 SETPOINT HIGH LIMIT (LSPH28)
2318	LOOP 27 ERROR (LERR27)	2268	LOOP 28 ERROR (LERR28)
2319	LOOP 27 SAMPLE RATE (LTS27)	2269	LOOP 28 SAMPLE RATE (LTS28)
2320	LOOP 27 MOST SIG. WORD C-FLAG (LCFH27)	2270	LOOP 28 MOST SIG. WORD C-FLAG (LCFH28)
2321	LOOP 27 LEAST SIG. WORD C-FLAG (LCFL27)	2271	LOOP 28 LEAST SIG. WORD C-FLAG (LCFL28)
2322	LOOP 27 ALARM DEADBAND (LADB27)	2272	LOOP 28 ALARM DEADBAND (LADB28)
2323	LOOP 27 LOW-LOW ALARM LIMIT (LLLA27)	2273	LOOP 28 LOW-LOW ALARM LIMIT (LLLA28)
2324	LOOP 27 LOW ALARM LIMIT (LLA27)	2274	LOOP 28 LOW ALARM LIMIT (LLA28)
2325	LOOP 27 HIGH ALARM LIMIT (LHA27)	2275	LOOP 28 HIGH ALARM LIMIT (LHA28)
2326	LOOP 27 HIGH-HIGH ALARM LIMIT (LHHA27)	2276	LOOP 28 HIGH-HIGH ALARM LIMIT (LHHA28)
2327	LOOP 27 ROC ALARM LIMIT (LRCA27)	2277	LOOP 28 ROC ALARM LIMIT (LRCA28)
2328	LOOP 27 YEL. DEV. ALARM LIMIT (LYDA27)	2278	LOOP 28 YEL. DEV. ALARM LIMIT (LYDA28)
2329	LOOP 27 ORG. DEV. ALARM LIMIT (LODA27)	2279	LOOP 28 ORG. DEV. ALARM LIMIT (LODA28)
2330		2280	
2331		2281	
2332		2282	
2333		2283	
2334		2284	
2335		2285	
2336		2286	
2337		2287	
2338		2288	
2339		2289	
2340		2290	
2341		2291	
2342		2292	
2343		2293	
2344		2294	
2345		2295	
2346		2296	
2347		2297	
2348		2298	
2349		2299	
2350	LOOP 28 SETPOINT (LSP28)	2300	LOOP 29 SETPOINT (LSP29)

