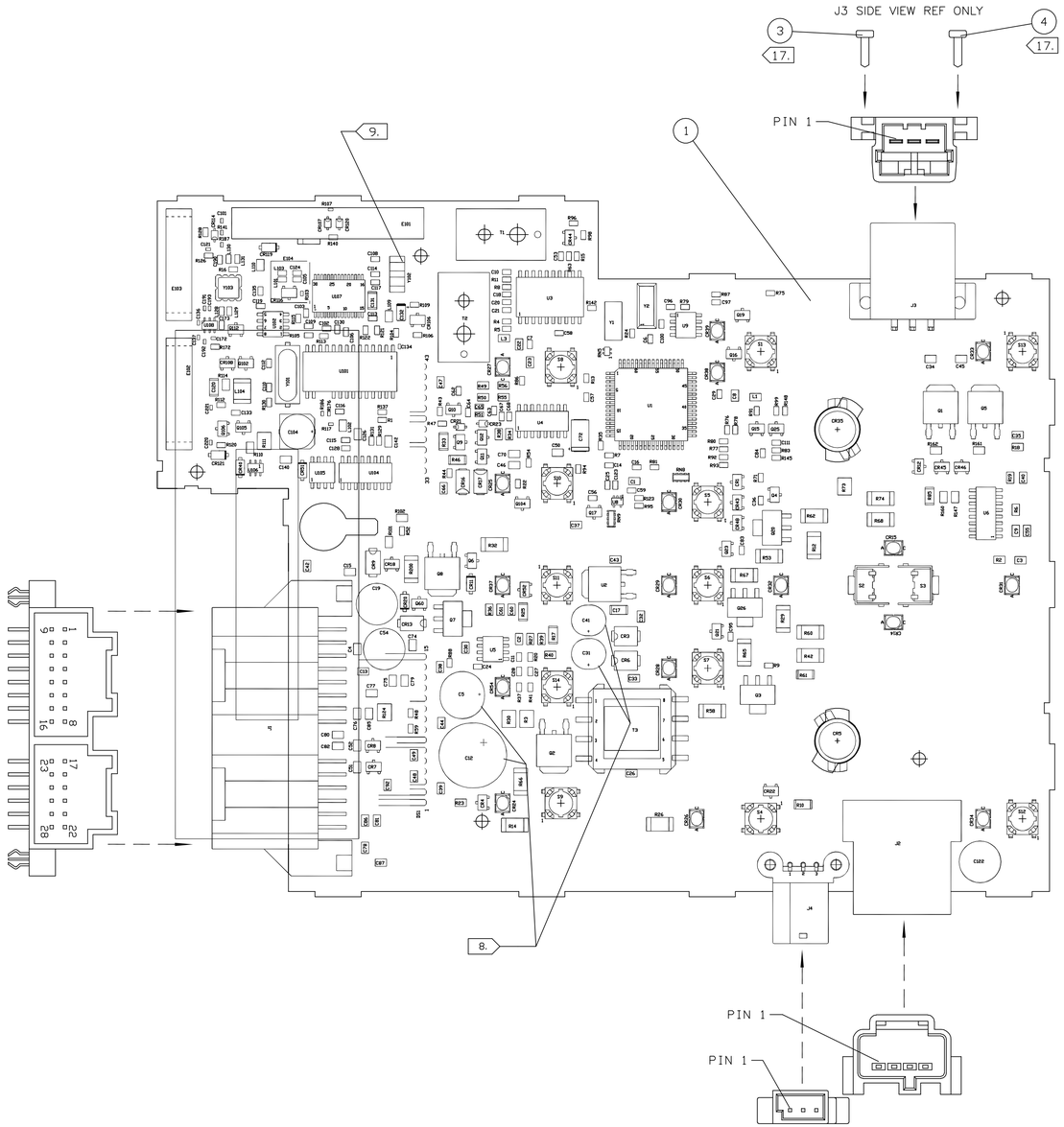

DWG. NO. VL0998

NOTES:

1. REFERENCE IPC-A-610 STANDARDS FOR ASSEMBLY PRACTICES, AND PROCEDURES, UNLESS OTHERWISE SPECIFIED.
2. EACH ASSEMBLY SHALL BE LABELED WITH A KAPTON LABEL ON CIRCUIT SIDE OF PCB. DO NOT COVER TEST POINTS, OR BOARD PART NUMBER/REV.
   LABEL MUST REFERENCE FINAL ASSEMBLY PRODUCT CODE AND FINAL ASSEMBLY REVISION LEVEL.

   LABEL DEFINITION
   PRODUCT CODE
   ALPHANUMERIC SERIAL #
   REV. LEVEL
3. MAXIMUM ALLOWABLE PROTRUSION OF LEADS FROM BOTTOM SIDE OF BOARD IS .100 [2.54], EXCEPT DS1.
4. MAXIMUM ALLOWABLE GAP BETWEEN MATING SURFACES OF PC BOARD AND J1, J2, J3, AND J4 IS TO IPC STANDARD.
5. AFTER DEPANELING ALL CARRIER TABS MAY NOT PROTRUDE BEYOND EDGE OF PCB. MAXIMUM ROUTER CUT INTO PCB SHALL BE LESS THAN .010 [.25] COPPER FOIL PATERN MUST NOT BE TOUCHED BY ROUTER TOOLING.
6. COMPASS SHALL BE ACCURATE WITHIN THE FOLLOWING LIMITS:

HEADING	ANGLE	VALUE(HEX)
N	0 ±10	0x00 ±0x07
E	90 ±10	0x40 ±0x07
S	180 ±10	0x80 ±0x07
W	270 ±10	0xC0 ±0x07

   AT A 200 MILLIGAUSS FIELD STRENGTH.
7. WITH THE UNIT IN COMPASS DISPLAY MODE ADJUST THE MODULE INPUT VOLTAGE TO 13.5 VDC ± .1 VDC AND THE DIMMING LEVEL TO FULL BRIGHTNESS. VERIFY THAT THE FILAMENT VOLTAGE MEASURES BETWEEN 3.50VAC +400/−250mVAC AND 10.0VDC ± 1.0VDC.
8. L-SHAPE LEAD BEND REQUIRED FOR ELECTROLYTIC CAPACITORS (C5, C12, C31 AND C41) AT FLAGGED LOCATIONS.
9. Y102 IS SENSITIVE TO TEMPERATURES ABOVE 275°C, FOR APPLICATION LONGER THAN 2.5 SECONDS. DO NOT EXCEED THESE CONDITIONS DURING REWORK.
10. THE NVM ON EACH PART WILL BE PROGRAMMED WITH THE FOLLOWING POWER LEVEL SETTINGS FOR FCC COMPLIANCE.

REGION	FREQ. RANGE (MHz)	ROM POWER LEVEL (U101)	NVM ADDRESS	FCC CERTIFIED POWER LEVEL (NVM DATA)	NEEDS TO BE PROGRAMMED IN NVM
0	285-303	0x0CF1	0x0D	0x0FEE	YES
1	303-322	0x0EEF	0x0E	0x0FEE	YES
2	335-360	0x0FEE	0x0F	0x0EEF	YES
3	360-380	0x0FEE	0x10	0x0CF1	YES
4	380-400	0x15E8	0x11	0x0DF0	YES
5	410-420	0x19E4	0x12	0x0FEE	YES
DEFAULT CODE POWER		0x3BC2	0x0A	0x3FBE	YES
VEHICLE ID		0x00FD	0x13	—	NO
MAX TX POWER		0xFEFF	0x14	—	NO

NOTE: THE NVM VALUE INCLUDES A SELF CHECK. HIGH BYTE IS THE ACTUAL VALUE. LOW BYTE IS COMPLEMENT OF HIGH BYTE + 2.

11. TRAINING SENSITIVITY:
    A. THE RECEIVER THRESHOLD IS PROGRAMMED IN NVM ADDRESS 0x04. MEASURE RSSI AT NODAL WITH A −55dBm 280MHz SIGNAL. THE RECEIVER THRESHOLD IS 10ED.
    B. THE RECEIVER THRESHOLD IS PUT IN THE UPPER BYTE, THE LOWER BYTE IS THE UPPER BYTE +2, THEN INVERTED.
12. LED COLOR TYPE AND LOCATION – VISION SYSTEM.
13. OUTPUT POWER MEASUREMENTS (RF) SHALL BE PERFORMED DURING NODAL TEST:

FREQ(MHz)	POWER (P1) NO ATTENUATOR(dBm)	POWER ATTENUATOR #1 (dBm)	POWER ATTENUATOR #2 (dBm)
280	−1.6 ±3.5	(P1−4.5) ±1.0	(P1−9.5) ±3.0
340	−1.6 ±3.5	(P1−4.5) ±1.0	(P1−9.5) ±3.0
390	−1.6 ±3.5	(P1−4.5) ±1.0	(P1−9.5) ±3.0

14. TRAINING SENSITIVITY SHALL BE PERFORMED DURING NODAL TEST:

POWER(dBm)	FREQUENCY(MHz)	VCO FREQUENCY(MHz)
−56.0 ±5.0	283.2	280
−58.0 ±6.0	393.2	390

15. REFERENCE TEST DEVELOPMENT SPEC # TD-ELE-002.
16. PART MUST BE 100% ELECTRICALLY TESTED.
17. APPLY SCREWS (ITEM 3 AND 4) WITH TORQUE OF 2.5 (± 1.0) in lb, FROM THE SECONDARY SIDE OF PCB TO SECURE CONNECTOR (J3).

REV	SH/ ZONE	DESCRIPTION	P.C.N.	BY	DATE	BY
A		SEE DRAWNG VJ4005 FOR HISTORY RELEASE FOR PRODUCTION	59929	HP	30MAR01	EDICT
B1		REV CORR CHART	61064	KVL	27JUN01	EDICT
B2		VJ0803 PLACED WAS V53925 NP (C32, C33)				
B3		VE3111 WAS V97532 (R32, R200)				
B4		VL8329 WAS VJ4186 (U1)				
B5		V98739 PLACED WAS NP (C71, C128)				
B6		V53925 NP WAS PLACED (C81, C92)				
B7		V53925 PLACED WAS NP (C82)				
B8		V98739 NP WAS PLACED (C83, C95)				
B9		VG1106 PLACED WAS NP (C142)				
B10		VF5913 PLACED WAS NP (CR44)				
B11		VB4277 NP WAS PLACED (Q20, Q26)				
B12		VA2501 NP WAS PLACED (Q21, Q23)				
B13		V98736 NP WAS PLACED (R1)				
B14		VE3111 NP WAS PLACED (R53, R65)				
B15		V98737 NP WAS PLACED (R62, R67)				
B16		VB4271 PLACED WAS NP (R129)				
B17		VB4268 PLACED WAS NP (R131)				
B18		V98736 PLACED WAS NP (R137)				
B19		VE8699 PLACED WAS NP (U104) NEW STENCIL REQUIRED				
C1		REV CORR CHART	61311	JR	10OCT01	EDICT
C2		DEL V98741 PLACED (C69)				
C3		DEL V98739 PLACED (C71)				
C4		VG1106 WAS V68100 (C9, C40)				
C5		V68469 WAS VA6452 (C132)				
C6		VG1110 WAS V56967 (CR12)				
C7		VJ0059 WAS VK2765 (L130, L131)				
C8		VA5609 WAS V98736 (R1, R7, R63, R81, R83, R98, R105, R128, R130, R137, R145)				
C9		V55507 WAS V27868 (R85)				
C10		VM3601 WAS VL8329 (U1)				
C11		V53925 NP WAS PLACED (C82)				
C12		VH5052 NP WAS PLACED (CR14, CR15, CR24, CR26, CR27, CR31, CR32, CR37, CR38)				
C13		VH5052 PLACED WAS NP (CR25, CR54)				
C14		VJ4184 NP WAS PLACED (CR39)				
C15		VF5913 NP WAS PLACED (CR44)				
C16		V97532 NP WAS PLACED (R14, R26, R29, R60)				
C17		V97532 PLACED WAS NP (R66)				
C18		VB6959 NP WAS PLACED (R68, R74)				
C19		VA5607 NP WAS PLACED (R96)				
C20		VA5609 NP WAS PLACED (R98)				
C21		ADD VL6631 PLACED (2, 3)				
C22		ADD VA1511 PLACED (R15)				
C23		ADD VM0790 PLACED (R16)				
C24		REV NOTE 7,10 AND 11				
C25		ADD NOTE 17 NO STENCIL CHANGE REQUIRED				

