

SEMICONDUCTORS

Circuit Reference	Description	Part Number
TR1	Transistor type BF195	9330 229 70742
TR2	Transistor type BF194	9330 229 60742
TR3	Transistor type BF194	9330 229 60742
TR4	Transistor type BF194	9330 229 60742
—	Integrated Circuit Type HA1306	9332 094 90780
—	Diode type BA217	9331 395 30742

CAPACITORS

Circuit Ref.	Value	Type	Working Voltage	Part Number
C1	10 n	Polyester	100	4009-014-38
C2	50 n	Ceramic disc	50	4008-024-03
C3	680 p	Polystyrene	125	4004-016-06
C4	50 n	Ceramic disc	50	4008-024-03
C5				
C6	150 p	Polystyrene	125	2020 303 07151
C7	2.2 n	Polystyrene	25	2020 303 07222
C8	220 p	Polystyrene	125	4004-005-11
C9	4.7 n	Polyester	100	4009-017-20
C10				
C11	10 u	Electrolytic	16	4005-007-37
C12	220 p	Polystyrene	125	4004-005-11
C13	50 n	Ceramic disc	50	4008-024-03
C14	220 n	Ceramic disc	3	2002 557 03224
C15				
C16	50 n	Ceramic disc	50	4008-024-03
C17	220 p	Polystyrene	125	4004-005-11
C18	220 n	Ceramic disc	3	2002 557 03224
C19	220 p	Polystyrene	125	4004-005-11
C20				
C21	100 u	Electrolytic	16	2020 002 43101
C22	50 n	Ceramic disc	50	4008-024-03
C23	2.2 n	Polyester	100	4009-002-20
C24	2.2 n	Polyester	100	4009-002-20
C25				
C26	100 n	Polyester	100	2002 351 00004
C27	47 n	Polyester	100	2002 351 00001
C28	10 n	Polyester	100	4009-014-38
C29	100 n	Polyester	100	2002 351 00004
C30				
C31	2.2 n	Polyester	100	4009-002-20
C32	2.2 n	Polyester	100	4009-002-20
C33	100 u	Electrolytic	16	2020 002 43101
C34	47 u	Electrolytic	16	4005-040-09
C35				
C36	47 u	Electrolytic	16	4005-040-09
C37	47 n	Polyester	100	2002 351 00001
C38	1000 u	Electrolytic	16	4005-025-20
C39	3 x 1 n	Triple Feed Thru		4008-040-05
C40				
C41				
C42	100 n	Ceramic disc	100	4008-004-05
C43	100 n	Ceramic disc	100	4008-004-05
C44	1000 u	Electrolytic	16	4005-025-20
CV1	5-55 p	Antenna trimmer		4000-001-05
CV2	5-55 p	R.F. trimmer		2002 802 00002
CV3	6-70 p	Osc. trimmer	500	4000-046-06

RESISTORS

All resistors are 10% 0.5 watt carbon composition types.

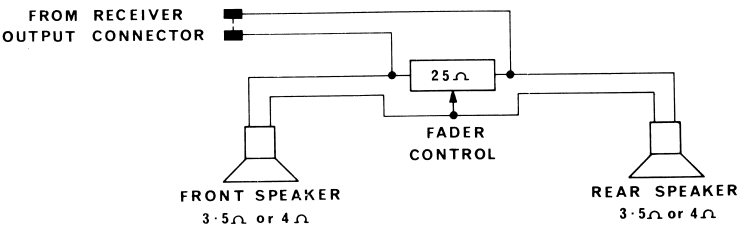
INDUCTORS/TRANSFORMERS

Circuit Reference	Description	Part Number
L1	6.8 uH, 5.6 Ω , air cored	4048-032-01
L2	4 uH, ferrite, oscillator	4036-126-01
L3	Ferrite, speaker line filter	4048-043-02
L4	Ferrite, power supply filter	4048-033-01
L5	Iron, power supply filter	4048-025-06
IF1	First i.f. transformer (yellow/blue)	4044-032-03
IF2	Second i.f. transformer (green/violet)	4044-032-06
IF3	Third i.f. transformer (orange/violet)	4044-031-03
OSC	Oscillator transformer (red)	3102 308 22001