#	DESCRIPTION	#	DESCRIPTION
2301	LOOP 29 SETPOINT FROM XL	2351	LOOP 30 SETPOINT FROM XL
2302	LOOP 29 SETPOINT STORAGE	2352	LOOP 30 SETPOINT STORAGE
2303	LOOP 29 OUTPUT (LMN29)	2353	LOOP 30 OUTPUT (LMN30)
2304	LOOP 29 OUTPUT FROM XL	2354	LOOP 30 OUTPUT FROM XL
2305	LOOP 29 OUTPUT STORAGE	2355	LOOP 30 OUTPUT STORAGE
2306	LOOP 29 PROCESS VARIABLE (LPV29)	2356	LOOP 30 PROCESS VARIABLE (LPV30)
2307	LOOP 29 GAIN CONSTANT (LKC29)	2357	LOOP 30 GAIN CONSTANT (LKC30)
2308	LOOP 29 RESET CONSTANT (LTI29)	2358	LOOP 30 RESET CONSTANT (LTI30)
2309	LOOP 29 RATE CONSTANT (LTD29)	2359	LOOP 30 RATE CONSTANT (LTD30)
2310	LOOP 29 BIAS (LMX29)	2360	LOOP 30 BIAS (LMX30)
2311	LOOP 29 FLAG ADDRESS (LVF29)	2361	LOOP 30 FLAG ADDRESS (LVF30)
2312	LOOP 29 DERIV. GAIN LIMIT COEFF. (LKD29)	2362	LOOP 30 DERIV. GAIN LIMIT COEFF. (LKD30)
2313	LOOP 29 RAMP/SOAK FLAGS (LRSF29)	2363	LOOP 30 RAMP/SOAK FLAGS (LRSF30)
2314	LOOP PV LOW LIMIT (LPVL29)	2364	LOOP PV LOW LIMIT (LPVL30)
2315	LOOP 29 PV HIGH LIMIT (LPVH29)	2365	LOOP 30 PV HIGH LIMIT (LPVH30)
2316	LOOP 29 SETPOINT LOW LIMIT (LSPL29)	2366	LOOP 30 SETPOINT LOW LIMIT (LSPL30)
2317	LOOP 29 SETPOINT HIGH LIMIT (LSPH29)	2367	LOOP 30 SETPOINT HIGH LIMIT (LSPH30)
2318	LOOP 29 ERROR (LERR29)	2368	LOOP 30 ERROR (LERR30)
2319	LOOP 29 SAMPLE RATE (LTS29)	2369	LOOP 30 SAMPLE RATE (LTS30)
2320	LOOP 29 MOST SIG. WORD C-FLAG (LCFH29)	2370	LOOP 30 MOST SIG. WORD C-FLAG (LCFH30)
2321	LOOP 29 LEAST SIG. WORD C-FLAG (LCFL29)	2371	LOOP 30 LEAST SIG. WORD C-FLAG (LCFL30)
2322	LOOP 29 ALARM DEADBAND (LADB29)	2372	LOOP 30 ALARM DEADBAND (LADB30)
2323	LOOP 29 LOW-LOW ALARM LIMIT (LLLA29)	2373	LOOP 30 LOW-LOW ALARM LIMIT (LLLA30)
2324	LOOP 29 LOW ALARM LIMIT (LLA29)	2374	LOOP 30 LOW ALARM LIMIT (LLA30)
2325	LOOP 29 HIGH ALARM LIMIT (LHA29)	2375	LOOP 30 HIGH ALARM LIMIT (LHA30)
2326	LOOP 29 HIGH-HIGH ALARM LIMIT (LHHA29)	2376	LOOP 30 HIGH-HIGH ALARM LIMIT (LHHA30)
2327	LOOP 29 ROC ALARM LIMIT (LRCA29)	2377	LOOP 30 ROC ALARM LIMIT (LRCA30)
2328	LOOP 29 YEL. DEV. ALARM LIMIT (LYDA29)	2378	LOOP 30 YEL. DEV. ALARM LIMIT (LYDA30)
2329	LOOP 29 ORG. DEV. ALARM LIMIT (LODA29)	2379	LOOP 30 ORG. DEV. ALARM LIMIT (LODA30)
2330		2380	
2331		2381	
2332		2382	
2333		2383	
2334		2384	
2335		2385	
2336		2386	
2337		2387	
2338		2388	
2339		2389	
2340		2390	
2341		2391	
2342		2392	
2343		2393	
2344		2394	
2345		2395	
2346		2396	
2347		2397	
2348		2398	
2349		2399	
2350	LOOP 30 SETPOINT (LSP30)	2400	LOOP 31 SETPOINT (LSP31)