CORRELATION CHART

DRAWING REV	DATE	PCB PART NO. VJ4004 (DWG. NO. VJ4004) REV	PCB PART NO. VL0998 (DWG. NO. VL0998) REV
A	30MAR01	A	A
B	27JUN01	B	B
C	10OCT01	C	C

PRODUCT CODE: NF

JOHNSON CONTROLS
AUTOMOTIVE SYSTEMS GROUP INTERIORS

NAME: PCB ASSEMBLY

ELECTRONICS STD. UNLESS OTHERWISE SPECIFIED
THIRD ANGLE PROJECTION
DO NOT SCALE
X.X DECIMAL ± 0.040 [± 1.0]
X.XX DECIMAL ± 0.020 [± .50]
X.XXX DECIMAL ± 0.006 [± .15]
ANGULAR ± 2° 0'
DRAFT ANGLES NOTED
SPECIFIES FEATURES REQUIRING SPECIAL CONSIDERATIONS. SEE PRODUCT CONTROL PLAN.
DIMENSIONS ARE INCHES WITH EQUIVALENT MILLIMETERS SHOWN IN BRACKETS.

PROJECT: 02.5 FN145 OHC		DRWN. BY: H. PHAM	DATE: 19APR01
		CHKD. BY: B. SUNNERVILLE	DATE: 19APR01
CUSTOMER: FORD		ENGR. APPR: P. TARNOW	DATE: 19APR01
		SCALE: 2/1	SHEET 1 OF 5
SIZE: D	TOOL NO. REF.	DWG. NO.: VL0998	REV.: C
	DATA FORMAT: ACAD		

8 7 6 5 4 3 2 1
F E D C B A

DWG. NO. VL0998

REVISION BLOCK						
REV	SH/ ZONE	DESCRIPTION	P.C.N.	BY	DATE	BY

VL0998 REV C
02.5 FN145 OHC
SHEET 1 OF 3

MANUALLY ASSEMBLED PARTS:

LOCATION	DESCRIPTION	PART#	QTY	PACKAGE
1	PCB FAB OH FN145 REV C	VJ4004-C	1	TH_FAKEPART
2,3	SCREW M3X6 PAN HEAD TAPPING	VL6631	2	TH_FAKEPART
C12	CAP EL RD 220U 20% 50	VH5220	1	TH_VH5220_LD_BD
C19, C54, C122	CAP EL RD NON-POL 33U 20% 50	V91949	3	TH_V91949
C31, C41	CAP EL RD 4.7U 20% 100	VC2589	2	TH_VC2589
C5	CAP EL RD L ESR 100U 20% 35	V36106	1	TH_V36106
CR5, CR35	LED ASM GREEN	VL3101	2	TH_LED_VG3656
DS1	DISPLAY VF CIG 02.5 FN1145	VK9978	1	TH_DSPL_VA4901
J1	CONN 28 PIN *GET* RA HDR .100 CTR	VL2484	1	TH_CON_VL2484
J2	CONN 4 PIN .112 CTR	VJ5187	1	TH_CON_VJ5187
J3	CONN HDR 3 PIN RA .138 CTR	VH2452	1	TH_CON_VH2452

COMPONENT LOCATIONS NOT POPULATED:

C1, C111, C115, C134, C136, C137, C172, C173, C191, C192, C193, C2, C22, C36, C57, C58, C74, C75, C76, C77, C79, C81, C82, C83, C84, C85, C86, C92, C95, CR14, CR15, CR21, CR22, CR23, CR24, CR26, CR27, CR31, CR32, CR37, CR38, CR39, CR44, CR52, E102, E103, J4, L128, L129, L3, Q15, Q20, Q21, Q23, Q25, Q26, R1, R10, R124, R14, R140, R145, R172, R26, R29, R53, R60, R62, R65, R67, R68, R73, R74, R83, R96, R98, S1, S11, S2, S3, S4, S8, S9, U108, Y103

SURFACE MOUNTED COMPONENTS:

LOCATION	DESCRIPTION	PART#	QTY	PACKAGE
C10, C18, C20, C21	CAP CER X7R 2200P 20% 50	V99307	4	603NC
C100	CAP CER COG 5.6P .25PF 50	V99303	1	603NC
C101	CAP CER X7R 470P 10% 50	VF5069	1	402
C104	CAP EL SMD 33U 20% 25	VE2185	1	ELCAP_D63
C105, C124	CAP CER COG 470P 5% 50	V99355	2	603NC
C11, C62, C63, C64, C65	CAP CER COG 330P 5% 50	VB4273	5	603NC
C110, C112	CAP CER COG 18P 5% 50	VA1022	2	603NC
C120	CAP CER X7R .22U 10% 50	VE2669	1	1206NC
C121	CAP CER X7R 680P 10% 50	VG4877	1	402
C126	CAP CER X7R 1U 10% 10	VG3406	1	805NC
C132	CAP TANT A-CASE .47U 20% 25	V68469	1	TANTA_NC
C14, C25, C106, C123	CAP CER COG 100P 5% 50	V98743	4	603NC
C140	CAP CER Y5V 1U 80/-20% 25	VE8695	1	805NC
C16	CAP CER X7R 3300P 10% 50	VA9174	1	603NC
C17, C131	CAP CER X7R .1U 10% 50	V27850	2	1206NC
C220, C221	CAP CER COG 220P 5% 25	VC8916	2	402
C23, C26	CAP CER COG 120P 5% 50	V78004	2	805NC
C24, C102, C109, C113, C119, C130, C133, C135	CAP CER X7R .1U 10% 16	VB7587	8	603NC
C27	CAP CER X7R 6800P 10% 50	VA1503	1	603NC
C29, C190	CAP CER X7R 1000P 10% 50	V98741	2	603NC
C3, C8, C30, C35, C39, C43, C50, C55, C66, C70	CAP CER X7R .1U 10% 50	V68110	10	805NC
C32, C33, C60, C61	CAP CER X7R 330P 20% 100	VJ0803	4	805NC
C34, C44, C45, C46, C80	CAP CER X7R .01U 10% 50	V53925	5	805NC
C37, C38	CAP CER COG 100P 5% 50	V57585	2	805NC
C4, C13, C15, C42, C78, C87	CAP CER X7R .027U 10% 50	VF6106	6	805NC
C47	CAP CER X7R 1000P 20% 100	VB4276	1	805NC
C48, C49	CAP CER X7R 2200P 20% 100	VB4275	2	805NC
C51, C52	CAP CER NPO 100P 5% 200	VJ5429	2	805NC
C6, C7, C28, C53, C56, C59, C96, C97, C103, C108, C114, C116, C117, C128	CAP CER X7R .01U 10% 50	V98739	14	603NC
C67, C68	CAP CER COG 22P 5% 50	V99301	2	603NC
C72	CAP TANT C-CASE 4.7U 20% 25	V65373	1	TANTC_NC
C9, C40, C142	CAP CER COG 1000P 2% 50	VG1106	3	805NC

VL0998 REV C
02.5 FN145 OHC
SHEET 2 OF 3

SURFACE MOUNTED COMPONENTS:

LOCATION	DESCRIPTION	PART#	QTY	PACKAGE
CR1, CR43, CR45, CR46, CR48	DIODE DUAL CMN CATH BAV70	V56966	5	SOT23NC
CR106	DIODE DUAL SERIES BAV99	V56967	1	SOT23NC
CR107, CR120	DIODE VARACTOR SMS1400-611	VF5348	2	SOD323
CR11, CR20, CR40, CR51	DIODE ZENER 225mW 18V	VE7019	4	SOD123
CR114	DIODE SCHOTTKY	VF5076	1	SOD323
CR116	DIODE VARACTOR DUAL SMV1253-004	VK1295	1	SOT23NC
CR119, CR121	DIODE ZENER 500mW 7.5V	VF3204	2	SOD123
CR12	DIODE ZENER .225W 16V MMBZ5246BLT1	VG1110	1	SOT23NC
CR16, CR17	DIODE, SCHOTTKY 40V RB160L	VJ5424	2	SMB_VJ5424
CR18, CR108	DIODE SIG 75mA 100V 1N914	V30082	2	SOT23NC
CR25, CR28, CR29, CR30, CR33, CR34, CR54	LED SMD (TRUE GREEN)	VH5052	7	HSMG_TX
CR3, CR6	DIODE RECT MOTOROLDA MURS120T3	VA8253	2	SMB
CR4	DIODE ZENER .225W 10V MMBZ5240BLT1	VA8254	1	SOT23NC
CR7, CR8	DIODE DUAL ZENER 27V 40W	VG1107	2	SOT23NC
CR9, CR13	DIODE REC SMA 1A 400V FAST RR	VB1292	2	SMA
E101	ANTENNA LOOP 7X35mm	VF3203	1	LOOP_VF3203_7MM
E104	SHIELD SMD 4 PIN 7X8 MM	VG8930	1	SHIELD_VG8930
L1, L102, L109, L110	FERRITE BEAD SMD 600 25%	VA7170	4	805NC
L101, L103	INDUCTOR SMD 12N 5%	VC8071	2	603NC
L104	INDUCTOR SMD 1000U 5%	VC8919	1	1812NC
L130, L131	INDUCTOR SMD 56N 5%	VJ0059	2	603NC
Q1, Q2, Q5	TRANS MOSFET N-CH	V56974	3	DPAK
Q102	TRANS NPN DIG 2.2KB/47KBE	VE3972	1	SOT23NC
Q104	TRANS NPN DIGITAL 47KB/47KBE	VC5856	1	SOT23NC
Q105, Q106	TRANS NPN 4401	V27855	2	SOT23NC
Q11, Q12	TRANS NPN MMBT3904	VC5882	2	SOT23NC
Q112	TRANS NPN DIG 10KB/47KBE	VE4961	1	SOT23NC
Q3, Q7	TRANS PNP BCP51	V52701	2	SOT223
Q4, Q16, Q17, Q19	TRANS NPN DIG 10KB/10KBE	VA2501	4	SOT23NC
Q6, Q60	TRANS PNP DIG 4.7KB/10KBE RQHM	VC0694	2	SOT23NC
Q8	TRANS PNP DPAK MJD32C	V72638	1	DPAK
Q9, Q10	TRANS PNP MMBT3906	VC5883	2	SOT23NC
R101, R102	RES CER 0 5% .100	V68124	2	805NC
R103, R107, R117	RES CER 10K 5% .037	VB8037	3	402
R104	RES CER 18K 5% .063	VA5599	1	603NC
R110	RES CER 1.5K 5% .100	V57419	1	805NC
R111	RES CER 24 5% .250	V90542	1	1210
R112	RES CER 4.32K 1% .063	VE9896	1	603NC
R113	RES CER 1.33K 1% .063	VG3631	1	603NC
R114	RES CER 40.2K 1% .100	VE9897	1	805NC
R115	RES CER 1.3K 5% .063	V98734	1	603NC
R12, R32, R200	RES CER 820 5% .5	VE3111	3	2010
R120	RES CER 3K 5% .063	V98732	1	603NC
R121	RES CER 1.47K 1% .063	VC4658	1	603NC
R122	RES CER 2.37K 1% .063	VE2825	1	603NC
R129	RES CER 154K 1% .063	VB4271	1	603NC
R13, R35, R41	RES CER 1K 5% .063	V98733	3	603NC
R141	RES CER 301 1% .037	VH5065	1	402
R142	RES CER 300 5% .063	VC4467	1	603NC
R147, R160	RES CER 10 5% .100	V72639	2	805NC
R15	RES CER 0 5% .063	VA1511	1	603NC
R16	RES CER 18 5% .063	VM0790	1	603NC
R161, R162	RES CER 47K 5% .100	V72641	2	805NC
R17	RES CER 2.00K 1% .125	V30207	1	1206NC
R176, R186	RES CER 1K 5% .037	VB8043	2	402
R187	RES CER 51K 5% .037	VB8048	1	402
R2, R18	RES CER 100K 5% .100	V57422	2	805NC
R20, R131	RES CER 560K 5% .063	VB4268	2	603NC
R22, R75, R106,				

