

## ALIGNMENT INSTRUCTIONS

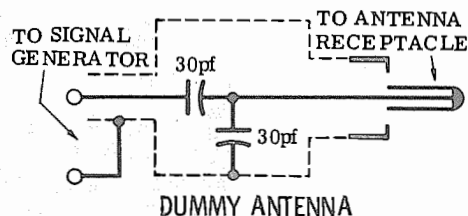
Check for specified source voltage  
 Connect low sides of generator and  
 indicator to ground unless specified otherwise.  
 Use only enough generator output  
 to provide a usable indication.  
 Suggested Alignment Tools: GC ELECTRONICS:  
 ALL coils and trimmers.....5000,8276,9089

### AM ALIGNMENT—SELECTOR IN AM POSITION

Connect output meter across speaker voice coil.

GENERATOR COUPLING	GENERATOR FREQUENCY	RADIO DIAL SETTING	ADJUST	REMARKS
High side thru .1uF antenna.	262kHz 400-Hz mod.	High freq end stop	T402, CF401	Adjust for maximum.
Thru dummy antenna to antenna input.	600kHz 400-Hz mod.	600kHz	T401	"
Thru dummy antenna to antenna input.	1615kHz 400-Hz mod.	1615kHz	TC402, TC401	"
Thru dummy antenna to antenna input.	1400kHz 400-Hz mod.	1400kHz	TC001	Adjust for maximum. Repeat alignment until no further improvement is noted.

With radio installed in car and antenna extended 36", tune in a weak station near 1400kHz and adjust TC001 for maximum output. Antenna adjustment is located on top of cabinet along right edge when viewed from front.



### FM IF ALIGNMENT USING FM SIGNAL GENERATOR—SELECTOR IN FM POSITION

High side of generator thru .001uF to Antenna.  
 Use only enough marker signal for indication. Use 60-hertz, frequency-modulated signal, 450kHz sweep.  
 Use 60-hertz sawtooth voltage in scope for horizontal deflection.

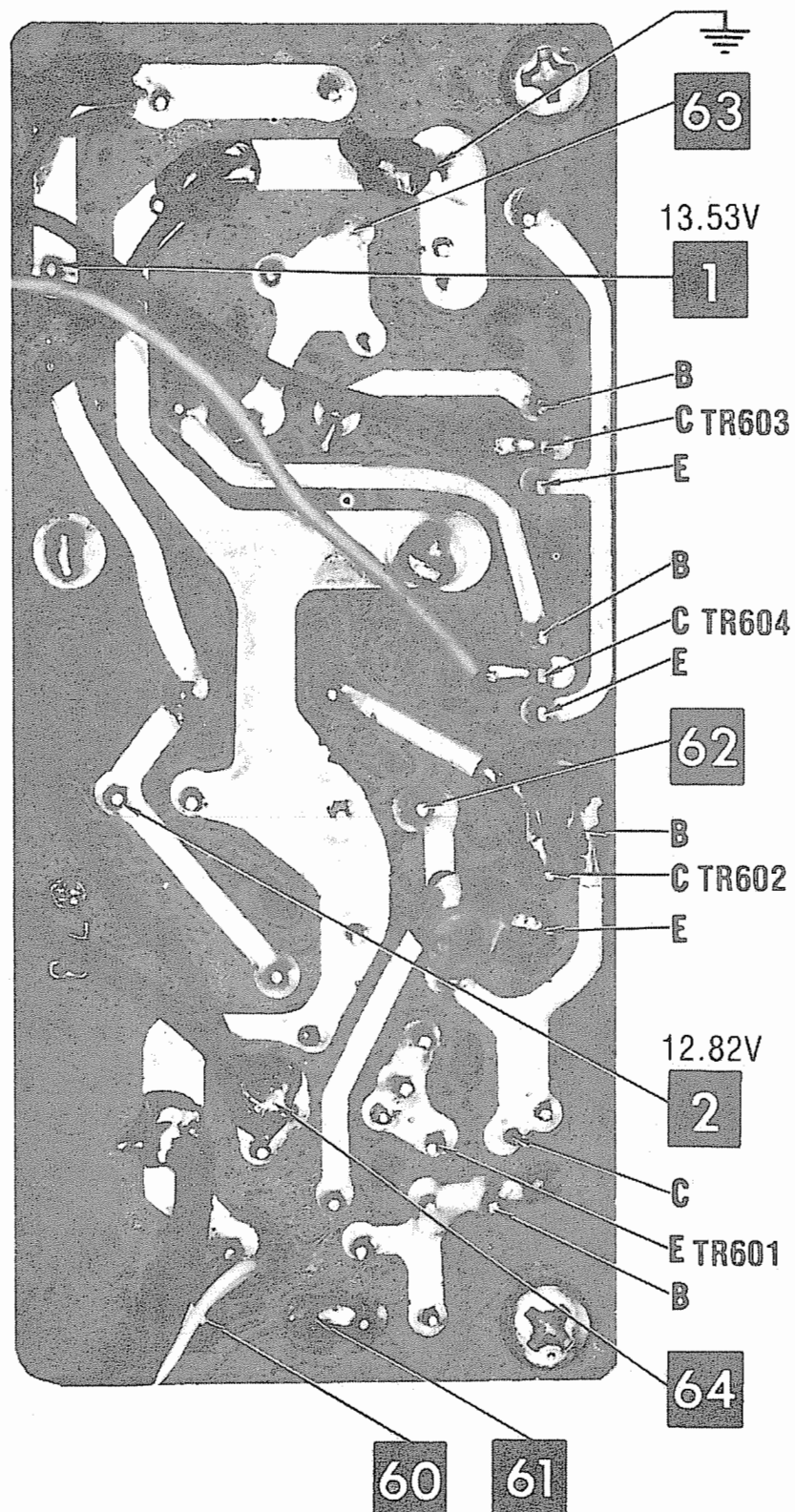
GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
10.7MHz 450kHz Sweep	Point of non-interference	Vert input of scope to TP2.	T203,T202, T201,T101	Adjust T203 to place marker at center of S curve similar to Fig. 2. Readjust T202 for maximum amplitude and straightness of line.