#	DESCRIPTION	#	DESCRIPTION
2401	LOOP 31 SETPOINT FROM XL	2451	LOOP 32 SETPOINT FROM XL
2402	LOOP 31 SETPOINT STORAGE	2452	LOOP 32 SETPOINT STORAGE
2403	LOOP 31 OUTPUT (LMN31)	2453	LOOP 32 OUTPUT (LMN32)
2404	LOOP 31 OUTPUT FROM XL	2454	LOOP 32 OUTPUT FROM XL
2405	LOOP 31 OUTPUT STORAGE	2455	LOOP 32 OUTPUT STORAGE
2406	LOOP 31 PROCESS VARIABLE (LPV31)	2456	LOOP 32 PROCESS VARIABLE (LPV32)
2407	LOOP 31 GAIN CONSTANT (LKC31)	2457	LOOP 32 GAIN CONSTANT (LKC32)
2408	LOOP 31 RESET CONSTANT (LTI31)	2458	LOOP 32 RESET CONSTANT (LTI32)
2409	LOOP 31 RATE CONSTANT (LTD31)	2459	LOOP 32 RATE CONSTANT (LTD32)
2410	LOOP 31 BIAS (LMX31)	2460	LOOP 32 BIAS (LMX32)
2411	LOOP 31 FLAG ADDRESS (LVF31)	2461	LOOP 32 FLAG ADDRESS (LVF32)
2412	LOOP 31 DERIV. GAIN LIMIT COEFF. (LKD31)	2462	LOOP 32 DERIV. GAIN LIMIT COEFF. (LKD32)
2413	LOOP 31 RAMP/SOAK FLAGS (LRSF31)	2463	LOOP 32 RAMP/SOAK FLAGS (LRSF32)
2414	LOOP PV LOW LIMIT (LPVL31)	2464	LOOP PV LOW LIMIT (LPVL32)
2415	LOOP 31 PV HIGH LIMIT (LPVH31)	2465	LOOP 32 PV HIGH LIMIT (LPVH32)
2416	LOOP 31 SETPOINT LOW LIMIT (LSPL31)	2466	LOOP 32 SETPOINT LOW LIMIT (LSPL32)
2417	LOOP 31 SETPOINT HIGH LIMIT (LSPH31)	2467	LOOP 32 SETPOINT HIGH LIMIT (LSPH32)
2418	LOOP 31 ERROR (LERR31)	2468	LOOP 32 ERROR (LERR32)
2419	LOOP 31 SAMPLE RATE (LTS31)	2469	LOOP 32 SAMPLE RATE (LTS32)
2420	LOOP 31 MOST SIG. WORD C-FLAG (LCFH31)	2470	LOOP 32 MOST SIG. WORD C-FLAG (LCFH32)
2421	LOOP 31 LEAST SIG. WORD C-FLAG (LCFL31)	2471	LOOP 32 LEAST SIG. WORD C-FLAG (LCFL32)
2422	LOOP 31 ALARM DEADBAND (LADB31)	2472	LOOP 32 ALARM DEADBAND (LADB32)
2423	LOOP 31 LOW-LOW ALARM LIMIT (LLLA31)	2473	LOOP 32 LOW-LOW ALARM LIMIT (LLLA32)
2424	LOOP 31 LOW ALARM LIMIT (LLA31)	2474	LOOP 32 LOW ALARM LIMIT (LLA32)
2425	LOOP 31 HIGH ALARM LIMIT (LHA31)	2475	LOOP 32 HIGH ALARM LIMIT (LHA32)
2426	LOOP 31 HIGH-HIGH ALARM LIMIT (LHHA31)	2476	LOOP 32 HIGH-HIGH ALARM LIMIT (LHHA32)
2427	LOOP 31 ROC ALARM LIMIT (LRCA31)	2477	LOOP 32 ROC ALARM LIMIT (LRCA32)
2428	LOOP 31 YEL. DEV. ALARM LIMIT (LYDA31)	2478	LOOP 32 YEL. DEV. ALARM LIMIT (LYDA32)
2429	LOOP 31 ORG. DEV. ALARM LIMIT (L0DA31)	2479	LOOP 32 ORG. DEV. ALARM LIMIT (L0DA32)
2430		2480	
2431		2481	
2432		2482	
2433		2483	
2434		2484	
2435		2485	
2436		2486	
2437		2487	
2438		2488	
2439		2489	
2440		2490	
2441		2491	
2442		2492	
2443		2493	
2444		2494	
2445		2495	
2446		2496	
2447		2497	
2448		2498	
2449		2499	
2450		2500	

