

Exhibit IX Parts and Tune up

HO2WUALS1306
ALS1306

Tuning Instructions

The ALS1300 uses factory preset bandpass filters. There are no user tuning or level adjustments or field serviceable tuning adjustments. The user sets the bandswitch to the proper band and transmits.

Components

2KWF6 Filter

Count	Label-Value	Type	P/N				Designation
4	1500pf	Chip Capacitor	100E152JW				C1,C2,C3,C4
4	680pf	Chip Capacitor	100E681JW				C5,C6,C7,C8
4	360pf	Chip Capacitor	100E361JW				C9,C10,C11,C12
4	270pf	Chip Capacitor	100E271JW				C13,C14,C15,C16
4	180pf	Chip Capacitor	100E181JW				C17,C18,C19,C20
4	91pf	Chip Capacitor	100E910JW				C21,C22,C23,C24
4	56pf	Chip Capacitor	100E560JW				C25,C26,C27,C28
7	0.1uf	0805 Surf Mnt	2005-3100				C29 - C35
3	27pf	1210 Surf Mnt	478-2643-1-ND				C36, C37, C38
1	0.01uf	0805 Surf Mnt	2005-2100				C39
1	150pf	0805 Surf Mnt					C40
1	220pf	0805 Surf Mnt					C41
1	12-90pf	Variable Cap	280-2100				C42
1	0.001uf	0805 Surf Mnt	2005-1100				C43
2	1401	Diode Sot-23 case	MMBD1401				D1, D2
6	4001	Diode SMX case	3005-4001				D3, D4, D5, D6, D7, D8
4	HD8P	Header pins					J1,J2,H1,H2
1	1k	1206 Surf Mnt	1005-3100				R1
1	1.5k	1206 Surf Mnt	1005-3150				R2
1	10k	1206 Surf Mnt	1005-4100				R3
3	150 Ohm	2512 Surf Mnt	RPC2512150JRCT-ND				R4, R5, R6
2	200 Ohm	Radial					R7, R8
12	HK14FH - 12VDC - SHG	Relay					RLY1 - RLY12
		Core	Wire type	Wire Size	Wire Lng	Turns	
2	16T/T157-2	T157-2	Enamel	12 AWG	36 inch	16	L1,L2
2	11T/T157-2	T157-2	Enamel	12 AWG	25 inch	11	L3,L4
2	12T/T157- 17	T157-17	Enamel	12 AWG	27 inch	12	L5,L6

2	12T/T157-17	T157-17	Bus/Tef	10 AWG/ Tef 8 AWG	20 inch	8	L7,L8
2	6.5 T	Air	Bus	10 AWG	26 inches	6.5	L9,L10
2	5.5 T	Air	Bus	10 AWG	21 inches	5.5 T	L11,L12
2	2.5 T	Air	Bus	10 AWG	13 inches	2.5 T	L13,L14
1	7:1 Turns	2843000202	GrnEnam/ RedEnam w/Tef	G 24 AWG/ R 24 AWG/ Tef 9 AWG	G 11 inch/ R 2.5 inch/ Tef 1.25 inch	7G/1R	T1 - cut teflon in half and insert one half in each side of trans before winding wire
1	MFJ SWR Transformer						T2
1	Combiner Transformer	2 Qty/ 2861010002	14 EE	Bk 14 AWG/ W 14 AWG/ R 14 AWG R 16	Bk 8 inch/ W 8 inch/ R 8 inch	1Bk/ 1W/ 1R	T3
1	Combiner Transformer	2843010002	Enamel	AWG/ G 16 AW/	R 5 inch/ G 5 inch	1R/G Twst	T4

BSW2

Count	Label-Value	Designation
1	0.1uf	C1
4	1N4001	D1,D2,D3,D4
2	HD6P	J1,J3
11	RED LED	LED1, LED2, LED3, LED4, LED5, LED6, LED7, LED8, LED9, LED10, LED11
6	1k ohms	R1, R2, R3, R4, R5, R6 R7, R8. R9, R10, R11, R12, R13
1	SP12T APEM	SW-1
1	74HC148	U1
1	74HC595	U2

CB2

Qty	Value	Package	Parts
3		1X08	J7A, RJ1A, RJ1B
1		1X08/90	J7B
1		2X03	JP1
10	0.001	0805	C20, C22, C39, C49, C69, C85, C87, C88, C89, C98
24	0.01	0805	C23, C28, C33, C34, C35, C36, C48, C55, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C70, C84, C97, C100, C101