### FM RF ALIGNMENT—SELECTOR IN FM POSITION

GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
108MHz Modulated	108MHz	DC probe of VTVM to speaker.	TC103, TC102,TC101	Adjust for maximum.

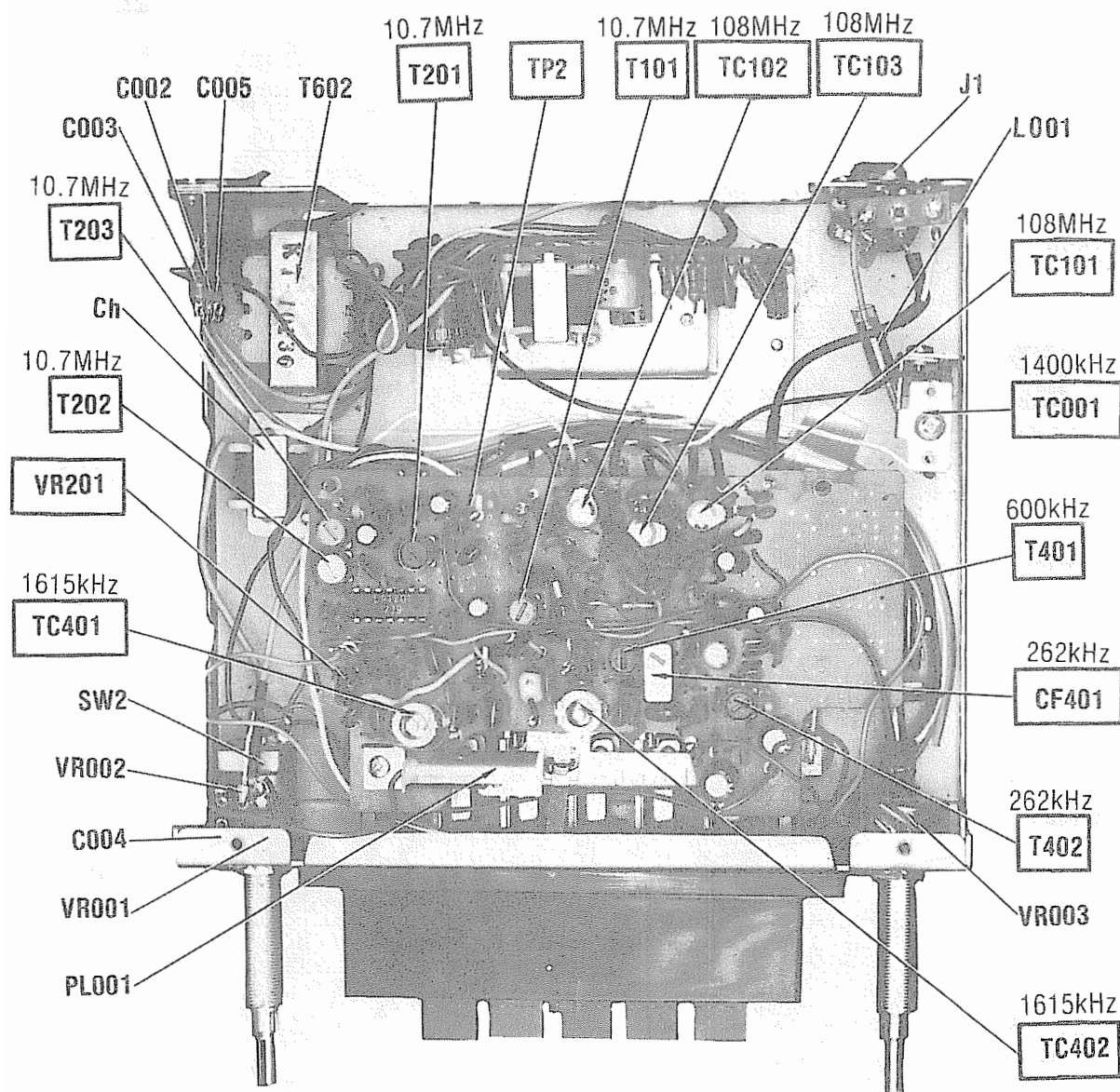
#### BIAS ADJUST

Adjust VR201 for .64V DC at base of TR201.