RELAY MEMORY

1/4/90

#	DESCRIPTION	DEFAULT	OPEN	CLOSED
1	DUMMY COIL	N/A	N/A	N/A
2	POWER	OPEN	OFF	ON
3	CONTROL / INITIALIZE	CLOSED	INITIALIZE	CONTROL
4				
5				
6	LEFT I/A DRIER SWITCH	N/A	DRYING AIR	REGENERATING
7	RIGHT I/A DRIER SWITCH	N/A	DRYING AIR	REGENERATING
8	TMR9 TIME OUT	N/A	COUNTING	TIME OUT
9				
10	I/A DRIER TIMER RESET	N/A	NORMAL	RESET
11	I/A DRIER FAIL TO CYCLE	OPEN	OK	FAIL
12				
13	I/A RECEIVING TANK FAIL TO BLOW DOWN	OPEN	OK	FAIL
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
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40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				

RELAY MEMORY

1/4/90

#	DESCRIPTION	DEFAULT	OPEN	CLOSED
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69	LN2 DEWAR AMBIENT HX TIMER	N/A	N/A	N/A
70	LN2 DEWAR AMBIENT HX TIMER	N/A	N/A	N/A
71	LN2 DEWAR AMBIENT HX TIMER	N/A	N/A	N/A
72				
73	I/A RECEIVING TANK BLOWDOWN TIMER	N/A	WAITING	BLOWING
74				
75				
76				
77				
78				
79				
80	WATCHDOG TIMER	N/A	N/A	N/A
81	WATCHDOG TIMER	N/A	N/A	N/A
82				
83				
84				
85				
86				
87				
88				
89				
90				
91				
92				
93				
94				
95				
96				
97				
98				
99	POWER ON RESET	OPEN	NORMAL	RESET
100	ALL LOOP MASTER CONTROL RELAY	OPEN	MANUAL	AUTO

#	DESCRIPTION	DEFAULT	OPEN	CLOSED
101	LOOP 1 CONTROL RELAY	OPEN	MANUAL	AUTO
102	LOOP 2 CONTROL RELAY	OPEN	MANUAL	AUTO
103	LOOP 3 CONTROL RELAY	OPEN	MANUAL	AUTO
104	LOOP 4 CONTROL RELAY	OPEN	MANUAL	AUTO
105	LOOP 5 CONTROL RELAY	OPEN	MANUAL	AUTO
106	LOOP 6 CONTROL RELAY	OPEN	MANUAL	AUTO
107	LOOP 7 CONTROL RELAY	OPEN	MANUAL	AUTO
108	LOOP 8 CONTROL RELAY	OPEN	MANUAL	AUTO
109	LOOP 9 CONTROL RELAY	OPEN	MANUAL	AUTO
110	LOOP 10 CONTROL RELAY	OPEN	MANUAL	AUTO
111	LOOP 11 CONTROL RELAY	OPEN	MANUAL	AUTO
112	LOOP 12 CONTROL RELAY	OPEN	MANUAL	AUTO
113	LOOP 13 CONTROL RELAY	OPEN	MANUAL	AUTO
114	LOOP 14 CONTROL RELAY	OPEN	MANUAL	AUTO
115	LOOP 15 CONTROL RELAY	OPEN	MANUAL	AUTO
116	LOOP 16 CONTROL RELAY	OPEN	MANUAL	AUTO
117	LOOP 17 CONTROL RELAY	OPEN	MANUAL	AUTO
118	LOOP 18 CONTROL RELAY	OPEN	MANUAL	AUTO
119	LOOP 19 CONTROL RELAY	OPEN	MANUAL	AUTO
120	LOOP 20 CONTROL RELAY	OPEN	MANUAL	AUTO
121	LOOP 21 CONTROL RELAY	OPEN	MANUAL	AUTO
122	LOOP 22 CONTROL RELAY	OPEN	MANUAL	AUTO
123	LOOP 23 CONTROL RELAY	OPEN	MANUAL	AUTO
124	LOOP 24 CONTROL RELAY	OPEN	MANUAL	AUTO
125	LOOP 24 CONTROL RELAY	OPEN	MANUAL	AUTO
126	LOOP 26 CONTROL RELAY	OPEN	MANUAL	AUTO
127	LOOP 27 CONTROL RELAY	OPEN	MANUAL	AUTO
128	LOOP 28 CONTROL RELAY	OPEN	MANUAL	AUTO
129	LOOP 29 CONTROL RELAY	OPEN	MANUAL	AUTO
130	LOOP 30 CONTROL RELAY	OPEN	MANUAL	AUTO
131	LOOP 31 CONTROL RELAY	OPEN	MANUAL	AUTO
132	LOOP 32 CONTROL RELAY	OPEN	MANUAL	AUTO
133				
134				
135				
136				
137				
138				
139				
140				
141				
142				
143				
144				
145				
146				
147				
148				
149				
150				