MISCELLANEOUS COMPONENTS

Part Number	Description
4050-065-01	Permeability tuner unit (complete)
3102 304 20001	Pushbuttons (5)
7173-100-01	Dial pointer
4068-020-01	Dial lamp, 12 V, 1.2 W
3102 304 32003	Dial background (black)
3102 304 28002	Light filter (blue)
3102 305 00052	Dial (strip of three)
3102 301 80003	Dial holder (chrome)
3102 304 21002	Moulded plastic escutcheon
7119-209-01	Reversible escutcheon inserts
3102 304 20023	Control knobs (large) (2)
3102 304 20011	Control knobs (small) (2)
4030-032-01	Volume, Tone and On/Off control assembly
4078-123-01	Antenna fly-lead
3102 308 55022	Receiver output lead — includes:
2402 029 00002	Non-shrouded connector case
2402 020 02001	Sleeve contacts (2)
3102 308 55032	Speaker extension lead — includes:
2402 027 00002	Shrouded connector case
2402 020 01001	Pin contacts (2)
7244-034-01	Speaker slide terminals (2)
3102 308 55011	Receiver power lead (incl. fuseholder lid)
4077-175-69	Power extension lead (incl. fuseholder body)
4071-005-01	Fuse (2-amp)
3102 301 30081	Moulded terminal cover
7124-285-03	Antenna trimmer knob
3102 301 30062	Upper lid
3102 301 30072	Lower lid
2502 023 06002	Screws (lid) 3 mm x 0.5 mm x 6mm long c/s

Note: All screws used are ISO Standard Metric.



APPROVED METHOD OF CONNECTING KP35-SERIES RECEIVERS TO BOTH FRONT AND REAR SPEAKERS

WARNING

The battery lead of this receiver must be connected only to the POSITIVE terminal of a battery. Connection to incorrect polarity will damage the receiver. Connect receiver output socket only to 3.5 Ω or 4 Ω load.

CONCISE DATA

Tuning Range: 525 kHz — 1615 kHz
Intermediate Frequency: 455 kHz
Supply Voltage: 13.0 volts d.c.
Polarity: Negative-to-chassis (NOT reversible)
Current Consumption: Less than 150 mA (no signal input) including approx. 100 mA lamp current
Output Load Impedance: 3.5 ohms or 4 ohms
Metal Screws: ISO Standard Metric

CHECKING SERVICEABILITY OF I.C.

Integrated circuits are inherently reliable devices and can be expected to give long life in normal service. Do NOT, therefore, assume that the IC is responsible for a reported malfunction until you have carried out the following check:

- Caution**

Great care must be taken to ensure that the pins of the I.C. are not shorted together or to frame during this check.
- Check current drawn by receiver. With serviceable lamp, reading should be not more than 150 mA (with no signal input).
 - Turn VOLUME control fully up. When wiper of VOLUME control is touched, corresponding crackles should be heard from speaker.

- Measure d.c. voltage on Pin 9 of I.C. This should be approximately 6 — 7 volts (or half the supply voltage). If the above checks are satisfactory, I.C. is likely to be serviceable. If there is still doubt, check sensitivity by injecting 5.0 mV audio signal at wiper of VOLUME control. Power output in 3.5 ohm or 4 ohm load should be approximately 50 milliwatts.

CHANGING FAULTY I.C.

- Remove two screws securing iron choke to receiver frame near location of I.C.
- Apply a soldering iron to each pin of the I.C. in turn, at the same time straightening the pin with a screwdriver and removing as much solder as possible. Carefully note connections and orientation of I.C.
- Remove securing nuts and screws; withdraw the I.C.
- Fit new I.C., ensuring orientation is correct.
- Bend pins to required attitude.
- Solder connections as before, applying heat for minimum time necessary to obtain well-soldered joints.
- Replace choke.