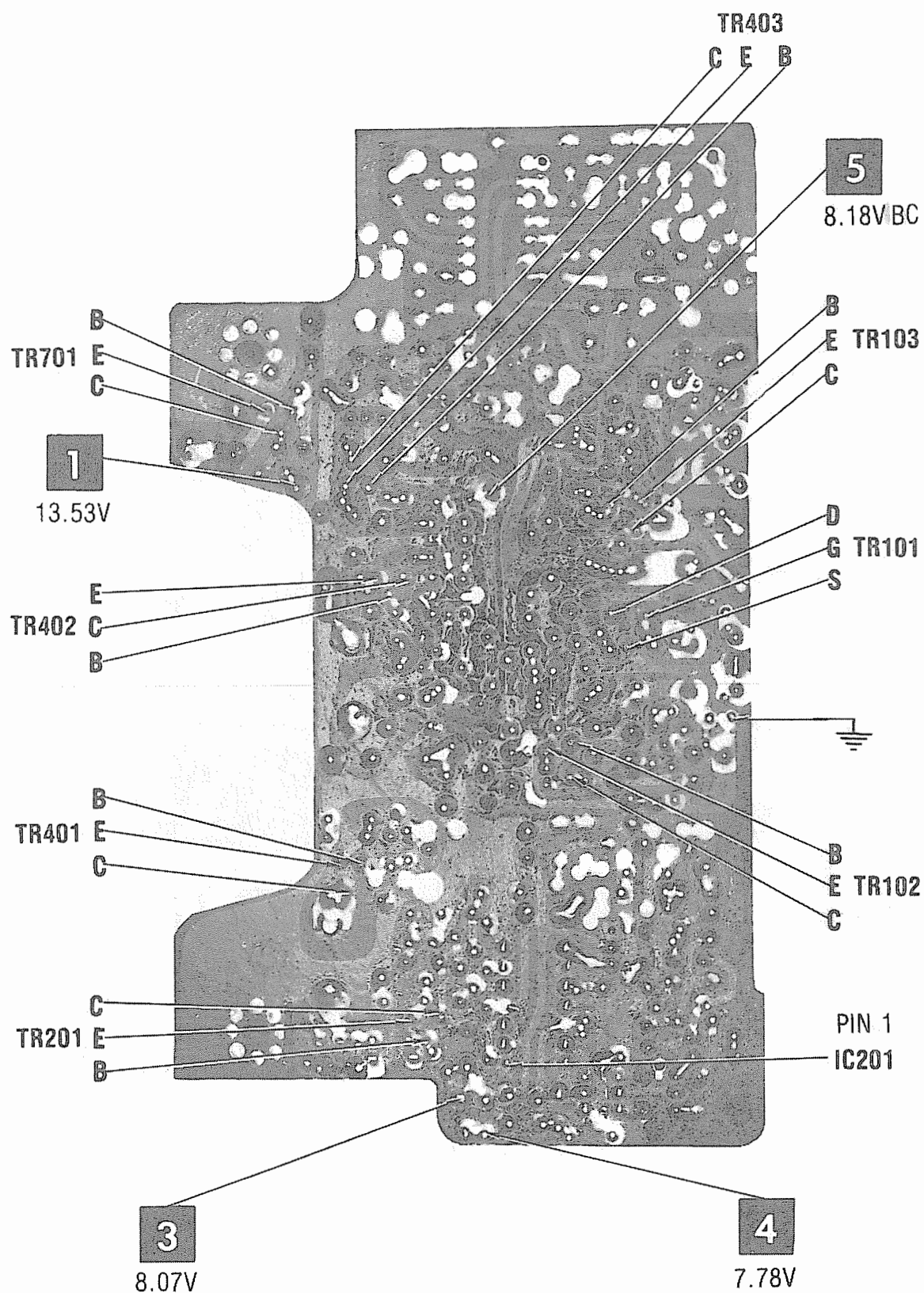


AUDIO BOARD

*International Harvester 111643C1,  
111645C1*

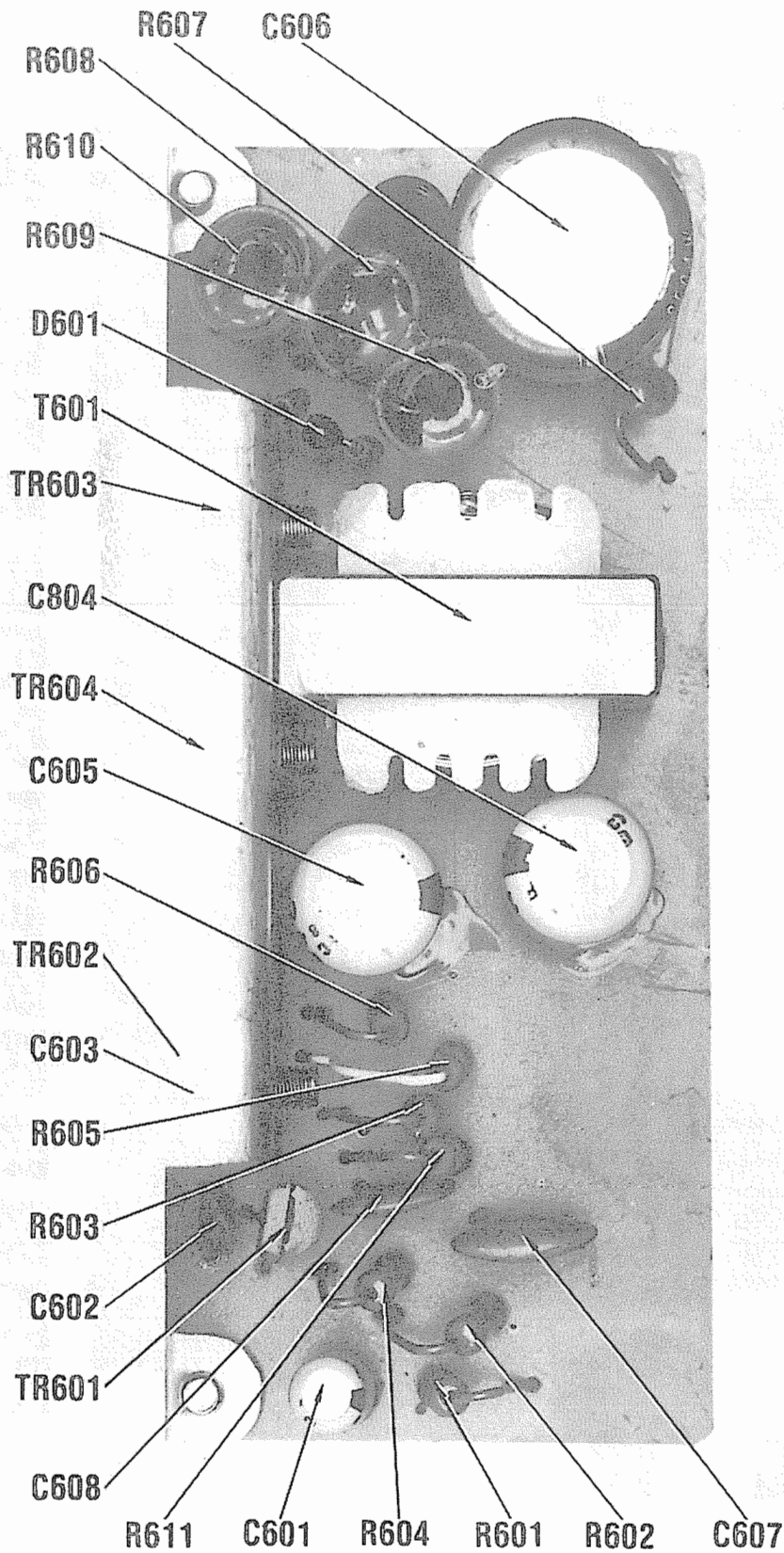


OVERALL-TOP



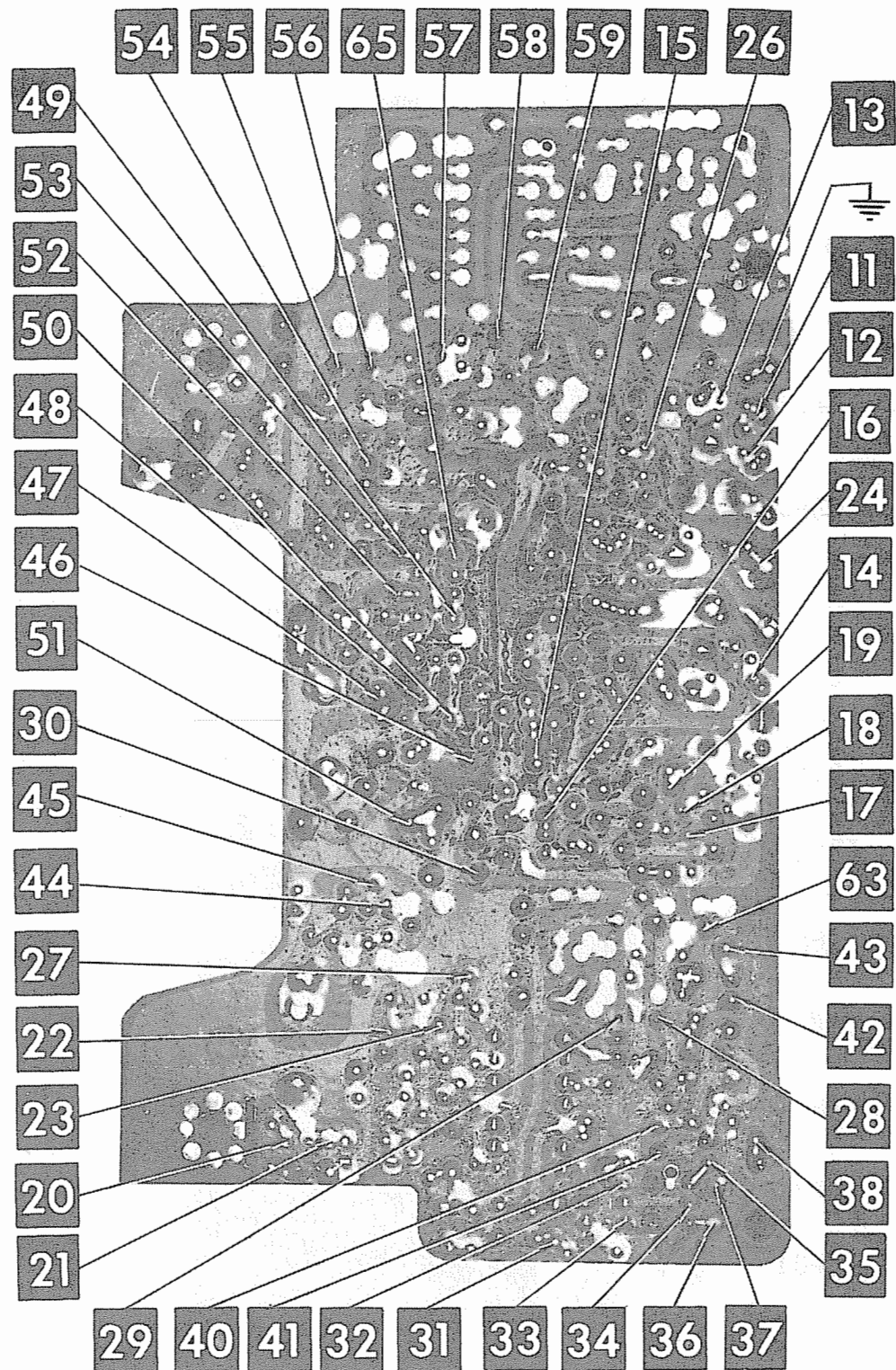
MAINBOARD

*International Harvester 111643C1,  
111645C1*