#	DESCRIPTION	DEFAULT	OPEN	CLOSED
151	RESERVED FOR FUTURE LOOP CONTACTS			
152				
153				
154				
155				
156				
157				
158				
159				
160				
161				
162				
163				
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191				
192				
193				
194				
195				
196				
197				
198				
199				
200	I/A TO 3 LN2 DEWAR ACTUATORS - EV501,513,235	OPEN	AIR OFF	AIR ON

RELAY MEMORY

1/4/90

#	DESCRIPTION	DEFAULT	OPEN	CLOSED
201				
202				
203				
204				
205				
206				
207				
208				
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210				
211				
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213				
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240				
241				
242				
243				
244				
245				
246				
247				
248				
249				
250				

RELAY MEMORY

1/4/90

#	DESCRIPTION	DEFAULT	OPEN	CLOSED
251				
252				
253				
254				
255				
256				
257				
258				
259				
260				
261				
262				
263				
264				
265				
266				
267				
268				
269				
270				
271				
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281				
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283				
284				
285				
286				
287				
288				
289				
290				
291				
292				
293				
294				
295				
296				
297				
298				
299				
300				

Ladder as of Jan. 5, 1990

Note:
These flow charts
do not clearly show
that a timer will
reset to zero the
first time it is
called to
"Increment".

Main Body of Ladder

I/A Drier Column

I/A Receiving Tank Alarm

Cycle Ambient HX

I/A RECEIVING TANK BLOWDOWN

Watchdog

DATE= 01-01-70

OFF LINE

SKP003 BEGIN COLD START INIT. SEQ.

INIT.

ONLY

ONCE

SKP5

()

INIT/

CTRL

C3

-]/[-

0/53

SKP002 SKIP INITIALIZATION SEQUENCE

INIT/

CTRL

C3

-]/[-

INIT/

CTRL

C3

-]/[-

MOVW1

A: K1

B: WY97

N= 24

INIT.

ONLY

ONCE

LBL3

()

INIT.

ONLY

ONCE

LBL3

()

OFF LINE

DUMFRIES

C1

... (

米-17/1-1-1-

PIWIR3

A: K50

IR= Y201

N= 16

DUMMY

C1

— (

- 7/5 -

! MWIR2

A: K51

IR= Y217

N= 16

DUMAY

C1

— (

✱ — [/] —

! MWIR3

A: 452

IR= Y233

N₂ 16

DATE= 01-05-90

OFF LINE

! INIT/
! CTRL

DUMMY

C1

32

! C3 *-----*

* -] / [----- ! MWIR4

()

! A: K53

! IR= Y249

! N= 16

! INIT/
! CTRL

DUMMY

C1

39

! C3 *-----*

* -] / [----- ! MWIR5

()

! A: K54

! IR= Y265

! N= 16

! INIT/
! CTRL

DUMMY

C1

44

! C3 *-----*

* -] / [----- ! MWIR6

()

! A: K55

! IR= Y281

! N= 16

DATE= 01-05-90

OFF LINE

!INIT/

!CTRL

DUMMY

C1

50

-] / [---

! MWIR7

()---*

! A: K101

! IR= C5

! N= 16

-] / [---

!INIT/

!CTRL

DUMMY

C1

56

-] / [---

! MWIR8

()---*

! A: K102

! IR= C21

! N= 16

-] / [---

!INIT/

!CTRL

DUMMY

C1

62

-] / [---

! MWIR9

()---*

! A: K103

! IR= C37

! N= 16

-] / [---

OFF LINE

DUMMY
C1

```
*-----*
```

C3	
*-J/I----	MWIRLO
	A: K104
	IR== C53
	N== 16

```
*-----*
```

DUNNY
C1

```

C3
-----*
1/1-----MWIR11
A: K107
IR= C101
N= 16
-----*

```

```

END
INIT.
LBL2

```

[The page contains extremely faint, illegible markings.]