32	0.1	0805	C3, C4, C5, C8, C9, C12, C13, C14, C15, C16, C17, C18, C24, C27, C29, C30, C31, C32, C37, C38, C40, C41, C42, C43, C44, C45, C47, C56, C71, C76, C86, C99
1	0.022	0805	C26
4	0.47	NACE_4X5.5	C6, C7, C10, C11
6	1.5K	1206	R20, R21, R90, R94, R98, R134
2	1A	FUSE200	F1, F2
25	1K	1206	R6, R14, R17, R18, R19, R28, R39, R40, R42, R46, R50, R57, R58, R89, R93, R97, R101, R110, R112, R128, R130, R137, R138, R147, R148
8	1K	133-TRIM	VR1, VR2, VR3, VR4, VR5, VR6, VR7, VR8
2	1k	1206	R5, R11
7	2.2K	1206	R69, R72, R75, R78, R81, R84, R87
3	3.01K (1%)	1206	R108, R114, R117
6	3.3K	1206	R4, R16, R92, R96, R100, R104
25	4.7K	1206	R3, R9, R13, R15, R24, R25, R32, R44, R48, R52, R54, R56, R62, R91, R95, R99, R102, R103, R105, R106, R111, R119, R120, R123, R136
2	6.04K (1%)	1206	R107, R116
1	6.5-30pF	CAPTRIM	VC1
2	6.8K	1206	R41, R45
4	10	1206	R43, R47, R49, R142
41	10K	1206	R22, R23, R26, R27, R29, R31, R51, R53, R55, R60, R63, R64, R65, R66, R67, R68, R70, R71, R73, R74, R76, R77, R79, R80, R82, R83, R85, R86, R88, R121, R122, R126, R127, R131, R132, R133, R135, R143, R144, R149, R150
1	10MHz	MP35	Y1
1	12.1K (1%)	1206	R115
1	22pF	0805	C19
1	25K	133-TRIM	VR9
2	27K	1206	R8, R12
2	47	NACE_6.3X5.5	C21, C25
2	47/50V	NACE_6.3X5.5	C1, C2
1	47K	1206	R113
1	74HC165	SO16	U9
1	74HC595	SO16	U8
1	78M05	DPAK	U4
15	100	1206	R1, R2, R7, R10, R33, R34, R35, R36, R37, R38, R118, R124, R129, R141, R146
4	100K	1206	R59, R61, R109, R139
3	470	1206	R30, R140, R145
13	914	SOT23	D1, D2, D5, D6, D7, D16, D17, D18, D19, D20, D21, D22, D26

2	2955	TO220V-BCE	Q8, Q12
3	3055	TO220V-BCE	Q1, Q2, Q3
14	3904	SOT23-BEC	Q4, Q5, Q9, Q10, Q11, Q13, Q15, Q17, Q19, Q21, Q23, Q25, Q31, Q33
14	3906	SOT23-BEC	Q6, Q7, Q14, Q16, Q18, Q20, Q22, Q24, Q26, Q27, Q28, Q29, Q30, Q34
1	5179	SOT23-BEC	Q32
1	5231 (5.1V)	SOT23	Z1
1	BAND SWITCH	1X10	J8
2	BAS70	SOT23	D3, D4
1	FAN	1X03	J6
1	FILTER	1X08	J2
1	FILTER BAND	1X08	J3
1	Socket 16 pin	1X08	RJ2
2	LM324	SO14	U2, U7
1	LM358	SO08	U6
1	LM7809	TO220V	U3
1	N/L	1206	R125
1	NC7SZ04	SOT23-5	U10
1	NC7SZ14	SOT23-5	U11
1	PIC18F2520-SP	DIL28-3	U1
1	REAR PANEL	1X08	J1
1	RF SENSE	1X03	J7
1	STBY MISC	1X06	J5
1	TO MB	1X10	J4

MB-1

Count	Label-Value		Designation
2	0.01uf	Disc	C8,C9
2	2.2uf	Elect	C3, C4
13	0.1uf	Disc	C1,C2,C5,C6,C7,C10,C11,C12,C13,C14,C15,C16,C17
9	1N916	Diode	D1,D2,D3,D4,D5,D6,D7,D8,D9
1	HD10P		J1
1	HD6P		J2
1	HD4P		J3
1	HD3P		J4
2	2k ohms variable	Vertical Pot CA6H2.5 2K ROHS Compliant Belford Elec. Inc.	R1,R2
2	1m ohm variable	Vertical Pot CA6H2.5 2K ROHS Compliant Belford Elec. Inc.	R15,R16

		Alpha 5J3	
1	1	B10k ALC 10k	
		pot	R39
2	5.6k ohms	1/4 watt	R3,R4
3	10k ohms	1/4 watt	R5,R9, R28
3	1m ohms	1/4 watt	R6,R8,R31
9	1k ohms	1/4 watt	R22,R25,R27,R29,R32,R36,R37,R40,R41
1	560 ohms	1/4 watt	R26
3	10 ohms	1/4 watt	R7,R12,R19
1	100 ohms	1/4 watt	R21
4	4.7k ohms	1/4 watt	R17,R18,R20,R38
2	68k ohms	1/4 watt	R10,R11
2	47k ohms	1/4 watt	R23,R24
1	6.8k ohms	1/4 watt	R30
2	220k ohms	1/4 watt	R33,R34
1	100k ohms	1/4 watt	R35
1	475 ohms	1/2 watt Metal	R13
1	1k ohms	1/2 watt Metal	R14
2	2N3904	NPN	Q1,Q2
1	LM324		U1
1	LM358		U2
1	Green LED		LED1
2	Red LED		LED2,LED3
1	Yellow LED		LED4
1	6PDT APEM		SW 1