VL0998 REV C
02.5 FN145 OHC
SHEET 3 OF 3

SURFACE MOUNTED COMPONENTS:

LOCATION	DESCRIPTION	PART#	QTY	PACKAGE
R126	RES CER 100K 5% .063	VA6119	4	603NC
R23	RES CER 33 5% .100	V68130	1	805NC
R24, R86	RES CER 1.0MEG 5% .063	V98731	2	603NC
R25	RES CER 681 1% .125	V36122	1	1206NC
R27	RES CER 2.55K 1% .100	VE8696	1	805NC
R3, R30	RES CER 1.6 5% .250	VB4272	2	1210
R33, R46	RES CER 5.23 1% .125	VJ5428	2	1206NC
R34, R38	RES CER 12.1K 1% .100	VJ5425	2	805NC
R36	RES CER 360 5% .100	V68548	1	805NC
R37	RES CER 56 5% .063	VB4269	1	603NC
R39, R40	RES CER 154.0K 1% .100	VA8257	2	805NC
R4, R5, R8, R11	RES CER 432 1% .063	VA5608	4	603NC
R42, R66	RES CER 560 5% .5	V97532	2	2010
R43, R44	RES CER 10 5% .063	VB4813	2	603NC
R47, R51	RES CER 7.5K 5% .063	VE3118	2	603NC
R48, R59	RES CER 470K 5% .063	VC2865	2	603NC
R49, R50	RES CER 200 1% .100	VJ5427	2	805NC
R52	RES CER 75K 5% .063	VA5601	1	603NC
R54, R91, R92, R93, R99	RES CER 4.7K 5% .063	VA5628	5	603NC
R55, R56	RES CER 619 1% .100	VJ5426	2	805NC
R58	RES CER 360 5% .5	VB2735	1	2010
R6, R19	RES CER 470 5% .100	V71181	2	805NC
R61	RES CER 10K 5% .125	V27868	1	1206NC
R7, R63, R81, R105, R109, R128, R130, R137	RES CER 10K 1% .063	VA5609	8	603NC
R71, R88	RES CER 100 5% .063	VB8384	2	603NC
R76, R77, R78, R79, R80, R94, R95, R123, R148	RES CER 2K 5% .063	V98730	9	603NC
R85	RES CER 18K 5% .125	V55507	1	1206NC
R9, R87	RES CER 47K 5% .063	VA6441	2	603NC
RN5	RES 2-ARRAYS 10K 5% .063	VE2526	1	RPAK_CRA1A2
RN8, RN9	RES 4-ARRAYS 100 5% .063	VE3978	2	RPAK_CRB3A
S5, S6, S7, S10, S12, S13, S14	SWITCH MOM SMD (250gf) 1.3mm	VF2613	7	SW_VE8115
T1, T2	SENSOR MAGNETO SHLD 0 DEGREE	VB0349	2	SNSR_0_DEG_NEW
T3	TRANSFORMER SMD 16 TURNS	VC6087	1	TRANSFMR_VB2048
U1	IC MICRO 02 FN145 08AZ60 (FLSH) REV 4	VM3601	1	QFP_64
U101	IC MICRO PSI 16C76 DTP 15.0	VL0126	1	SOIC28W
U102	IC NVM 4K 93LC66	VE2996	1	SOIC8
U104	IC 14-BIT BINARY MOTO MC14060BD	VE8699	1	SOIC16
U105	IC REG 5V LP2951 SOIC8	V61881	1	SOIC8
U106	IC HIGH VOLTAGE SWITCH	VC6882	1	TSOP_6
U107	IC ASIC HMLK-3 DS1.3	VH3121	1	SSOP30
U2	IC REG 5V 78M05	V63733	1	DPAK
U3	IC ASIC III	V94137	1	SOIC20W
U4	IC LBCC NARROW BODY	VJ5779	1	SOIC16
U5	IC PWM UCX843	VA8251	1	SOIC8
U6	IC HEX INVERTER 4049	V63909	1	SOIC16
U8	IC CMOS OR GATE 2-INPUT	VK0411	1	SOT353
U9	IC TIME KEEPING CHIP DS1302ZN	VJ6250	1	SOIC8
Y1	RESONATOR CER 4.00MHz 47PF	VC3706	1	RESN_V78762
Y101	CRYSTAL 20.000MHz +/- 30PPM	VG8564	1	XTAL_SMD49
Y102	FILTER SMD 10.7MHz	VG8563	1	FLTR_SFECV10
Y2	CRYSTAL SMD 32.768KHz	VG3202	1	XTAL_GMP25A

JOHNSON CONTROLS
AUTOMOTIVE SYSTEMS GROUP INTERIORS

NAME: PCB ASSEMBLY

ELECTRONICS STD. UNLESS OTHERWISE SPECIFIED
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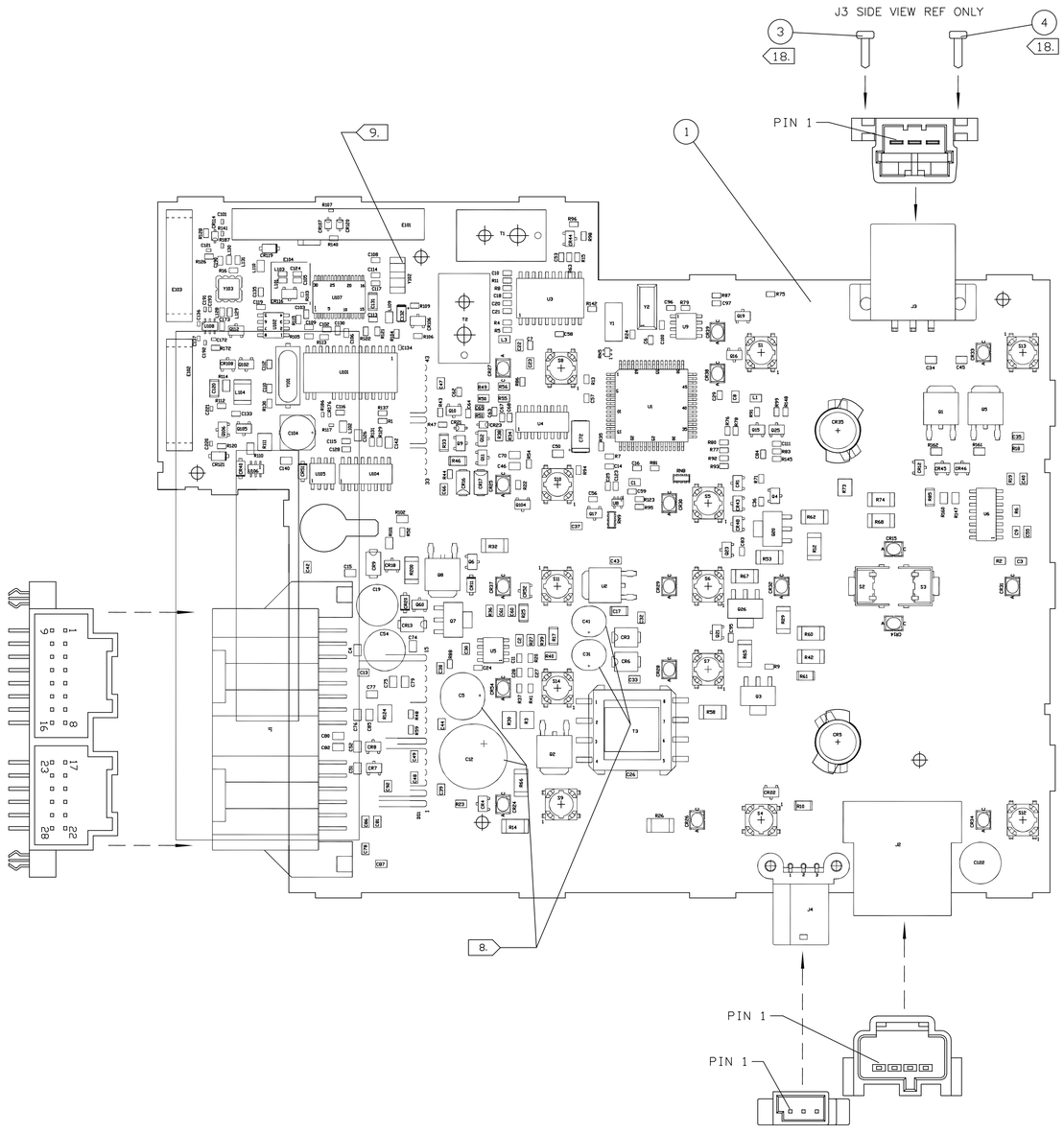
DO NOT SCALE
X.X DECIMAL ± 0.040 [± 1.0]
X.XX DECIMAL ± 0.020 [± .50]
X.XXX DECIMAL ± 0.006 [± .15]
ANGULAR ± 2° 0'
DRAFT ANGLES NOTED
SPECIFIES FEATURES REQUIRING SPECIAL CONSIDERATIONS. SEE PRODUCT CONTROL PLAN.
DIMENSIONS ARE INCHES WITH EQUIVALENT MILLIMETERS SHOWN IN BRACKETS.

PROJECT: 02.5 FN145 OHC	DRWN. BY	DATE	
	CHKD. BY	DATE	
CUSTOMER: FORD	ENGR. APPR	DATE	
	SCALE: NONE	SHEET 2 OF 5	
SIZE: D	TOOL NO. REF.	DWG. NO.: VL0998	REV.: C
	DATA FORMAT: ACAD		

8 7 6 5 4 3 2 1
F E D C B A



J2 AND J4 SIDE VIEW REF ONLY

DWG. NO. VL1000

NOTES:

1. REFERENCE IPC-A-610 STANDARDS FOR ASSEMBLY PRACTICES, AND PROCEDURES, UNLESS OTHERWISE SPECIFIED.
2. EACH ASSEMBLY SHALL BE LABELED WITH A KAPTON LABEL ON CIRCUIT SIDE OF PCB. DO NOT COVER TEST POINTS, OR BOARD PART NUMBER/REV.
   LABEL MUST REFERENCE FINAL ASSEMBLY PRODUCT CODE AND FINAL ASSEMBLY REVISION LEVEL.