END

[illegible]

```

INITIAL
CONTROL
! CS !
*-1/1-*
```


DATE= 01-05-90

OFF LINE

C99 RESET COIL EXECUTES 1ST TIME POWER (C2) AND CTRL (C3) ARE ON

PWR !
ON !
RESET !
C99 !
() !

POWER

C2

0/S4

C6

LFT DRIER COLUMN HAS JUST SWITCHED TO "REGENERATE" WHEN C6
IS ENERGIZEDLFT !
DRY !
SWITCH !
C6 !
() !

X337

0/S1

DATE= 01-05-70

OFF LINE

C7 RT DRIER COLUMN HAS JUST SWITCHED TO "REGENERATE" WHEN C7 IS ENERGIZED

RT
DRY
SWTCH
C7
()

90

X338 *-----*
*--]/[----- 0752

C10 ONE SHOT IF POWER ON OR DRIER JUST SWITCHED

LFT
DRY
SWTCH
C6

DRIER
TIMER
RESET
C10
()

93

--]/[-----

RT
DRY
SWTCH
C7

--]/[-----

PWR
ON
RESET
C99

--]/[-----

DRY
1 MIN
TMR
C8

DRY
1 MIN
TMR
C8
()

97

--]/[----- TMR9

P= 0060.0

DRY DRIER
1 MIN TIMER
TMR RESET
C8 C10

--]/[-----]/[-----

DATE= 01-05-90

OFF LINE

```

C11      I/A DRIER FAIL TO SWITCH COLUMNS ALARM
!DRY
!1 MIN
!TMR
! C8
103 *--] [-----*
      CTR10
      P= 485
      DRIER
      TIMER
      RESET
      C10
*--]/[-----*
C13      I/A RECEIVING TANK FAIL TO BLOW DOWN ALARM
!EV
!05
108 *--]/[-----*
      TMR11
      P= 0630.0
      EV      PWR
      ON
      !05      RESET
      !Y245      C99
*--]/[-----]/[-----*
Y233      SOLENOID FOR PV501N
      EV
      501
      Y233
114 *--] [-----*
Y234      SOLENOID FOR PV513N
      EV
      513
      Y234
116 *--] [-----*
```

DATE= 01-05-90

OFF LINE

Y235

SOLENOID FOR P9548N

EV
548
Y235

C200

*-[] [

()

*]

C70

*-[]/[

*

TMR1

*

C69

*

*-[]/[

C70

()

*]

P= 1800.0

C70

*-[]/[

*

*

C70

*-[] [

*

C69

AMBIENT EXCHANGER DIVERTER VALVE, SWITCHES ONE EXCHANGER FOR
THE OTHER EVERY 2P HRS WHERE P IS SHOWN IN CTR3 AND CTR4

C70

*-[] [

*

TMR2

*

C69

()

*]

P= 1800.0

C70

*-[] [

*

*

DATE= 01-05-90

OFF LINE

Y236 HX571N

EV570

SW1

EV570

SW1

Y236

C70 Y236

*

CTR3

()

P= 6

C71

C71

C70

CTR4

P= 6

()

EV570

SW1

Y236

EV570

SW2

Y237

Y237

HX572N

EV570

SW1

Y236

Y237

()

DATE= 01-05-90

OFF LINE

```

POWER
C2
145 *-] [-----*
      MOVW2
      A: TCC5
      B: V900
      N= 1
      *-----*
      MOVW3
      A: TCC6
      B: V901
      N= 1
      *-----*
      DUMMY
      C1
      ( )-----*
      EV
      O5
      Y245
      EV05- I/A RECEIVING TANK BLOW DOWN
      EV
      O5
      Y245
      C73
155 *-] [-----*
      THR5
      P= 0600.0
      *-] [-----*
      EV
      O5
      Y245
      *-] [-----*
      EV
      O5
      Y245
      *-] [-----*
  