PAM (PA Board)

qty	value	description	Part #	package
8	100V 0.1uF	SM cap	12101C104KAT2A	1210
6	250V 0.1uF	SM cap	C1210C104KARACTU	1210
7	100V 0.33uF	SM cap	C1206C334K1RACTU	1206
2	200V 300pF	SM cap	100B301KW From ATC	1210
3	300V 120pF	SM cap	100B121KW From ATC	1210
1	100V 100uF	Axial Cap		thru hole
1	100V 0.47uF	Leaded Cap		thru hole
4	1KV 0.001KV	Leaded Cap		thru hole
4	1/2W 1 ohms	SM resistor	RK73B2ETTE1ROJ	1210
4	1/2W 10K ohms	SM resistor	RK73B2ETTDD103J	1210
8	1/2W 18 ohms	SM resistor	RK73B2ETTD180J	1210
6	2W 22 ohms	Leaded Resistor		thru hole
4	3W 470 ohms	OY Omite Leaded Resistor	OY471KE	thru hole
1	8pin header	header pins		thru hole
4		FET	MRF150	
2		Thermistor	PT103J2	thru hole
1	3 turns	Input transformer	copper tubes 0.530"	
1		Feedback transformer	see below	

1		Output Transformer core	2843009902 with copper tubes 2.450" and use divided copper on BOTH ends (trim copper ends so transformer sets within 0.03-0.04 inch of board)
1	4 inch white/ 4 inch black	Output Transformer wire	10E teflon white wire / 10E teflon black wire
1	for power	Ferrite bead (FB1)	
1		Output Ferrite (L1)	2661102002
1	27.5 in (8 turns on core)	Coax (for L1)	RG316
4	1.350 inch	16 AWG bus wire for ground jumpers	
4	1 inch	13 AWG thin wall teflon for ground jumpers	
1	2.6 inch	13 AWG thin wall teflon for R2 thermistor	
2	#4	Lug for thermistor	
1	6 inch wire for R1	wire for thermistors	

PA Feedback transformer parts

qty	value	description	Part #
4		core from old PA feedback	420-6141
1	9 inch	18 AWG green enamel	
1	9 inch	18 AWG red enamel	
2	3/4 inch	14 awg buss wire	
2	0.7 inch	Brass tubing -- OD 0.312 inch -- wall thickness 0.012 inch	
1	0.52 inch X 1.04 inch	copper plate	

PD8 Splitter

Count	Value		P/N	Designation
4	200 ohms	Caddock Resis	MP930-200-1%	R1, R3, R4, R6
2	27 ohms	Caddock Resis	MP930-27-1%	R2, R5
1	100 ohms	Metal oxide 3W		R7
		Core x qty	Wire type	Wire Size
				Wire Lng
				Turns

1	Transformer	2843000202 x4	Grn Enam/ Red Enam	16 AWG	14inch/ 7 inch	2Grn/ 1Red	T1
1	Transformer	1/2 inch toroid core (from ALS 600 part 406-2601) x2	Grn Enam/ Red Enam	16 AWG	7 inch/ 7 inch	4	T2

RJ45

Qty	Value	Package	Parts
22	0.001	0805	C46, C50, C51, C52, C72, C73, C74, C75, C77, C78, C79, C80, C81, C82, C83, C90, C91, C92, C93, C94, C95, C96
1	RADIO	M09VP-CUP	P1
1	AUX1	RJ45V	J12
1	AUX2	RJ45V	J13
2	Socket 16 pin		RJ3, RJ4

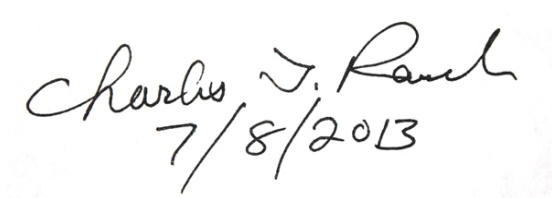
RLY

Count	Label-Value	Designation
2	HD8P receptacle	J1,J2
2	Relay 12VDC	RLY1,RLY2

SWR

Count	Label-Value		Designation
1	33pF	3kV	C1
1	33pF	1kV	C2
2	150pF	1kV	C3, C4
2	0.01uF	50V	C5, C6
1	3-12pF	500V	C7
2	1N34A	Diode	D1, D2
1	3.3k ohms	1/4W resist	R1
2	1.3k ohms	1/4W resist	R2, R3
1	68 ohms	2W mox	R4
1	1000uH	molded choke	L1
1		Current transformer	T1

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