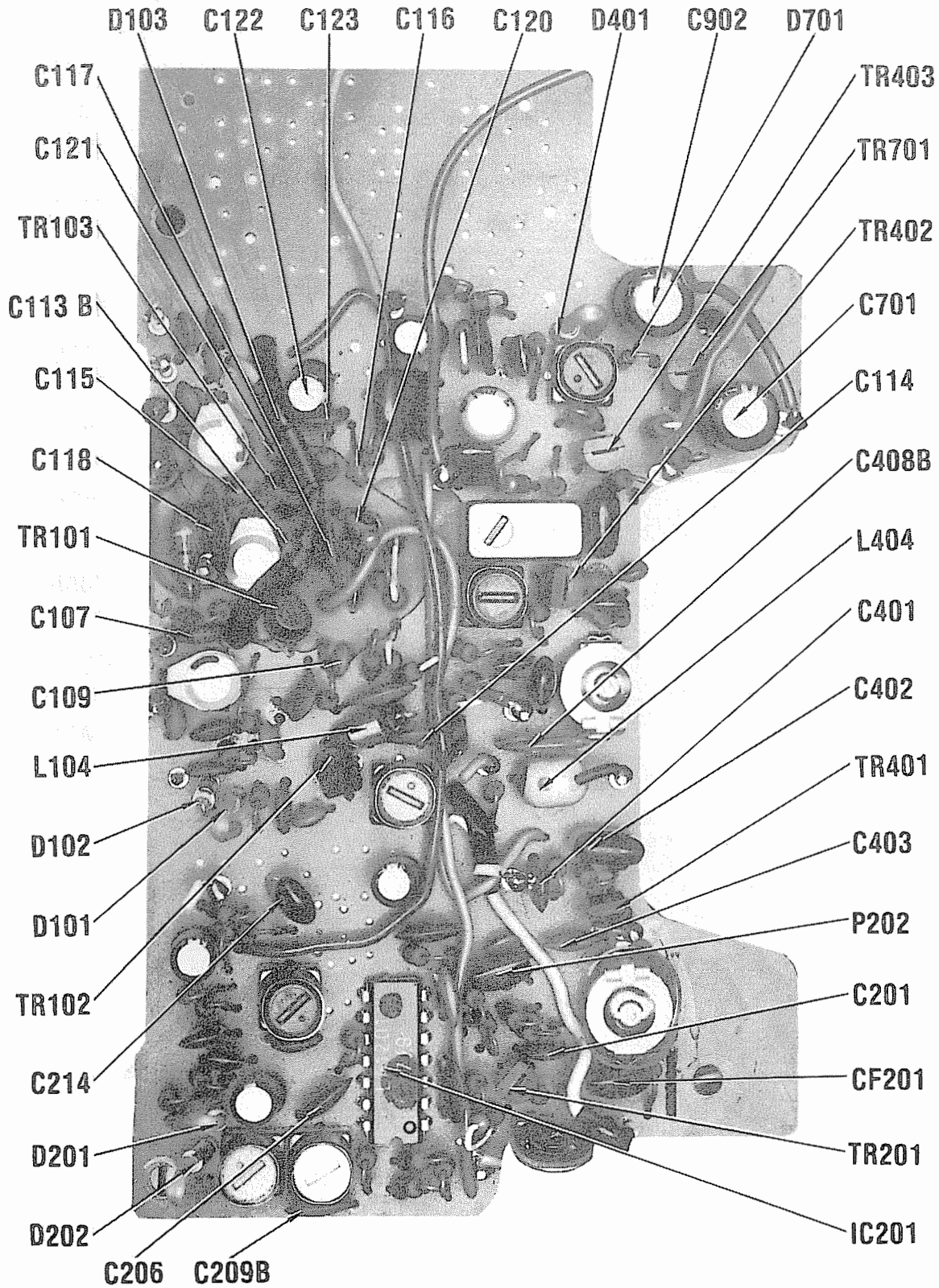


**AUDIO BOARD**

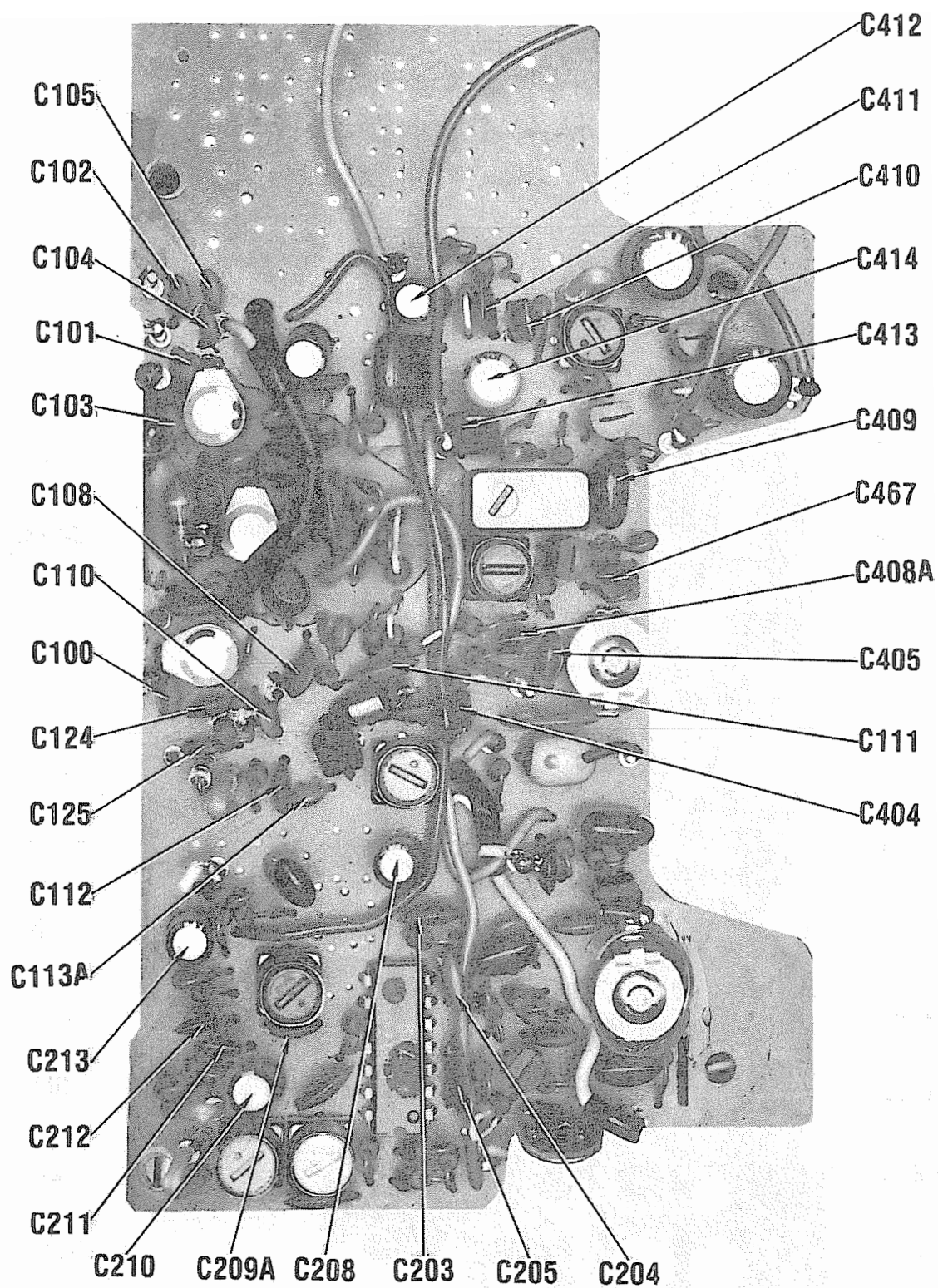




MAIN BOARD



MAIN BOARD



MAIN BOARD



International Harvester 111643C1,  
111645C1

PARTS LIST AND DESCRIPTION

WIRING DATA

General-use Hook-up Wire .....	Use BELDEN No. 8530 (Solid) Available in 13 Colors 8524 (Stranded) Available in 13 Colors
Shielded Antenna Lead .....	Use BELDEN No. 8240 (Solid) Miniature (RG-58/U) 8259 (Stranded) Miniature (RG-58A/U)
Shielded Cable .....	Use BELDEN No. 8401 or 8421