```

DATE= 01-05-90

OFF LINE

162

167

DATE: 01-05-90

OFF LINE

CBC 1.0 SECOND WATCHDOG OFF TIME SET/START RELAY

WATCH

! DOG

1081

WATCH

DOE

CBO

172

```

! C81          1-----1
*-) [-----!   TMRB   !-----1

```

F= 0002.0

! WATCH

! DOG

1001

✱ 3 1

END

177

[illegible]

DATE= 01-05-90

OFF LINE

```

PID LOOP 01          TITLE: P1C501N          LOCK SETPOINT ..... N
PID ALGORITHM: ..... P          LOCK AUTO/MANUAL ..... N
LOOP FLAG ADDRESS: ..... V1011          LOCK CASCADE ..... N

PROCESS VARIABLE ADDRESS: .. WX22          PV IS BIPOLAR ..... N
SQUARE ROOT OF PV ..... N          20% OFFSET ON PV ..... Y

PV RANGE: ..... HIGH = +90.0000
          ..... LOW = +0.00000
SAMPLE RATE(SECS)..... +0.10000

DERIVATIVE GAIN LIMITING          PERFORM DERIVATIVE
          COEFFICIENT: ... +10.0000          GAIN LIMITING ..... N

SPECIAL CALCULATION ON: .... SP
SFPGM NUMBER: ..... 0001
RAMP/SDAK FOR SP ..... N
REMOTE SETPOINT ..... N          REMOTE SETPOINT ADDRESS
CLAMP SETPOINT LIMITS:HIGH = +90.0000
          LOW = +15.0000
ERROR OPERATION: .....

LOOP OUTPUT ADDRESS: ..... V1003          OUTPUT IS BIPOLAR ..... N
REVERSE ACTING ..... N          20% OFFSET ON OUTPUT .... Y
LOOP GAIN .....= +2.00000          (%/%)
RESET (INTEGRAL TIME) .....= +INF          (MIN)
RATE (DERIVATIVE TIME) .....= +0.00000          (MIN)
FREEZE BIAS IF OUTPUT IS
          OUT OF RANGE ..... N

ALARM DEADBAND .....= +0.00000          (ENGR. UNITS)
PV ALARMS: ..... LOW-LOW = +0.00000          (ENGR. UNITS)
          ..... LOW = +0.00000          (ENGR. UNITS)
          ..... HIGH = +0.00000          (ENGR. UNITS)
          ..... HIGH-HIGH = +0.00000          (ENGR. UNITS)
MONITOR L-L/H-H ALARM ..... N          MONITOR L/H ALARM ..... N
DEVIATION ALARMS:.. YELLOW = +0.00000          (ENGR. UNITS)
          .. ORANGE = +0.00000          (ENGR. UNITS)
MONITOR DEVIATION ALARMS ... N
RATE OF CHANGE ALARM: .....= +0.00000          (ENGR. UNITS/MIN)
MONITOR RATE OF CHANGE ALARM N
MONITOR BROKEN TRANSMITTER . N

```

DATE= 01-05-90

OFF LINE

SF PROGRAM 1

TITLE = LOOP1
 CONTINUE ON ERROR (Y,N): N
 PROGRAM TYPE (N,P,C,R) = P
 ERROR STATUS ADDR (C,Y,V,WY):
 CYCLE TIME (SEC) = +0.00000

```
=====
0001 *      V1001 IS LOOP 1 SET POINT FROM SOFTWARE LAM
0002 *      V1002 STORES LAST VALUE OF LOOP 1 SET POINT
0003 *      LSP1 IS LOOP SET POINT FROM HARDWARE LAM AND IS VALUE LOOP 1
           USES TO DETERMINE OUTPUT
0004 IF      V1002 <> V1001
0005 IMATH    LSP1 := V1001
0006 ENDIF
0007 IMATH    V1001 := LSP1
0008 IMATH    V1002 := LSP1
```