   LABEL DEFINITION

   PRODUCT CODE — ALPHANUMERIC SERIAL # — REV. LEVEL
3. MAXIMUM ALLOWABLE PROTRUSION OF LEADS FROM BOTTOM SIDE OF BOARD IS .100 [2.54], EXCEPT DS1.
4. MAXIMUM ALLOWABLE GAP BETWEEN MATING SURFACES OF PC BOARD AND J1, J2, J3, AND J4 IS TO IPC STANDARD.
5. AFTER DEPANELING ALL CARRIER TABS MAY NOT PROTRUDE BEYOND EDGE OF PCB. MAXIMUM ROUTER CUT INTO PCB SHALL BE LESS THAN .010 [.25] COPPER FOIL PATERN MUST NOT BE TOUCHED BY ROUTER TOOLING.
6. COMPASS SHALL BE ACCURATE WITHIN THE FOLLOWING LIMITS:

HEADING	ANGLE	VALUE(HEX)
N	0 ±10	0x00 ±0x07
E	90 ±10	0x40 ±0x07
S	180 ±10	0x80 ±0x07
W	270 ±10	0xC0 ±0x07

   AT A 200 MILLIGAUSS FIELD STRENGTH.
7. WITH THE UNIT IN COMPASS DISPLAY MODE ADJUST THE MODULE INPUT VOLTAGE TO 13.5 VDC ± .1 VDC AND THE DIMMING LEVEL TO FULL BRIGHTNESS. VERIFY THAT THE FILAMENT VOLTAGE MEASURES BETWEEN 3.50VAC +400/-250mVAC AND 10.0VDC ± 1.0VDC.
8. L-SHAPE LEAD BEND REQUIRED FOR ELECTROLYTIC CAPACITORS (C5, C12, C31 AND C41) AT FLAGGED LOCATIONS.
9. Y102 IS SENSITIVE TO TEMPERATURES ABOVE 275°C, FOR APPLICATION LONGER THAN 2.5 SECONDS. DO NOT EXCEED THESE CONDITIONS DURING REWORK.
10. THE NVM ON EACH PART WILL BE PROGRAMMED WITH THE FOLLOWING POWER LEVEL SETTINGS FOR FCC COMPLIANCE.

REGION	FREQ. RANGE (MHz)	ROM POWER LEVEL (U101)	NVM ADDRESS	FCC CERTIFIED POWER LEVEL (NVM DATA)	NEEDS TO BE PROGRAMMED IN NVM
0	285-303	0x0CF1	0x0D	0x0FEE	YES
1	303-322	0x0EEF	0x0E	0x0FEE	YES
2	335-360	0x0FEE	0x0F	0x0EEF	YES
3	360-380	0x0FEE	0x10	0x0CF1	YES
4	380-400	0x15E8	0x11	0x0DF0	YES
5	410-420	0x19E4	0x12	0x0FEE	YES
DEFAULT CODE POWER		0x3BC2	0x0A	0x3FBE	YES
VEHICLE ID		0x00FD	0x13	—	NO
MAX TX POWER		0xFEFF	0x14	—	NO

    NOTE: THE NVM VALUE INCLUDES A SELF CHECK. HIGH BYTE IS THE ACTUAL VALUE. LOW BYTE IS COMPLEMENT OF HIGH BYTE + 2.
11. TRAINING SENSITIVITY:
    A. THE RECEIVER THRESHOLD IS PROGRAMMED IN NVM ADDRESS 0x04. MEASURE RSSI AT NODAL WITH A -55dBm 280MHz SIGNAL. THE RECEIVER THRESHOLD IS 10ED.
    B. THE RECEIVER THRESHOLD IS PUT IN THE UPPER BYTE, THE LOWER BYTE IS THE UPPER BYTE +2, THEN INVERTED.
12. LED COLOR TYPE AND LOCATION – VISION SYSTEM.
13. OUTPUT POWER MEASUREMENTS (RF) SHALL BE PERFORMED DURING NODAL TEST:

FREQ(MHz)	POWER (P1) NO ATTENUATOR(dBm)	POWER ATTENUATOR #1 (dBm)	POWER ATTENUATOR #2 (dBm)
280	-1.6 ±3.5	(P1-4.5) ±1.0	(P1-9.5) ±3.0
340	-1.6 ±3.5	(P1-4.5) ±1.0	(P1-9.5) ±3.0
390	-1.6 ±3.5	(P1-4.5) ±1.0	(P1-9.5) ±3.0

14. TRAINING SENSITIVITY SHALL BE PERFORMED DURING NODAL TEST:

POWER(dBm)	FREQUENCY(MHz)	VCO FREQUENCY(MHz)
-56.0 ±5.0	283.2	280
-58.0 ±6.0	393.2	390

15. REFERENCE TEST DEVELOPMENT SPEC # TD-ELE-002.
16. PSI AGC OFFSET:
    THE AGC OFFSET 0XA55A IS PROGRAMMED IN HOMELINK NVM ADDRESS 0XF4.
17. PART MUST BE 100% ELECTRICALLY TESTED.
18. APPLY SCREWS (ITEM 3 AND 4) WITH TORQUE OF 2.5 (± 1.0) in lb, FROM THE SECONDARY SIDE OF PCB TO SECURE CONNECTOR (J3).

CORRELATION CHART

DRAWING REV	DATE	PCB PART NO. V44004 (DWG. NO. V44004) REV	PCB PART NO. VL1000 (DWG. NO. VL1000) REV
		PRODUCT CODE	LF
A	30MAR01	A	A
B	27JUN01	B	B
C	10OCT01	C	C

REVISION BLOCK

REV	SH/ ZONE	DESCRIPTION	P.C.N.	BY	DATE	BY
A		SEE DRAWING VJ4005 FOR HISTORY RELEASE FOR PRODUCTION	59929	HP	30MAR01	EDICT
B1		REV CORR CHART	61064	KVL	27JUN01	EDICT
B2		VJ0803 PLACED WAS V53925 NP (C32, C33)				
B3		VE3111 WAS V97532 (R32, R200)				
B4		VL8329 WAS VJ4186 (U1)				
B5		V98741 PLACED WAS NP (C69)				
B6		V98739 PLACED WAS NP (C71)				
B7		V53925 NP WAS PLACED (C81, C92)				
B8		V53925 PLACED WAS NP (C82)				
B9		V98739 NP WAS PLACED (C83, C95)				
B10		VJ2418 NP WAS PLACED (C136)				
B11		VJ2417 NP WAS PLACED (C137)				
B12		VF5069 NP WAS PLACED (C172, C191, C192, C193)				
B13		VJ7763 NP WAS PLACED (C173)				
B14		VF5913 PLACED WAS NP (CR44)				
B15		VJ0802 NP WAS PLACED (E102, E103)				
B16		VJ7762 NP WAS PLACED (L128, L129)				
B17		VB4277 NP WAS PLACED (Q20, Q26)				
B18		VA2501 NP WAS PLACED (Q21, Q23)				
B19		V61409 NP WAS PLACED (R10)				
B20		VE3111 NP WAS PLACED (R53, R65)				
B21		V98737 NP WAS PLACED (R62, R67)				
B22		VJ0061 NP WAS PLACED (R172)				
B23		VF2613 PLACED WAS NP (S1)				
B24		VF2613 NP WAS PLACED (S4)				
B25		VG1502 NP WAS PLACED (U108)				
B26		VJ5456 NP WAS PLACED (Y103) NEW STENCIL REQUIRED				
C1		REV CORR CHART	61311	JR	10OCT01	EDICT
C2		DEL V98741 PLACED (C69)				
C3		DEL V98739 PLACED (C71)				
C4		VG1106 WAS V68100 (C9, C40)				
C5		V68469 WAS VA6452 (C132)				
C6		VG1110 WAS V56967 (CR12)				
C7		VJ0059 WAS VK2765 (L130, L131)				
C8		VA5609 WAS V98736 (R1, R7, R63, R81, R83, R98, R105, R128, R130, R137, R145)				
C9		V55507 WAS V27868 (R85)				
C10		VM3601 WAS VL8329 (U1)				
C11		V53925 NP WAS PLACED (C82)				
C12		VH5052 NP WAS PLACED (CR24, CR26, CR27, CR37)				
C13		VH5052 PLACED WAS NP (CR25, CR54)				
C14		VF5913 NP WAS PLACED (CR44)				
C15		V97532 NP WAS PLACED (R14, R26)				
C16		V97532 PLACED WAS NP (R66)				
C17		VA5607 NP WAS PLACED (R96)				
C18		VA5609 NP WAS PLACED (R98)				
C19		ADD VL6631 PLACED (2, 3)				
C20		ADD VA1511 PLACED (R15)				
C21		ADD VM0790 PLACED (R16)				
C22		REVISE NOTE 7, 10 AND 11				
C23		ADD NOTE 18 NO STENCIL CHANGE REQUIRED				

JOHNSON CONTROLS
AUTOMOTIVE SYSTEMS GROUP INTERIORS

NAME: PCB ASSEMBLY

ELECTRONICS STD. UNLESS OTHERWISE SPECIFIED
THIRD ANGLE PROJECTION
DO NOT SCALE
X.X DECIMAL ± 0.040 [± 1.0]
X.XX DECIMAL ± 0.020 [± .50]
X.XXX DECIMAL ± 0.006 [± .15]
ANGULAR ± 2° 0'
DRAFT ANGLES NOTED
SPECIFIES FEATURES REQUIRING SPECIAL CONSIDERATIONS. SEE PRODUCT CONTROL PLAN.
DIMENSIONS ARE INCHES WITH EQUIVALENT MILLIMETERS SHOWN IN BRACKETS.

