Keithley 2001 repair - Support #272

K2 - repair status.

07/18/2012 06:14 PM - tin

Status:	Closed	**Start date:**	07/18/2012
Priority:	Normal	**Due date:**	
Assignee:	tin	**% Done:**	30%
Category:		**Estimated time:**	0.00 hour
Target version:	Keithley 2001 #2		

Description

K2 Digital board + K2 Analog board + K2 Display + K1 ADC board

Power on OK

Error codes FAIL:

105.2 - FIXED
304.6 - FIXED
304.7
401.1 - FIXED by replacing Q330 and Q512
402.1 - FIXEd by replacing Q330 and Q512
404.1 - FIXED by replacing Q330 and Q512
404.2
404.3
404.4
404.5
405.2
405.4
405.6
405.8
406.6 - New
407.1
407.2
407.3
409.6
410.1 - by replacing Q330 and Q512
411.1 - by replacing Q330 and Q512
411.2 - by replacing Q330 and Q512
412.1 - by replacing Q330 and Q512

Associated revisions

Revision 211:d72f1a201c5a - 04/07/2015 02:43 AM - tin

Added Keithley schematics manuals and 2001M manuals.
Added fixed Keithley #2 photos ID #272 @16h

Revision 211:d72f1a201c5a - 04/07/2015 02:43 AM - tin

Added Keithley schematics manuals and 2001M manuals.
Added fixed Keithley #2 photos ID #272 @16h

Revision 212:ae25844a3e74 - 04/07/2015 02:54 AM - tin

Added large photos ID #272 @2h

Revision 212:ae25844a3e74 - 04/07/2015 02:54 AM - tin

Added large photos ID #272 @2h

History

#1 - 07/18/2012 06:14 PM - tin

- Status changed from New to Resolved

#2 - 07/18/2012 06:15 PM - tin

- Status changed from Resolved to In Progress

#3 - 07/19/2012 02:43 PM - tin

PASS	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	PASS	FAIL	PASS	FAIL	PASS	FAIL	PASS	FAIL	FAIL	FAIL	FAIL	PASS	PASS	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL
304.1	304.2	304.3	304.4	304.5	304.6	304.7	401.1	402.1	404.1	404.2	404.3	404.4	404.5	405.1	405.2	405.3	405.4	405.5	405.6	405.7	405.8	407.1	407.2	407.3	408.1	408.3	409.1	409.2	409.3	409.4	409.5	409.6	410.1	411.1	411.2	412.1
					R354	R354	U511		U511	U511	U511	U511	U511	U511	U511	U511	U511	U511	U511	U511	U511	U511	U511	U511		U511			U511	U511			U511		U511	U511
							U526		U526	U526	U526	U526	U526		U526		U526		U526		U526		U526	U526	U526	U526	U526		U526	U526			R219			U526
								U531	U531	U531	U531	U531	U531	U531	U531	U531	U531	U531	U531	U531	U531				U531	U531	U531		U531	U531					U532	
								U528														R233	R233	R233	R233	R233	R233		R233	R233			R233	R233		
				R394	R394	R394		U522															U517	U517	U522	U522	U522		U522	U522			U517	U517	U517	
									U532	U532	U532	U532	U532	U532	U532	U532	U532	U532		U532					C554	C554	C556		C556							U317
U322	U322	U322	U322	U322	U322	U322	U322		U322	U322	U322	U322	U322	U322	U322	U322	U322	U322	U322	U322	U322	U322	U322	U322	U322	U322			U322	U322			U322		C583	U322
U323						U323		R560						R560	R560	R560	R560	R560		R560					R557	R557			R557	R557				U523	U523	U323
						U324		R558														K503	R557	R557			R557	R557			R557	R557	K503	K503	K503	CR305
						R350																K500											K500	K500	K500	CR309
						R215			U519	U519	U519	U519	U519		U519		U519																	C583		
						R349			U507	U507	U507	U507	U507		U507		U507						U519	U519									U519	U519	U519	
			R366	R366					U509	U509	U509	U509	U509		U509		U509		U509		U509	U509	U509	U509				U503			U503	U503	U509	U509	U509	U509
			U332						R530	R530	R530	R530	R530		R530		R530		R530		R530	R530	R530	R530									R530	R530	R530	R530
	U3	U3	U3						U5	U5	U5	U5	U5		U5		U5		U5		U5	U5	U5	U5									U5	U5	U5	U5