SEMICONDUCTORS

ITEM No.	TYPE No.	BOMAN PART No.	REPLACEMENT DATA									
			GENERAL ELECTRIC PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
D101	1N60	103-007	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-29001
D102	1N60	103-007	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-29001
O103	1S2687				HEPR2502	REN 612			ECG612			103-176
D201	1N60P		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-29001
D202	1N60P		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-29001
D401	1N60	103-007	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-29001
D601	KV-3 (1) MV-3 (2)	103-148 103-148	1N60	PTC301		REN 601	SK3463		ECG601			
D701	RD9-1Z (1)	103-106	GEZD-9.1	ZB9-18		REN 601	SK3463		ECG601			
IC201	XZ-082 (2)	103-147	GEZD-8.2	ZB8-28		REN 5072	SK3136	RT-240	ECG139A	TM139/**	WEP1109	103-272
TR101	LA1201	101-011	GEIC-43		HEPC6063P	REN 1003	SK3288	RT-257	ECG5072A	TM5072/**	WEP1108	
TR102	2SK19Y	102-163	GE-FET-4		HEPF2007	REN 222	SK3065	TVCM-75	ECG1003	LA1201	WEP2122	221-29021
TR103	2SC1674L		GE-61	PTC132*	HEPS0010*	REN 229*	SK3246	RT-181	ECG222	TM222	WEP905	121-826
TR201	2SC1675L	102-143	GE-213	PTC132*	HEPS0025*	REN 229*	SK3122	RT-308	ECG229*	TM229*	WEP784	121-29021
TR401	2SC1675L	102-143	GE-213	PTC132*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEP1945	121-29000A*
TR402	2SC1675L	102-143	GE-213	PTC132*	HEPS0025*	REN 229*	SK3122	RT-308	ECG229*	TM229*	WEP773	121-29021
TR403	2SC1675L	102-143	GE-213	PTC132*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEP1945	121-29000A*
TR601	2SC945A	102-108	GE-61*	PTC132*	HEPS0015*	REN 123A*	SK3122	RT-308	ECG229*	TM229*	WEP773	121-29021
TR602	2SC945A	102-108	GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972
TR603	2SD261R (2)	102-158	GE-63*	PTC178	HEPS0015*	REN 192*	SK3137	RT-107A	ECG192*	TM192*	WEP753*	121-29014*
TR604	2SD261R (1)	102-191	GE-66	PTC167	HEPS0027	REN 152	SK3054	RT-154	ECG152	TM152	WEP745	121-987-02
TR701	2SC945AR	102-118	GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEP1945	121-972

\* Lead configuration may vary from original.  
/\*\* Also available as exact type replacement.

(1) Used in Model 111645.  
(2) Used in Model 111643.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA					
		BOMAN PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.		
C122	1 50V		PC1-50	VTT1A50	QV1-11	EV-1615	
C208	10 16V		PC10-25	VTT10825	QV1-41	EV-1222	
C210	10 16V		PC10-25	VTT10825	QV1-41	EV-1222	
C213	10 16V		PC10-25	VTT10825	QV1-41	EV-1222	
C412	10 16V		PC10-25	VTT10825	QV1-41	EV-1222	
C414	33 16V		PC30-25	VTT33025	QV1-63	EV-1325	
C601	4.7 25V		PC5-50	VTT4R7B50	QV1-27	EV-1319	
C605	470 10V		PC500-16	VTT470K16	QV1-149	EV-1150	
C606	1000 16V		PC1000-16	VTT1000L16	QV1-183	EV-1260	
C701	47 16V		PC50-16	VTT47D16	QV1-73	EV-1226	
C804	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240	
(C604)		(1)					
C902	47 16V		PC50-16	VTT47D16	QV1-73	EV-1226	
(C701)	100	(1)					

(1) Callouts in parenthesis are used in Model 111643.

PARTS LIST AND DESCRIPTION (CONTINUED)