PROJECT: 02.5 FN145 OHC	DRWN. BY: H. PHAM	DATE: 19APR01	
	CHKD. BY: B. SUNNERVILLE	DATE: 19APR01	
CUSTOMER: FORD	ENGR. APPR: P. TARNOW	DATE: 19APR01	
	SCALE: 2/1	SHEET 1 OF 5	
SIZE: D	TOOL NO. REF.	DWG. NO.: VL1000	REV.: C
	DATA FORMAT: ACAD		

VL1000 REV C
02.5 FN145 OHC

SHEET 1 OF 3

MANUALLY ASSEMBLED PARTS:

LOCATION	DESCRIPTION	PART#	QTY	PACKAGE
1	PCB FAB OH FN145 REV C	VJ4004-C	1	TH_FAKEPART
2,3	SCREW M3X6 PAN HEAD TAPPING	VL6631	2	TH_FAKEPART
C12	CAP EL RD 220U 20% 50	VH5220	1	TH_VH5220_LD_BD
C19,C54,C122	CAP EL RD NON-POL 33U 20% 50	V91949	3	TH_V91949
C31,C41	CAP EL RD 4.7U 20% 100	VC2589	2	TH_VC2589
C5	CAP EL RD L ESR 100U 20% 35	V36106	1	TH_V36106
CR5,CR35	LED ASM GREEN	VL3101	2	TH_LED_VG3656
DS1	DISPLAY VF CIG 02.5 FN1145	VK9978	1	TH_DSPL_VA4901
J1	CONN 28 PIN *GET* RA HDR .100 CTR	VL2484	1	TH_CON_VL2484
J2	CONN 4 PIN .112 CTR	VJ5187	1	TH_CON_VJ5187
J3	CONN HDR 3 PIN RA .138 CTR	VH2452	1	TH_CON_VH2452
S2,S3	SWITCH TACTILE RA MOM 160gF	VJ5185	2	TH_SW_VJ5185

COMPONENT LOCATIONS NOT POPULATED:

C1,C111,C115,C134,C136,C137,C172,C173,C191,C192,C193,C2,C22,C36,C57,C58,C74,
C79,C81,C82,C83,C86,C92,C95,CR21,CR22,CR23,CR24,CR26,CR27,CR37,CR44,CR52,E102,
E103,J4,L128,L129,L3,Q20,Q21,Q23,Q25,Q26,R1,R10,R14,R140,R172,R26,R53,R62,R65,
R67,R73,R83,R96,R98,S11,S4,S8,S9,U108,Y103

SURFACE MOUNTED COMPONENTS:

LOCATION	DESCRIPTION	PART#	QTY	PACKAGE
C10,C18,C20,C21	CAP CER X7R 2200P 20% 50	V99307	4	603NC
C100	CAP CER COG 5.6P .25PF 50	V99303	1	603NC
C101	CAP CER X7R 470P 10% 50	VF5069	1	402
C104	CAP EL SMD 33U 20% 25	VE2185	1	ELCAP_D63
C105,C124	CAP CER COG 470P 5% 50	V99355	2	603NC
C11,C62,C63,C64, C65	CAP CER COG 330P 5% 50	VB4273	5	603NC
C110,C112	CAP CER COG 18P 5% 50	VA1022	2	603NC
C120	CAP CER X7R .22U 10% 50	VE2669	1	1206NC
C121	CAP CER X7R 680P 10% 50	VG4877	1	402
C126	CAP CER X7R 1U 10% 10	VG3406	1	805NC
C132	CAP TANT A-CASE .47U 20% 25	V68469	1	TANTA_NC
C14,C25,C106, C123	CAP CER COG 100P 5% 50	V98743	4	603NC
C140	CAP CER Y5V 1U 80/-20% 25	VE8695	1	805NC
C16	CAP CER X7R 3300P 10% 50	VA9174	1	603NC
C17,C131	CAP CER X7R .1U 10% 50	V27850	2	1206NC
C220,C221	CAP CER COG 220P 5% 25	VC8916	2	402
C23,C26	CAP CER COG 120P 5% 50	V78004	2	805NC
C24,C102,C109, C113,C119,C130, C133,C135	CAP CER X7R .1U 10% 16	VB7587	8	603NC
C27	CAP CER X7R 6800P 10% 50	VA1503	1	603NC
C29,C190	CAP CER X7R 1000P 10% 50	V98741	2	603NC
C3,C8,C30,C35, C39,C43,C50,C55, C66,C70	CAP CER X7R .1U 10% 50	V68110	10	805NC
C32,C33,C60,C61	CAP CER X7R 330P 20% 100	VJ0803	4	805NC
C34,C44,C45,C46, C75,C76,C77,C80, C85	CAP CER X7R .01U 10% 50	V53925	9	805NC
C37,C38	CAP CER COG 100P 5% 50	V57585	2	805NC
C4,C13,C15,C42, C78,C87	CAP CER X7R .027U 10% 50	VF6106	6	805NC
C47	CAP CER X7R 1000P 20% 100	VB4276	1	805NC
C48,C49	CAP CER X7R 2200P 20% 100	VB4275	2	805NC
C51,C52	CAP CER NP0 100P 5% 200	VJ5429	2	805NC
C6,C7,C28,C53, C56,C59,C84,C96, C97,C103,C108, C114,C116,C117, C128	CAP CER X7R .01U 10% 50	V98739	15	603NC
C67,C68	CAP CER COG 22P 5% 50	V99301	2	603NC
C72	CAP TANT C-CASE 4.7U 20% 25	V65373	1	TANTC_NC
C9,C40,C142	CAP CER COG 1000P 2% 50	VG1106	3	805NC

VL1000 REV C
02.5 FN145 OHC

SHEET 2 OF 3

LOCATION	DESCRIPTION	PART#	QTY	PACKAGE
CR1,CR43,CR45, CR46,CR48	DIODE DUAL CMN CATH BAV70	V56966	5	SOT23NC
CR106	DIODE DUAL SERIES BAV99	V56967	1	SOT23NC
CR107,CR120 CR11,CR20,CR40, CR51	DIODE VARACTOR SMS1400-611	VF5348	2	SOD323
	DIODE ZENER 225mW 18V	VE7019	4	SOD123
CR114	DIODE SCHOTTKY	VF5076	1	SOD323
CR116	DIODE VARACTOR DUAL SMV1253-004	VK1295	1	SOT23NC
CR119,CR121	DIODE ZENER 500mW 7.5V	VF3204	2	SOD123
CR12	DIODE ZENER .225W 16V MMBZ5246BLT1	VG1110	1	SOT23NC
CR14,CR15,CR25, CR28,CR29,CR30, CR31,CR32,CR33, CR34,CR38,CR54	LED SMD (TRUE GREEN)	VH5052	12	HSMG_TX
CR16,CR17	DIODE, SCHOTTKY 40V RB160L	VJ5424	2	SMB_VJ5424
CR18,CR108	DIODE SIG 75mA 100V 1N914	V30082	2	SOT23NC
CR3,CR6	DIODE RECT MOTOROLOA MURS120T3	VA8253	2	SMB
CR39	LED SMD (AMBER)	VJ4184	1	HSMG_TX
CR4	DIODE ZENER .225W 10V MMBZ5240BLT1	VA8254	1	SOT23NC
CR7,CR8	DIODE DUAL ZENER 27V 40W	VG1107	2	SOT23NC
CR9,CR13	DIODE REC SMA 1A 400V FAST RR	VB1292	2	SMA
E101	ANTENNA LOOP 7X35mm	VF3203	1	LOOP_VF3203_7MM
E104	SHIELD SMD 4 PIN 7X8 MM	VG8930	1	SHIELD_VG8930
L1,L102,L109, L110	FERRITE BEAD SMD 600 25%	VA7170	4	805NC
L101,L103	INDUCTOR SMD 12N 5%	VC8071	2	603NC
L104	INDUCTOR SMD 1000U 5%	VC8919	1	1812NC
L130,L131	INDUCTOR SMD 56N 5%	VJ0059	2	603NC
Q1,Q2,Q5	TRANS MOSFET N-CH	V56974	3	DPAK
Q102	TRANS NPN DIG 2.2KB/47KBE	VE3972	1	SOT23NC
Q104	TRANS NPN DIGITAL 47KB/47KBE	VC5856	1	SOT23NC
Q105,Q106	TRANS NPN 44D1	V27855	2	SOT23NC
Q11,Q12	TRANS NPN MMBT3904	VC5882	2	SOT23NC
Q112	TRANS NPN DIG 10KB/47KBE	VE4961	1	SOT23NC
Q3,Q7	TRANS PNP BCP51	V52701	2	SOT223
Q4,Q15,Q16,Q17, Q19	TRANS NPN DIG 10KB/10KBE	VA2501	5	SOT23NC
Q6,Q60	TRANS PNP DIG 4.7KB/10KBE ROHM	VC0694	2	SOT23NC
Q8	TRANS PNP DPAK MJD32C	V72638	1	DPAK
Q9,Q10	TRANS PNP MMBT3906	VC5883	2	SOT23NC
R101,R102	RES CER 0 5% .100	V68124	2	805NC
R103,R107,R117	RES CER 10K 5% .037	VB8037	3	402
R104	RES CER 18K 5% .063	VA5599	1	603NC
R110	RES CER 1.5K 5% .100	V57419	1	805NC
R111	RES CER 24 5% .250	V90542	1	1210
R112	RES CER 4.32K 1% .063	VE9896	1	603NC
R113	RES CER 1.33K 1% .063	VG3631	1	603NC
R114	RES CER 40.2K 1% .100	VE9897	1	805NC
R115	RES CER 1.3K 5% .063	V98734	1	603NC
R12,R32,R200	RES CER 820 5% .5	VE3111	3	2010
R120	RES CER 3K 5% .063	V98732	1	603NC
R121	RES CER 1.47K 1% .063	VC4658	1	603NC
R122	RES CER 2.37K 1% .063	VE2825	1	603NC
R124	RES CER 1.3K 5% .250	VE8059	1	1210
R129	RES CER 154K 1% .063	VB4271	1	603NC
R13,R35,R41	RES CER 1K 5% .063	V98733	3	603NC
R141	RES CER 301 1% .037	VH5065	1	402
R142	RES CER 300 5% .063	VC4467	1	603NC
R147,R160	RES CER 10 5% .100	V72639	2	805NC
R15	RES CER 0 5% .063	VA1511	1	603NC
R16	RES CER 18 5% .063	VM0790	1	603NC
R161,R162	RES CER 47K 5% .100	V72641	2	805NC
R17	RES CER 2.00K 1% .125	V30207	1	1206NC
R176,R186	RES CER 1K 5% .037	VB8043	2	402
R187	RES CER 51K 5% .037	VB8048	1	402
R2,R18	RES CER 100K 5% .100	V57422	2	805NC
R20,R131 R22,R75,R106,	RES CER 560K 5% .063	VB4268	2	603NC

VL1000 REV C
02.5 FN145 OHC

SHEET 3 OF 3

SURFACE MOUNTED COMPONENTS:

LOCATION	DESCRIPTION	PART#	QTY	PACKAGE
R126	RES CER 100K 5% .063	VA6119	4	603NC
R23	RES CER 33 5% .100	V68130	1	805NC
R24,R86	RES CER 1.0MEG 5% .063	V98731	2	603NC
R25	RES CER 681 1% .125	V36122	1	1206NC
R27	RES CER 2.55K 1% .100	VE8696	1	805NC
R29,R42,R60,R66	RES CER 560 5% .5	V97532	4	2010
R3,R30	RES CER 1.6 5% .250	VB4272	2	1210
R33,R46	RES CER 5.23 1% .125	VJ5428	2	1206NC
R34,R38	RES CER 12.1K 1% .100	VJ5425	2	805NC
R36	RES CER 360 5% .100	V68548	1	805NC
R37	RES CER 56 5% .063	VB4269	1	603NC
R39,R40	RES CER 154.0K 1% .100	VA8257	2	805NC
R4,R5,R8,R11	RES CER 432 1% .063	VA5608	4	603NC
R43,R44	RES CER 10 5% .063	VB4813	2	603NC
R47,R51	RES CER 7.5K 5% .063	VE3118	2	603NC
R48,R59	RES CER 470K 5% .063	VC2865	2	603NC
R49,R50	RES CER 200 1% .100	VJ5427	2	805NC
R52	RES CER 75K 5% .063	VA5601	1	603NC
R54,R91,R92,R93, R99	RES CER 4.7K 5% .063	VA5628	5	603NC
R55,R56	RES CER 619 1% .100	VJ5426	2	805NC
R58	RES CER 360 5% .5	VB2735	1	2010
R6,R19	RES CER 470 5% .100	V71181	2	805NC
R61	RES CER 10K 5% .125	V27868	1	1206NC
R68,R74	RES CER 620 5% .5	VB6959	2	2010
R7,R63,R81,R105, R109,R128,R130, R137,R145	RES CER 10K 1% .063	VA5609	9	603NC
R71,R88	RES CER 100 5% .063	VB8384	2	603NC
R76,R77,R78,R79, R80,R94,R95, R123,R148	RES CER 2K 5% .063	V98730	9	603NC
R85	RES CER 18K 5% .125	V55507	1	1206NC
R9,R87	RES CER 47K 5% .063	VA6441	2	603NC
RN5	RES 2-ARRAYS 10K 5% .063	VE2526	1	RPAK_CRA1A2
RN8,RN9	RES 4-ARRAYS 100 5% .063	VE3978	2	RPAK_CRB3A
S1,S5,S6,S7,S10, S12,S13,S14	SWITCH MOM SMD (250gf) 1.3mm	VF2613	8	SW_VE8115
T1,T2	SENSOR MAGNETO SHLD O DEGREE	VB0349	2	SNSR_O_DEG_NEW
T3	TRANSFORMER SMD 16 TURNS	VC6087	1	TRANSFMR_VB2048
U1	IC MICRO 02 FN145 08AZ60 (FLSH) REV 4	VM3601	1	QFP_64
U101	IC MICRO PSI 16C76 DTP 15.0	VL0126	1	SOIC28W
U102	IC NVM 4K 93LC66	VE2996	1	SOIC8
U104	IC 14-BIT BINARY MOTO MC14060BD	VE8699	1	SOIC16
U105	IC REG 5V LP2951 SOIC8	V61881	1	SOIC8
U106	IC HIGH VOLTAGE SWITCH	VC6882	1	TSOP_6
U107	IC ASIC HMLK-3 DS1.3	VH3121	1	SSOP30
U2	IC REG 5V 78M05	V63733	1	DPAK
U3	IC ASIC III	V94137	1	SOIC20W
U4	IC LBCC NARROW BODY	VJ5779	1	SOIC16
U5	IC PWM UCX843	VA8251	1	SOIC8
U6	IC HEX INVERTER 4049	V63909	1	SOIC16
U8	IC CMOS OR GATE 2-INPUT	VK0411	1	SOT353
U9	IC TIME KEEPING CHIP DS1302ZN	VJ6250	1	SOIC8
Y1	RESONATOR CER 4.00MHz 47PF	VC3706	1	RESN_V78762
Y101	CRYSTAL 20.000MHz +/- 30PPM	VG8564	1	XTAL_SMD49
Y102	FILTER SMD 10.7MHz	VG8563	1	FLTR_SFECV10
Y2	CRYSTAL SMD 32.768KHz	VG3202	1	XTAL_GMP25A

DWG. NO. VL1000

REVISION BLOCK

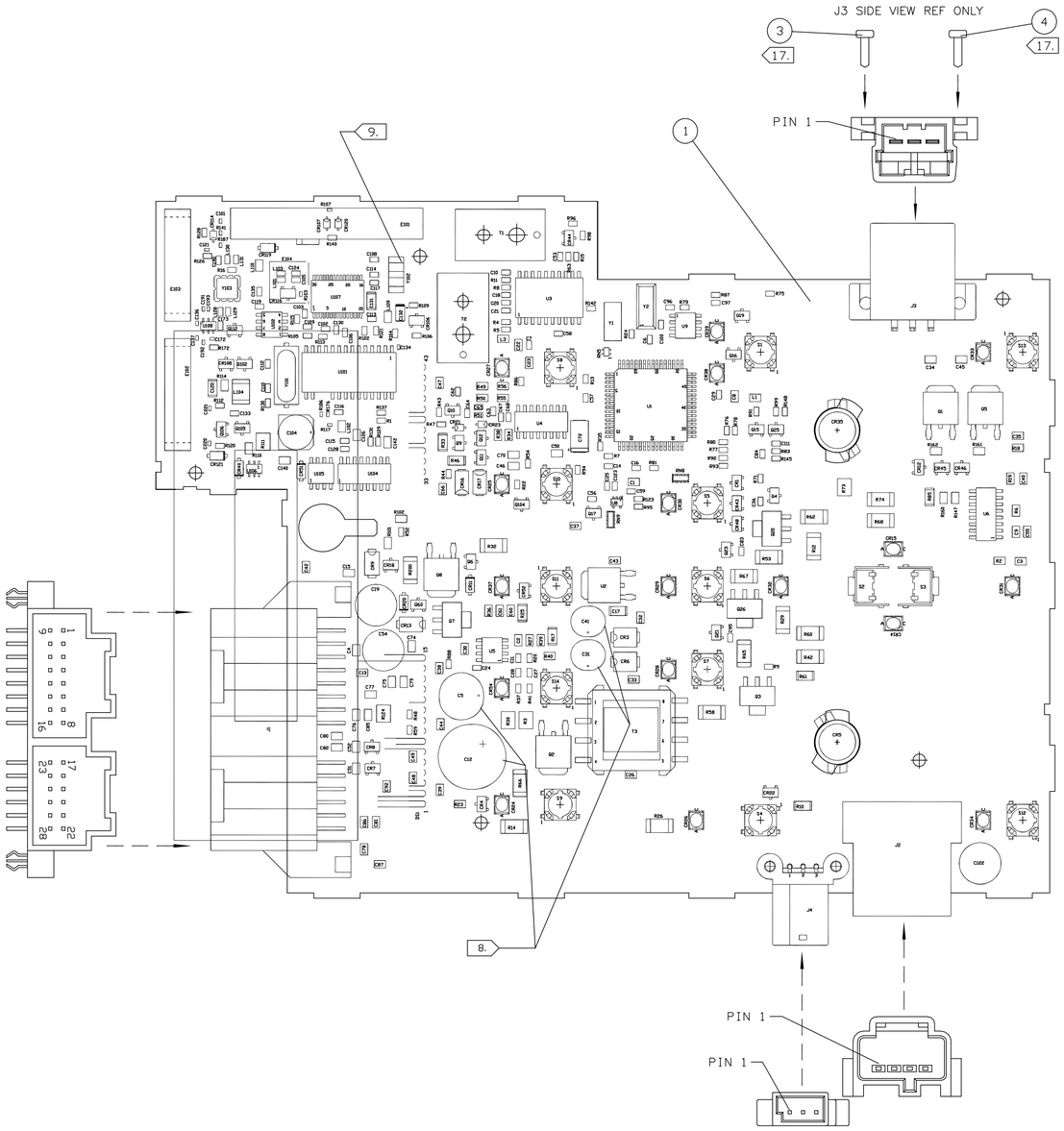
REV	SH/ ZONE	DESCRIPTION	P.C.N.	BY	DATE	BY

JOHNSON CONTROLS
AUTOMOTIVE SYSTEMS GROUP INTERIORS

NAME
PCB ASSEMBLY

ELECTRONICS STD. UNLESS OTHERWISE SPECIFIED
THIRD ANGLE PROJECTION
DO NOT SCALE
X.X DECIMAL ± 0.040 [± 1.0]
X.XX DECIMAL ± 0.020 [± .50]
X.XXX DECIMAL ± 0.006 [± .15]
ANGULAR ± 2° 0'
DRAFT ANGLES NOTED
SPECIFIES FEATURES REQUIRING SPECIAL CONSIDERATIONS. SEE PRODUCT CONTROL PLAN.
DIMENSIONS ARE INCHES WITH EQUIVALENT MILLIMETERS SHOWN IN BRACKETS.

PROJECT: 02.5 FN145 OHC	DRWN. BY		DATE
	CHKD. BY		DATE
CUSTOMER: FORD	ENGR. APPR		DATE
	SCALE: NONE		SHEET 2 OF 5
SIZE: D	TOOL NO. REF.	DWG. NO.: VL1000	REV.: C
	DATA FORMAT: ACAD		



J2 AND J4 SIDE VIEW REF ONLY

DWG. NO. VL1001

NOTES:

1. REFERENCE IPC-A-610 STANDARDS FOR ASSEMBLY PRACTICES, AND PROCEDURES, UNLESS OTHERWISE SPECIFIED.
2. EACH ASSEMBLY SHALL BE LABELED WITH A KAPTON LABEL ON CIRCUIT SIDE OF PCB. DO NOT COVER TEST POINTS, OR BOARD PART NUMBER/REV.
   LABEL MUST REFERENCE FINAL ASSEMBLY PRODUCT CODE AND FINAL ASSEMBLY REVISION LEVEL.

   LABEL DEFINITION
   PRODUCT CODE
   ALPHANUMERIC SERIAL #
   REV. LEVEL
3. MAXIMUM ALLOWABLE PROTRUSION OF LEADS FROM BOTTOM SIDE OF BOARD IS .100 [2.54], EXCEPT DS1.
4. MAXIMUM ALLOWABLE GAP BETWEEN MATING SURFACES OF PC BOARD AND J1, J2, J3, AND J4 IS TO IPC STANDARD.
5. AFTER DEPANELING ALL CARRIER TABS MAY NOT PROTRUDE BEYOND EDGE OF PCB. MAXIMUM ROUTER CUT INTO PCB SHALL BE LESS THAN .010 [.25] COPPER FOIL PATERN MUST NOT BE TOUCHED BY ROUTER TOOLING.
6. COMPASS SHALL BE ACCURATE WITHIN THE FOLLOWING LIMITS:

HEADING	ANGLE	VALUE(HEX)
N	0 ±10	0x00 ±0x07
E	90 ±10	0x40 ±0x07
S	180 ±10	0x80 ±0x07
W	270 ±10	0xC0 ±0x07

   AT A 200 MILLIGAUSS FIELD STRENGTH.
7. WITH THE UNIT IN COMPASS DISPLAY MODE ADJUST THE MODULE INPUT VOLTAGE TO 13.5 VDC ± .1 VDC AND THE DIMMING LEVEL TO FULL BRIGHTNESS. VERIFY THAT THE FILAMENT VOLTAGE MEASURES BETWEEN 3.50VAC +400/-250mVAC AND 10.0VDC ± 1.0VDC.
8. L-SHAPE LEAD BEND REQUIRED FOR ELECTROLYTIC CAPACITORS (C5, C12, C31 AND C41) AT FLAGGED LOCATIONS.
9. Y102 IS SENSITIVE TO TEMPERATURES ABOVE 275°C, FOR APPLICATION LONGER THAN 2.5 SECONDS. DO NOT EXCEED THESE CONDITIONS DURING REWORK.
10. THE NVM ON EACH PART WILL BE PROGRAMMED WITH THE FOLLOWING POWER LEVEL SETTINGS FOR FCC COMPLIANCE.