	25	25	25						16	16	16	16	16		16		16		16		16	16	16	16									16	16	16	16
		R365																																		
	R358	R358							U342	U342	U342	U342	U342	U342	U342	U342	U342	U342	U342	U342	U342	U342	U342	U342	U342	U342			U342	U342			U324	C582	C582	U519
	R355								U320	U320	U320	U320	U320	U320	U320	U320	U320	U320	U320	U320	U320	U320	U320	U320	U320	U320			U320	U320			U320	C581	C581	U320
	R356																								U523	U523	U523		U523	U523						
	R357																								R542	R542	R542		R542	R542						
											R531	R531	R531		R531		R531					R531	R531	R531	R533	R533	R533		R533	R533			R531	R531	R531	R531
U335																																		R222	R222	
																										C529		C529	C529	C529	C529	C529		U510		U510
											R591	R591	R591								R591													R220	R220	
U318																																		R221	R221	U342
																		U528																		U320
																			U515		U515	U520	U520	U520	U520	U520	U520		U520	U520			U520	U520	U520	U520

Suspicious components:

#4 - 07/19/2012 03:56 PM - tin

Resistors	R591, R220, R531, R350, R215, R349, R354, R394, R530, R219, R221, R222, R558
Diodes	CR305, CR309
Relays	K503, K500
IC	U324, U519, U507, U509, U516, U517, U515, U503, U510, U317
Transistors	Q501, Q509, Q507, Q310, Q305, Q508, Q513, Q518
Capacitors	C556, C581, C582, C583

#5 - 07/19/2012 04:06 PM - tin

Resistors

R354 - RES, 100M, 1%, 1/2W, THICK FILM
R394 - RES NET, 100K, 9.9M, METAL FILM
R530 - RES NET,250K,9.34K,1K,10.233K,15K,7K

IC

U317 - IC, CMOS ANAL. SWITCH, DG411DY
U324 - IC,OP-AMP,AD707,(SOIC)
U503 - IC, RETRIG., MULTIVIB, 74HC123AM (SOIC)
U507 - IC, VOLT. COMPARATOR, LT1016CS8
U509 - IC, MCHAN LAT DMOS QUAD FET, SD5400CY (SOIC)
U510 - IC,CMOS ANALOG SWITCH DG211DY
U515 - IC,CMOS ANALOG SWITCH DG211DY
U516 - IC,OP-AMP, AD848JR (SOIC)
U517 - IC,TRMS TO DC CONVERTER, 637JR (SOLIC)
U519 - IC,OP-AMP, AD848JR (SOIC)

Transistors

Q305 - TRANS, N-HEXFET, IRFR020 (D-PAK)
Q310 - TRANS, N-CHANNEL FET, BUZ71 (TO-220)
C Q501 - TRANS, N-CHAN JFET, SST4416 (SOT-23)
C Q507 - TRANS, N-CHAN JFET, SST4416 (SOT-23)
C Q508 - TRANS, N-CHAN JFET, SST4416 (SOT-23)
C Q509 - TRANS, N-CHAN JFET, SST4416 (SOT-23)
C Q513 - TRANS, N-CHAN JFET, SST4416 (SOT-23)
C Q518 - TRANS, N-MOSFET, VN0605T (SOT-23)

Capacitors

C556 - CAP, 270PF, 1%, 300V, MICA
C581 - CAP, .33UF, 20%, 63V, POLYCARBONATE
C582 - CAP, .33UF, 20%, 63V, POLYCARBONATE
C583 - CAP, .33UF, 20%, 63V, POLYCARBONATE

#6 - 07/20/2012 02:21 PM - tin

- Description updated

#7 - 08/02/2012 02:28 PM - tin

- Description updated

- % Done changed from 0 to 30

#8 - 04/07/2015 02:27 AM - tin

- Status changed from In Progress to Resolved

Replaced all electrolytic caps.
Desolder U507, U508, U509 and clean under pads.
Replace R526,R280,R520.
Replaced U516 to ADA4898-1YRDZ opamp

No selfdiag errors now.
Write article for site and post links on forums.

#9 - 12/05/2016 04:00 AM - tin

- Status changed from Resolved to Closed