CAPACITORS

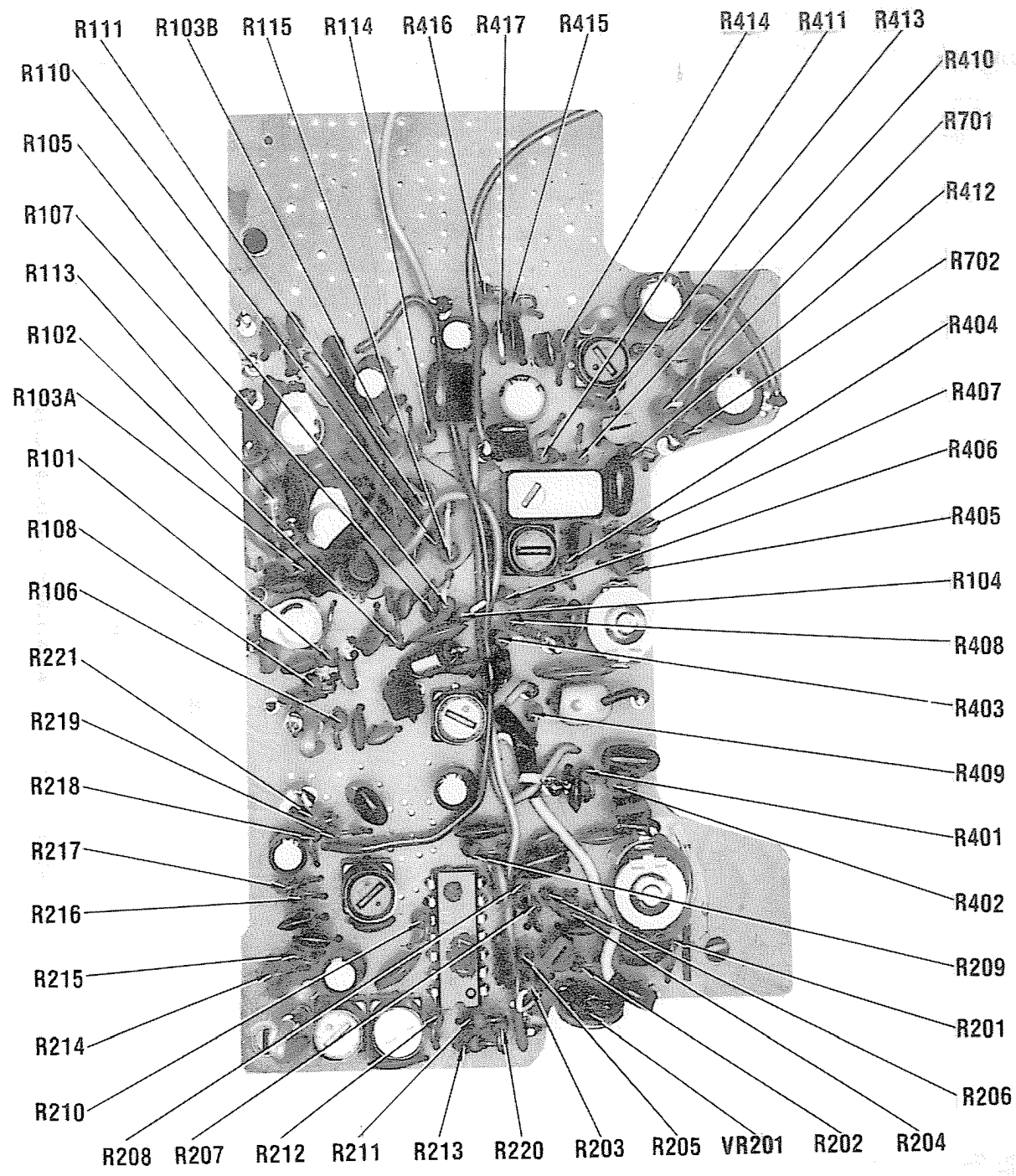
ITEM No.	RATING	BOMAN PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	Q-LINE
C001	20						
C002	.001						
C003	.001						
C004	.1 12V						
C005	.001						
(C001)		(1)					
C101	5						
C102	33						
C103	5						
C104	7						
C105	10						
C106	5						
C107	.01						
C108	.01						
C109	6						
C110	15						
C111	150						
C112	.01						
C113A	2						
C113B	2 N750 ±.5						
C114	.01						
C115	3 N750						
C116	22 N750						
C117	.01 10%						
C118	.01 10%						
C120	1 NPO						
C121	4 N750						
C123	.01						
C124	.01						
C125	.01						
C201	.01						
C202	100						
C203	.022						
C204	.02 12V						
C205	.02						
C206	.02						
C209A	.01						
C209B	.022						
C211	.001 10%						
C212	.001 10%						
C214	.015						
C401	.0047 10%						
C402	.047						
C403	100						
C404	.0015 10%						
C405	.01						
C408A	.001 10%						
(C406)		(1)					
C408B		(1)					
(C405)	200 N470 5%	(1)					
C409	.047						
C410	.0047 10%						
C411	.0047 10%						
C413	.01						
C467	.0047 10%						
(C407)		(1)					
C602	100						
C603	.001 10%						
C607	.2 12V						
C608	330						
TC001	1500pF						
TC101							
TC102	10pF						
TC103	70pF						
TC401	90pF						
TC402	70pF						

(1) Used in Model 111643.

CONTROLS

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA			
			BOMAN PART No.	CENTRALAB PART No.	MALLORY PART No.	TRW PART No.
VR001	Tone	50K				
VR002	Volume/Power Switch	10K				
VR003	Balance	40 2W				
VR201	Bias Adj.	5000				

(2) Cut off one of the end terminals and bend to fit PC board.



MAIN BOARD

PARTS LIST AND DESCRIPTION

WIRING DATA

General-use Hook-up Wire .....	Use BELDEN No. 8530 (Solid) Available in 13 Colors 8524 (Stranded) Available in 13 Colors
Shielded Antenna Lead .....	Use BELDEN No. 8240 (Solid) Miniature (RG-58/U) 8259 (Stranded) Miniature (RG-58A/U)
Shielded Cable .....	Use BELDEN No. 8401 or 8421

SEMICONDUCTORS

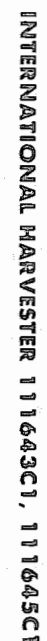
ITEM No.	TYPE No.	BOMAN PART No.	REPLACEMENT DATA								
			GENERAL ELECTRIC PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.
D101	1N60	103-007	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEPI34
D102	1N60	103-007	1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEPI34
D103	1S2687				HEPR2502	REN 612			ECG612		
D201	1N60P		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEPI34
D202	1N60P		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEPI34
D401	1N60		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEPI34
D601	KV-3 (1)	103-007		PTC301		REN 601	SK3463		ECG601		
	MV-3 (2)	103-148		PTC301		REN 601	SK3463		ECG601		
D701	RD9.1Z (1)	103-106	GEZD-9.1	ZB9.18		REN 139	SK3060	RT-240	ECG139A	TM139/**	WEPI109
	XZ-D82 (2)	103-147	GEZD-8.2	ZB8.28		REN 5072	SK3136	RT-257	ECG5072A	TM5072/**	WEPI108
IC201	LA1201	101-011	GEIC-43		HEPC6063P	*REN 1003	SK3288	TYCM-75	ECG1003	LA1201	WEPI222
TR101	2SK19Y	102-163	GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222	TM222	WEPI905
TR102	2SC1674L		GE-61	PTC132*	HEPS0010*	REN 229*	SK3246	RT-308	ECG229*	TM229*	WEPI764
TR103	2SC1675L	102-143	GE-213	PTC132*	HEPS0025*	REN 229*	SK3122	RT-308	ECG229*	TM229*	WEPI773
	2SC839H	102-108	GE-61*	PTC132*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEPI945
TR201	2SC1675L	102-143	GE-213	PTC132*	HEPS0025*	REN 229*	SK3122	RT-308	ECG229*	TM229*	WEPI773
TR401	2SC1675L	102-143	GE-213	PTC132*	HEPS0025*	REN 229*	SK3122	RT-308	ECG229*	TM229*	WEPI773
	2SC839H	102-108	GE-61*	PTC132*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEPI945
TR402	2SC1675L	102-143	GE-213	PTC132*	HEPS0025*	REN 229*	SK3122	RT-308	ECG229*	TM229*	WEPI773
	2SC839H	102-108	GE-61*	PTC132*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEPI945
TR403	2SC1675L	102-143	GE-213	PTC132*	HEPS0025*	REN 229*	SK3122	RT-308	ECG229*	TM229*	WEPI773
	2SC839H	102-108	GE-61*	PTC132*	HEPS0015*	REN 123A*	SK3444	RT-308	ECG123A*	TM123A/**	WEPI945
TR601	2SC945AQ		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEPI945
	2SC945-0(1)		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEPI945
	2SC945G(2)		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEPI945
TR602	2SD261R(2)	102-158	GE-63*	PTC178		REN 192*	SK3137		ECG192*	TM192*	WEPI753*
	2SD261R(1)		GE-63*	PTC178		REN 192*	SK3137		ECG192*	TM192*	WEPI753*
TR603	2SD330E	102-191	GE-66	PTC167	HEPS5027	REN 152	SK3054	RT-154	ECG152	TM152	WEPI745
TR604	2SD330E	102-191	GE-66	PTC167	HEPS5027	REN 152	SK3054	RT-154	ECG152	TM152	WEPI745
TR701	2SC945AR		GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEPI945
	2SC945R	102-118	GE-212	PTC121*	HEPS0015*	REN 199	SK3124	RT-107A	ECG199	TM199/**	WEPI945