REGION	FREQ. RANGE (MHz)	ROM POWER LEVEL (U101)	NVM ADDRESS	FCC CERTIFIED POWER LEVEL (NVM DATA)	NEEDS TO BE PROGRAMMED IN NVM
0	285-303	0x0CF1	0x0D	0x0FEE	YES
1	303-322	0x0EEF	0x0E	0x0FEE	YES
2	335-360	0x0FEE	0x0F	0x0EEF	YES
3	360-380	0x0FEE	0x10	0x0CF1	YES
4	380-400	0x15E8	0x11	0x0DF0	YES
5	410-420	0x19E4	0x12	0x0FEE	YES
DEFAULT CODE POWER		0x3BC2	0x0A	0x3FBE	YES
VEHICLE ID		0x00FD	0x13	—	NO
MAX TX POWER		0xFEFF	0x14	—	NO

    NOTE: THE NVM VALUE INCLUDES A SELF CHECK. HIGH BYTE IS THE ACTUAL VALUE. LOW BYTE IS COMPLEMENT OF HIGH BYTE + 2.
11. TRAINING SENSITIVITY:
    A. THE RECEIVER THRESHOLD IS PROGRAMMED IN NVM ADDRESS 0x04. MEASURE RSSI AT NODAL WITH A -55dBm 280MHz SIGNAL. THE RECEIVER THRESHOLD IS 10ED.
    B. THE RECEIVER THRESHOLD IS PUT IN THE UPPER BYTE, THE LOWER BYTE IS THE UPPER BYTE +2, THEN INVERTED.
12. LED COLOR TYPE AND LOCATION – VISION SYSTEM.
13. OUTPUT POWER MEASUREMENTS (RF) SHALL BE PERFORMED DURING NODAL TEST:

FREQ(MHz)	POWER (P1) NO ATTENUATOR(dBm)	POWER ATTENUATOR #1 (dBm)	POWER ATTENUATOR #2 (dBm)
280	-1.6 ±3.5	(P1-4.5) ±1.0	(P1-9.5) ±3.0
340	-1.6 ±3.5	(P1-4.5) ±1.0	(P1-9.5) ±3.0
390	-1.6 ±3.5	(P1-4.5) ±1.0	(P1-9.5) ±3.0

14. TRAINING SENSITIVITY SHALL BE PERFORMED DURING NODAL TEST:

POWER(dBm)	FREQUENCY(MHz)	VCO FREQUENCY(MHz)
-56.0 ±5.0	283.2	280
-58.0 ±6.0	393.2	390

15. REFERENCE TEST DEVELOPMENT SPEC # TD-ELE-002.
16. PART MUST BE 100% ELECTRICALLY TESTED.
17. APPLY SCREWS (ITEM 3 AND 4) WITH TORQUE OF 2.5 (± 1.0) in lb, FROM THE SECONDARY SIDE OF PCB TO SECURE CONNECTOR (J3).

CORRELATION CHART		PCB PART NO. VL4004 (DWG. NO. VJ4004)	PRODUCT CODE KE PCB PART NO. VL1001 (DWG. NO. VL1001)
DRAWING REV	DATE	REV	REV
A	30MAR01	A	A
B	27JUN01	B	B
C	10OCT01	C	C

REVISION BLOCK

REV	SH/ ZONE	DESCRIPTION	P.C.N.	BY	DATE	BY
A		SEE DRAWNG VJ4005 FOR HISTORY RELEASE FOR PRODUCTION	59929	HP	30MAR01	EDICT
B1		REV CORR CHART	61064	KVL	27JUN01	EDICT
B2		VJ0803 PLACED WAS V53925 NP (C32, C33)				
B3		VE3111 WAS V97532 (R32, R200)				
B4		VL8329 WAS VJ4186 (U1)				
B5		V98739 PLACED WAS NP (C71, C128)				
B6		V53925 NP WAS PLACED (C81, C92)				
B7		V53925 PLACED WAS NP (C82)				
B8		V98739 NP WAS PLACED (C83, C95)				
B9		VG1106 PLACED WAS NP (C142)				
B10		VF5913 PLACED WAS NP (CR44)				
B11		VB4277 NP WAS PLACED (Q20, Q26)				
B12		VA2501 NP WAS PLACED (Q21, Q23)				
B13		V98736 NP WAS PLACED (R1)				
B14		VE3111 NP WAS PLACED (R53, R65)				
B15		V98737 NP WAS PLACED (R62, R67)				
B16		VB4271 PLACED WAS NP (R129)				
B17		VB4268 PLACED WAS NP (R131)				
B18		V98736 PLACED WAS NP (R137)				
B19		VE8699 PLACED WAS NP (U104) NEW STENCIL REQUIRED				
C1		REV CORR CHART	61311	JR	10OCT01	EDICT
C2		DEL V98741 PLACED (C69)				
C3		DEL V98739 PLACED (C71)				
C4		VG1106 WAS V68100 (C9, C40)				
C5		V68469 WAS VA6452 (C132)				
C6		VG1110 WAS V56967 (CR12)				
C7		VJ0059 WAS VK2765 (L130, L131)				
C8		VA5609 WAS V98736 (R1, R7, R63, R81, R83, R98, R105, R128, R130, R137, R145)				
C9		V55507 WAS V27868 (R85)				
C10		VM3601 WAS VL8329 (U1)				
C11		V53925 NP WAS PLACED (C82)				
C12		VF5913 NP WAS PLACED (CR44)				
C13		VA5607 NP WAS PLACED (R96)				
C14		VA5609 NP WAS PLACED (R98)				
C15		ADD VL6631 PLACED (Z, 3)				
C16		ADD VA1511 PLACED (R15)				
C17		ADD VM0790 PLACED (R16)				
C18		REV NOTE 7,11 AND 10				
C19		ADD NOTE 17 NO STENCIL CHANGE REQUIRED				

JOHNSON CONTROLS
AUTOMOTIVE SYSTEMS GROUP INTERIORS

NAME: PCB ASSEMBLY

ELECTRONICS STD. UNLESS OTHERWISE SPECIFIED
THIRD ANGLE PROJECTION
DO NOT SCALE
X.X DECIMAL ± 0.040 [± 1.0]
X.XX DECIMAL ± 0.020 [± .50]
X.XXX DECIMAL ± 0.006 [± .15]
ANGULAR ± 2° 0'
DRAFT ANGLES NOTED
SPECIFIES FEATURES REQUIRING SPECIAL CONSIDERATIONS. SEE PRODUCT CONTROL PLAN.
DIMENSIONS ARE INCHES WITH EQUIVALENT MILLIMETERS SHOWN IN BRACKETS.

PROJECT: 02.5 FN145 OHC		DRWN. BY: H. PHAM	DATE: 19APR01
		CHKD. BY: B. SUNNERVILLE	DATE: 19APR01
CUSTOMER: FORD		ENGR. APPR: P. TARNOW	DATE: 19APR01
		SCALE: 2/1	SHEET 1 OF 5
SIZE: D	TOOL NO. REF.	DWG. NO.: VL1001	REV.: C
	DATA FORMAT: ACAD		

VL1001 REV C SHEET 1 OF 3

02.5 FN145 OHC

MANUALLY ASSEMBLED PARTS:

LOCATION	DESCRIPTION	PART#	QTY	PACKAGE
1	PCB FAB OH FN145 REV C	VJ4004-C	1	TH_FAKEPART
2,3	SCREW M3X6 PAN HEAD TAPPING	VL6631	2	TH_FAKEPART
C12	CAP EL RD 220U 20% 50	VH5220	1	TH_VH5220_LD_BD
C19,C54,C122	CAP EL RD NON-POL 33U 20% 50	V91949	3	TH_V91949
C31,C41	CAP EL RD 4.7U 20% 100	VC2589	2	TH_VC2589
C5	CAP EL RD L ESR 100U 20% 35	V36106	1	TH_V36106
CR5,CR35	LED ASM GREEN	VL3101	2	TH_LED_VG3656
DS1	DISPLAY VF CIG 02.5 FN1145	VK9978	1	TH_DSPL_VA4901
J1	CONN 28 PIN *GET* RA HDR .100 CTR	VL2484	1	TH_CON_VL2484
J2	CONN 4 PIN .112 CTR	VJ5187	1	TH_CON_VJ5187
J3	CONN HDR 3 PIN RA .138 CTR	VH2452	1	TH_CON_VH2452
S2,S3	SWITCH TACTILE RA MOM 160gF	VJ5185	2	TH_SW_VJ5185

COMPONENT LOCATIONS NOT POPULATED:

C1,C111,C115,C134,C136,C137,C172,C173,C191,C192,C193,C2,C22,C36,C57,C58,C81,
C82,C83,C86,C92,C95,CR21,CR23,CR25,CR44,CR54,E102,E103,J4,L128,L129,L3,Q20,Q21,
Q23,Q25,Q26,R1,R10,R140,R172,R53,R62,R65,R66,R67,R73,R83,R96,R98,S10,S14,U108,
Y103

SURFACE MOUNTED COMPONENTS:

LOCATION	DESCRIPTION	PART#	QTY	PACKAGE
C10,C18,C20,C21	CAP CER X7R 220OP 20% 50	V99307	4	603NC
C100	CAP CER COG 5.6P .25PF 50	V99303	1	603NC
C101	CAP CER X7R 470P 10% 50	VF5069	1	402
C104	CAP EL SMD 33U 20% 25	VE2185	1	ELCAP_D63
C105,C124	CAP CER COG 470P 5% 50	V99355	2	603NC
C11,C62,C63,C64, C65	CAP CER COG 330P 5% 50	VB4273	5	603NC
C110,C112	CAP CER COG 18P 5% 50	VA1022	2	603NC
C120	CAP CER X7R .22U 10% 50	VE2669	1	1206NC
C121	CAP CER X7R 680P 10% 50	VG4877	1	402
C126	CAP CER X7R 1U 10% 10	VG3406	1	805NC
C132	CAP TANT A-CASE .47U 20% 25	V68469	1	TANTA_NC
C14,C25,C106, C123	CAP CER COG 100P 5% 50	V98743	4	603NC
C140	CAP CER Y5V 1U 80/-20% 25	VE8695	1	805NC
C16	CAP CER X7R 3300P 10% 50	VA9174	1	603NC
C17,C131	CAP CER X7R .1U 10% 50	V27850	2	1206NC
C220,C221	CAP CER COG 220P 5% 25	VC8916	2	402
C23,C26	CAP CER COG 120P 5% 50	V78004	2	805NC
C24,C102,C109, C113,C119,C130, C133,C135	CAP CER X7R .1U 10% 16	VB7587	8	603NC
C27	CAP CER X7R 6800P 10% 50	VA1503	1	603NC
C29,C190	CAP CER X7R 1000P 10% 50	V98741	2	603NC
C3,C8,C30,C35, C39,C43,C50,C55, C66,C70	CAP CER X7R .1U 10% 50	V68110	10	805NC
C32,C33,C60,C61	CAP CER X7R 330P 20% 100	VJ0803	4	805NC
C34,C44,C45,C46, C74,C75,C76,C77, C79,C80,C85	CAP CER X7R .01U 10% 50	V53925	11	805NC
C37,C38	CAP CER COG 100P 5% 50	V57585	2	805NC
C4,C13,C15,C42, C78,C87	CAP CER X7R .027U 10% 50	VF6106	6	805NC
C47	CAP CER X7R 1000P 20% 100	VB4276	1	805NC
C48,C49	CAP CER X7R 2200P 20% 100	VB4275	2	805NC
C51,C52	CAP CER NP0 100P 5% 200	VJ5429	2	805NC
C6,C7,C28,C53, C56,C59,C84,C96, C97,C103,C108, C114,C116,C117, C128	CAP CER X7R .01U 10% 50	V98739	15	603NC
C67,C68	CAP CER COG 22P 5% 50	V99301	2	603NC
C72	CAP TANT C-CASE 4.7U 20% 25	V65373	1	TANTC_NC
C9,C40,C142	CAP CER COG 1000P 2% 50	VG1106	3	805NC
CR1,CR22,CR43, CR45,CR46,CR48, CR52	DIODE DUAL CMN CATH BAV70	V56966	7	SOT23NC