ALIGNMENT PROCEDURE

Equipment

Signal Generator: modulated at 400 Hz
Output Meter: 4 Ω impedance
Generator Series Capacitor: 100 nF (for i.f. alignment)
I.F. Attenuator: clip-on type — Part No. 4121-044-01
Dummy Antenna: 100 pF — Part No. 4121-041-01
Alignment Tool: flat metal blade type — Part No. 4121-001-01

Conditions

Receiver: top lid removed
Volume Control: fully clockwise
Tone Control: fully clockwise
Output Meter: connected to receiver output socket (speaker disconnected)
Output Level: 50 mW
Supply Voltage: maintained at 13.0 V d.c.
Polarity: Negative to receiver chassis. Positive to receiver power lead
Signal Generator Output: kept to minimum necessary

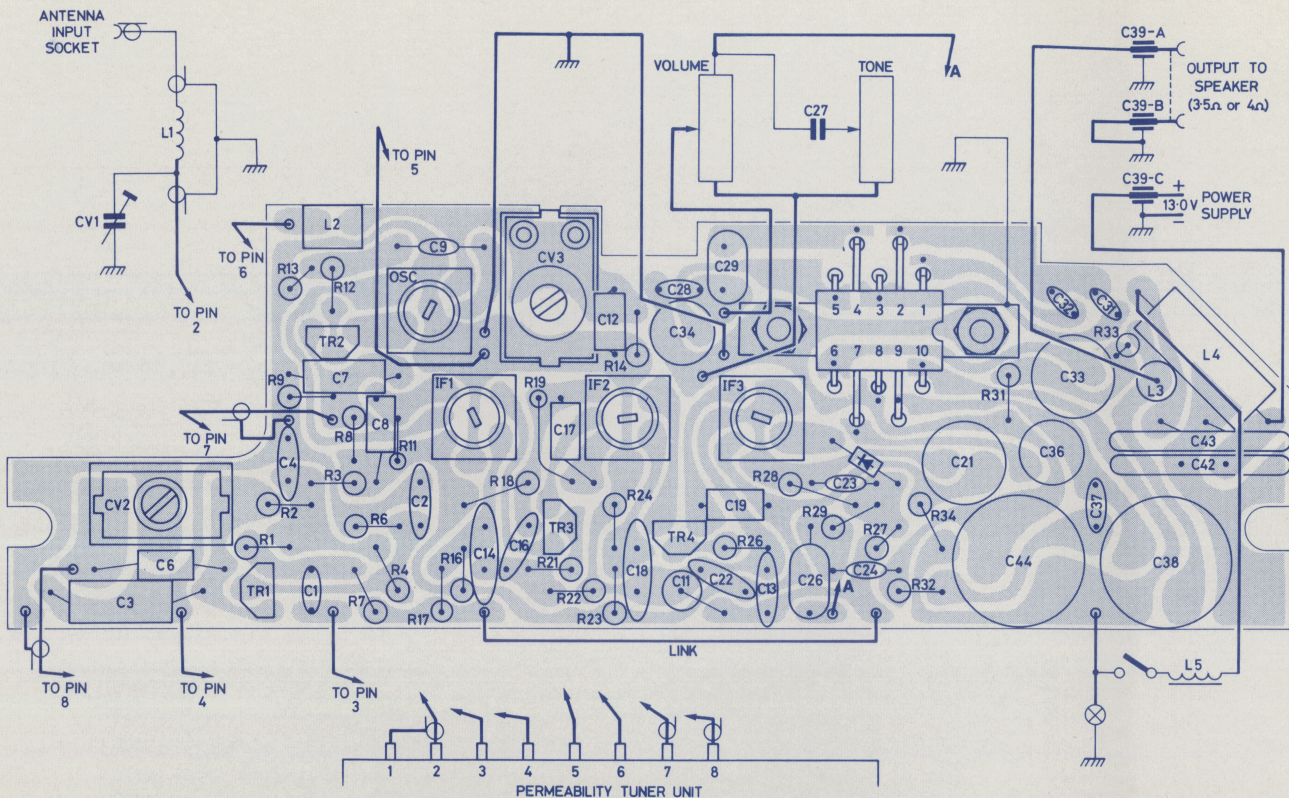
I.F. Transformer Alignment

- Set signal generator to 455 kHz, modulated at 400 Hz, 30%.
- Connect active signal generator lead through 100 nF capacitor to pin 7 on tuner unit; connect return lead to receiver chassis.
- By adjusting the MANUAL TUNING control, tune receiver to a point of no interference near 1600 kHz (i.e. at high-frequency end of dial).