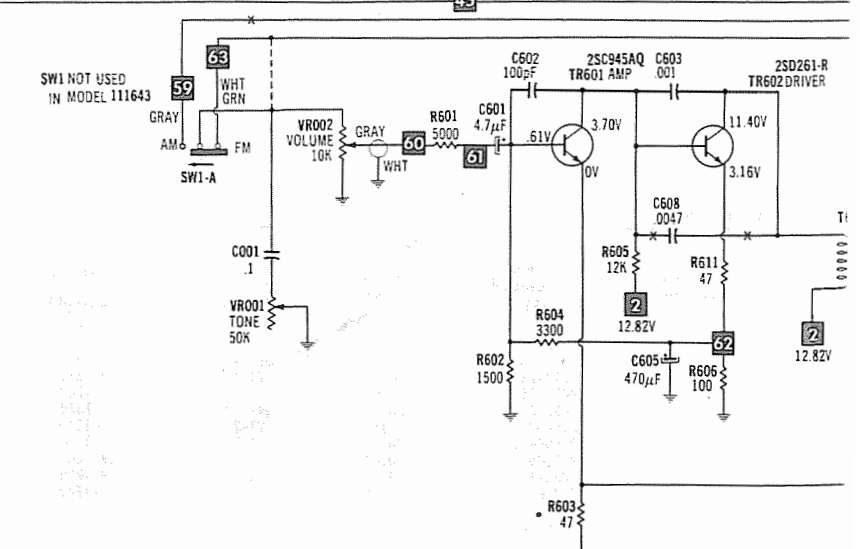
\* Lead configuration may vary from original.  
/\*\* Also available as exact type replacement.  
(1) Used in Model 111645.  
(2) Used in Model 111643.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA			
		BOMAN PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
					Q-LINE
C122	1 50V		PC1-50	VTT1A50	QV1-11
C208	10 16V		PC10-25	VTT10B25	QV1-41
C210	10 16V		PC10-25	VTT10B25	QV1-41
C213	10 16V		PC10-25	VTT10B25	QV1-41
C412	10 16V		PC10-25	VTT10B25	QV1-41
C414	33 16V		PC30-25	VTT33025	QV1-63
C601	4.7 25V		PC5-50	VTT4R7850	QV1-27
C605	470 10V		PC500-16	VTT470K16	QV1-149
C606	1000 16V		PC1000-16	VTT1000L16	QV1-183
C701	47 16V		PC50-16	VTT47D16	QV1-73
C804 (C604)	220 16V	(1)	PC250-25	VTT220H16	QV1-117
C902 (C701)	47 16V	(1)	PC50-16	VTT47D16	QV1-73
	100				

(1) Callouts in parenthesis are used in Model 111643.





- WITH **CIRCUITRACE**

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**International Harvester 111643C1,  
111645C1**

**PARTS LIST AND DESCRIPTION (CONTINUED)**

**COILS (RF-IF)**

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		BOMAN PART No.	OTHER IDENTIFICATION	MILLER PART No.	
CF401	IF (262kHz)		7822C		(1) Part of M1 (Tuner) (2) Used in Model 111643
L001	RF Choke	(1)			
L101	FM Antenna Matching	(1)			
L102	RF Amp	(1)			
L103	Oscillator				
L104	RF Choke	(1)			
L401	AM Antenna Matching	(1)			
L402	AM Antenna Matching	(1)			
L403	AM RF Amp	(1)			
(L402)		(1)(2)			
L404	RF Choke				
L405	Oscillator				
(L403)		(2)			
T101	Mixer (10.7MHz)		A750111M		
T201	FM IF Amp (10.7MHz)		L470053N		
T202	Ratio Detector				
T203	Ratio Detector				
T401	Oscillator (600kHz)				
T402	AM IF Amp (262kHz)		M22162N		

**FILTER CHOKE**

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	BOMAN PART No.	THORDARSON PART No.	TRIAD PART No.	
CH	.31A	.18	.77mH				

**TRANSFORMER (Driver)**

ITEM No.	TURNS RATIO			REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	SEC. 2	BOMAN PART No.	THORDARSON PART No.	TRIAD PART No.	
T601	1	.5CT					

**TRANSFORMER (Audio Output)**

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	BOMAN PART No.	THORDARSON PART No.	TRIAD PART No.	
T602	32	8	KT-10130 (1)			(1) Number on unit.

**MISCELLANEOUS**

ITEM No.	PART NAME	BOMAN PART No.	NOTES
CF201	Filter	(1)	10.7MHz
CF401	Filter		262kHz
J1	Jack		Antenna
P1	Plug		DC Power Left/Right Speaker
PL001	Lamp		Dial (13.80V DC @ 100mA)
P202	Filter		10.7MHz
SW1	Switch		AM/FM
SW2	Switch		Power
(S1)			
	Printed Circuit Board		Audio Main
	Printed Circuit Board		

(1) Used in Model 111643.

**CABINETS & CABINET PARTS**

ITEM	PART No.	ITEM	PART No.
Cabinet, Bottom		Knob, Tuning Assembly	
Cabinet, Top		Knob, Volume Assembly	
Escutcheon Assembly		Pushbutton, (5 used)	
Knob AM/FM			