VL1001 REV C SHEET 2 OF 3

02.5 FN145 OHC

SURFACE MOUNTED COMPONENTS:

LOCATION	DESCRIPTION	PART#	QTY	PACKAGE
CR106	DIODE DUAL SERIES BAV99	V56967	1	SOT23NC
CR107,CR120	DIODE VARACTOR SMS1400-611	VF5348	2	SOD323
CR11,CR20,CR40, CR51	DIODE ZENER 225mW 18V	VE7019	4	SOD123
CR114	DIODE SCHOTTKY	VF5076	1	SOD323
CR116	DIODE VARACTOR DUAL SMV1253-004	VK1295	1	SOT23NC
CR119,CR121	DIODE ZENER 500mW 7.5V	VF3204	2	SOD123
CR12	DIODE ZENER .225W 16V MMBZ5246BLT1	VG1110	1	SOT23NC
CR14,CR15,CR24, CR26,CR27,CR28, CR29,CR30,CR31, CR32,CR33,CR34, CR37,CR38	LED SMD (TRUE GREEN)	VH5052	14	HSMG_TX
CR16,CR17	DIODE, SCHOTTKY 40V RB160L	VJ5424	2	SMB_VJ5424
CR18,CR108	DIODE SIG 75mA 100V 1N914	V30082	2	SOT23NC
CR3,CR6	DIODE RECT MOTOROLOA MURS120T3	VA8253	2	SMB
CR39	LED SMD (AMBER)	VJ4184	1	HSMG_TX
CR4	DIODE ZENER .225W 10V MMBZ5240BLT1	VA8254	1	SOT23NC
CR7,CR8	DIODE DUAL ZENER 27V 40W	VG1107	2	SOT23NC
CR9,CR13	DIODE REC SMA 1A 400V FAST RR	VB1292	2	SMA
E101	ANTENNA LOOP 7X35mm	VF3203	1	LOOP_VF3203_7MM
E104	SHIELD SMD 4 PIN 7X8 MM	VG8930	1	SHIELD_VG8930
L1,L102,L109, L110	FERRITE BEAD SMD 600 25%	VA7170	4	805NC
L101,L103	INDUCTOR SMD 12N 5%	VC8071	2	603NC
L104	INDUCTOR SMD 1000U 5%	VC8919	1	1812NC
L130,L131	INDUCTOR SMD 56N 5%	VJ0059	2	603NC
Q1,Q2,Q5	TRANS MOSFET N-CH	VS6974	3	DPAK
Q102	TRANS NPN DIG 2.2KB/47KBE	VE3972	1	SOT23NC
Q104	TRANS NPN DIGITAL 47KB/47KBE	VC5856	1	SOT23NC
Q105,Q106	TRANS NPN 4401	V27855	2	SOT23NC
Q11,Q12	TRANS NPN MMBT3904	VC5882	2	SOT23NC
Q112	TRANS NPN DIG 10KB/47KBE	VE4961	1	SOT23NC
Q3,Q7	TRANS PNP BCP51	V52701	2	SOT223
Q4,Q15,Q16,Q17, Q19	TRANS NPN DIG 10KB/10KBE	VA2501	5	SOT23NC
Q6,Q60	TRANS PNP DIG 4.7KB/10KBE ROHM	VC0694	2	SOT23NC
Q8	TRANS PNP DPAK MJD32C	V72638	1	DPAK
Q9,Q10	TRANS PNP MMBT3906	VC5883	2	SOT23NC
R101,R102	RES CER 0 5% .100	V68124	2	805NC
R103,R107,R117	RES CER 10K 5% .037	VB8037	3	402
R104	RES CER 18K 5% .063	VA5599	1	603NC
R110	RES CER 1.5K 5% .100	V57419	1	805NC
R111	RES CER 24 5% .250	V90542	1	1210
R112	RES CER 4.32K 1% .063	VE9896	1	603NC
R113	RES CER 1.33K 1% .063	VG3631	1	603NC
R114	RES CER 40.2K 1% .100	VE9897	1	805NC
R115	RES CER 1.3K 5% .063	V98734	1	603NC
R12,R32,R200	RES CER 820 5% .5	VE3111	3	2010
R120	RES CER 3K 5% .063	V98732	1	603NC
R121	RES CER 1.47K 1% .063	VC4658	1	603NC
R122	RES CER 2.37K 1% .063	VE2825	1	603NC
R124	RES CER 1.3K 5% .250	VE8059	1	1210
R129	RES CER 154K 1% .063	VB4271	1	603NC
R13,R35,R41	RES CER 1K 5% .063	V98733	3	603NC
R14,R26,R29,R42, R60	RES CER 560 5% .5	V97532	5	2010
R141	RES CER 301 1% .037	VH5065	1	402
R142	RES CER 300 5% .063	VC4467	1	603NC
R147,R160	RES CER 10 5% .100	V72639	2	805NC
R15	RES CER 0 5% .063	VA1511	1	603NC
R16	RES CER 18 5% .063	VM0790	1	603NC
R161,R162	RES CER 47K 5% .100	V72641	2	805NC
R17	RES CER 2.00K 1% .125	V30207	1	1206NC
R176,R186	RES CER 1K 5% .037	VB8043	2	402
R187	RES CER 51K 5% .037	VB8048	1	402
R2,R18	RES CER 100K 5% .100	VS7422	2	805NC
R20,R131	RES CER 560K 5% .063	VB4268	2	603NC
R22,R75,R106, R126	RES CER 100K 5% .063	VA6119	4	603NC

VL1001 REV C SHEET 3 OF 3

02.5 FN145 OHC

SURFACE MOUNTED COMPONENTS:

LOCATION	DESCRIPTION	PART#	QTY	PACKAGE
R23	RES CER 33 5% .100	V68130	1	805NC
R24,R86	RES CER 1.0MEG 5% .063	V98731	2	603NC
R25	RES CER 681 1% .125	V36122	1	1206NC
R27	RES CER 2.55K 1% .100	VE8696	1	805NC
R3,R30	RES CER 1.6 5% .250	VB4272	2	1210
R33,R46	RES CER 5.23 1% .125	VJ5428	2	1206NC
R34,R38	RES CER 12.1K 1% .100	VJ5425	2	805NC
R36	RES CER 360 5% .100	V68548	1	805NC
R37	RES CER 56 5% .063	VB4269	1	603NC
R39,R40	RES CER 154.0K 1% .100	VA8257	2	805NC
R4,R5,R8,R11	RES CER 432 1% .063	VA5608	4	603NC
R43,R44	RES CER 10 5% .063	VB4813	2	603NC
R47,R51	RES CER 7.5K 5% .063	VE3118	2	603NC
R48,R59	RES CER 470K 5% .063	VC2865	2	603NC
R49,R50	RES CER 200 1% .100	VJ5427	2	805NC
R52	RES CER 75K 5% .063	VA5601	1	603NC
R54,R91,R92,R93, R99	RES CER 4.7K 5% .063	VA5628	5	603NC
R55,R56	RES CER 619 1% .100	VJ5426	2	805NC
R58	RES CER 360 5% .5	VB2735	1	2010
R6,R19	RES CER 470 5% .100	V71181	2	805NC
R61	RES CER 10K 5% .125	V27868	1	1206NC
R68,R74	RES CER 620 5% .5	VB6959	2	2010
R7,R63,R81,R105, R109,R128,R130, R137,R145	RES CER 10K 1% .063	VA5609	9	603NC
R71,R88	RES CER 100 5% .063	VB8384	2	603NC
R76,R77,R78,R79, R80,R94,R95, R123,R148	RES CER 2K 5% .063	V98730	9	603NC
R85	RES CER 18K 5% .125	V55507	1	1206NC
R9,R87	RES CER 47K 5% .063	VA6441	2	603NC
RN5	RES 2-ARRAYS 10K 5% .063	VE2526	1	RPAK_CRA1A2
RN8,RN9	RES 4-ARRAYS 100 5% .063	VE3978	2	RPAK_CRB3A
S1,S4,S5,S6,S7, S8,S9,S11,S12, S13	SWITCH MOM SMD (250gf) 1.3mm	VF2613	10	SW_VE8115
T1,T2	SENSOR MAGNETO SHLD 0 DEGREE	VB0349	2	SNSR_0_DEG_NEW
T3	TRANSFORMER SMD 16 TURNS	VC6087	1	TRANSFMR_VB2048
U1	IC MICRO 02 FN145 08AZ60 (FLSH) REV 4	VM3601	1	QFP_64
U101	IC MICRO PSI 16C76 DTP 15.0	VL0126	1	SOIC28W
U102	IC NVM 4K 93LC66	VE2996	1	SOIC8
U104	IC 14-BIT BINARY MOTO MC14060BD	VE8699	1	SOIC16
U105	IC REG 5V LP2951 SOIC8	V61881	1	SOIC8
U106	IC HIGH VOLTAGE SWITCH	VC6882	1	TSOP_6
U107	IC ASIC HMLK-3 DS1.3	VH3121	1	SSOP30
U2	IC REG 5V 78M05	V63733	1	DPAK
U3	IC ASIC III	V94137	1	SOIC20W
U4	IC LBCC NARROW BODY	VJ5779	1	SOIC16
U5	IC PWM UCX843	VA8251	1	SOIC8
U6	IC HEX INVERTER 4049	V63909	1	SOIC16
U8	IC CMOS OR GATE 2-INPUT	VK0411	1	SOT353
U9	IC TIME KEEPING CHIP DS1302ZN	VJ6250	1	SOIC8
Y1	RESONATOR CER 4.00MHz 47PF	VC3706	1	RESN_V78762
Y101	CRYSTAL 20.000MHz +/- 30PPM	VG8564	1	XTAL_SMD49
Y102	FILTER SMD 10.7MHz	VG8563	1	FLTR_SFECV10
Y2	CRYSTAL SMD 32.768KHz	VG3202	1	XTAL_QMP25A

DWG. NO. VL1001

REVISION BLOCK

REV	SH/ ZONE	DESCRIPTION	P.C.N.	BY	DATE	BY

JOHNSON CONTROLS
AUTOMOTIVE SYSTEMS GROUP INTERIORS

NAME: PCB ASSEMBLY

ELECTRONICS STD. UNLESS OTHERWISE SPECIFIED

THIRD ANGLE PROJECTION

DO NOT SCALE

X.X DECIMAL ± 0.040 [± 1.0]
X.XX DECIMAL ± 0.020 [± .50]
X.XXX DECIMAL ± 0.006 [± .15]

ANGULAR ± 2° 0'
DRAFT ANGLES NOTED

SPECIFIES FEATURES REQUIRING SPECIAL CONSIDERATIONS. SEE PRODUCT CONTROL PLAN.

DIMENSIONS ARE INCHES WITH EQUIVALENT MILLIMETERS SHOWN IN BRACKETS.

PROJECT: 02.5 FN145 OHC	DRWN. BY		DATE
	CHKD. BY		DATE
CUSTOMER: FORD	ENGR. APPR		DATE
	SCALE: NONE		SHEET 2 OF 5
SIZE: D	TOOL NO. REF.	DWG. NO.: VL1001	REV.: C
	DATA FORMAT: ACAD		

8 7 6 5 4 3 2 1

F E D C B A