- With output meter on 50 mW range and 4 Ω load, adjust cores of first, second and third i.f. transformers, in turn, for maximum output. Repeat i.f. core adjustment (in same order) until no further increase in output is obtainable.

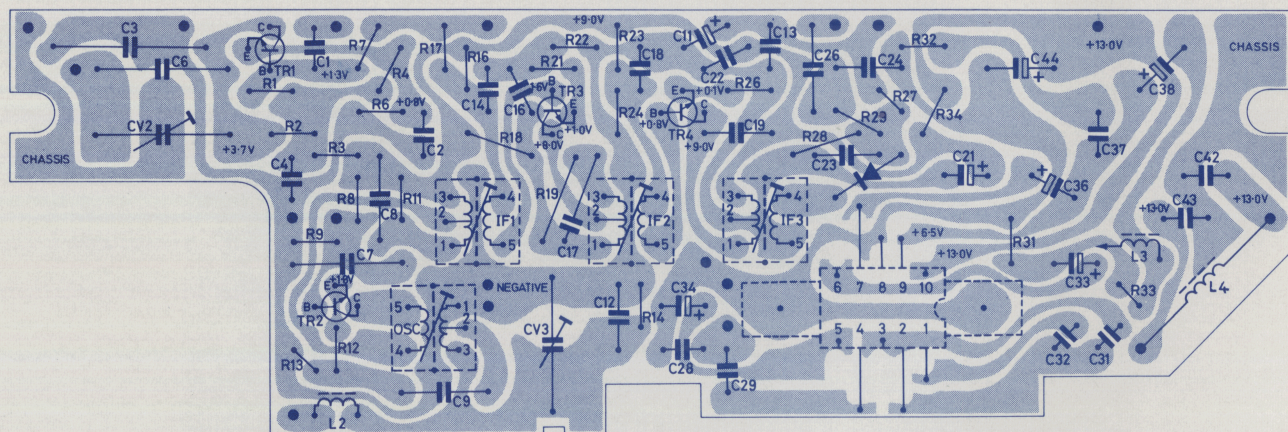
Broadcast Alignment

- Connect dummy antenna to antenna input socket.
- Connect i.f. attenuator between top end of R19 and receiver chassis.
- Set output meter to 50 mW range, 4 Ω impedance, and connect to receiver output socket (speaker disconnected).

	SIGNAL GENERATOR FREQUENCY	MANUAL TUNING CONTROL	PROCEDURE
4.	520 kHz	Low-frequency end stop	Adjust oscillator transformer core for maximum output.
5.	1650 kHz	High-frequency end stop	Adjust oscillator trimmer CV3 for maximum output.
6.			Repeat steps 4 and 5.
7.	1400 kHz	Tune to signal generator	Adjust antenna trimmer CV1 and r.f. trimmer CV2 for maximum output.
8.	600 kHz	Tune to signal generator	Rock MANUAL TUNING control either side of signal generator frequency and, at the same time, adjust oscillator transformer core for peak sensitivity.
9.	1400 kHz	Tune to signal generator	Rock MANUAL TUNING control either side of signal generator frequency, and at the same time, adjust oscillator trimmer, CV3, for peak sensitivity.
10.			Repeat steps 7, 8 and 9.

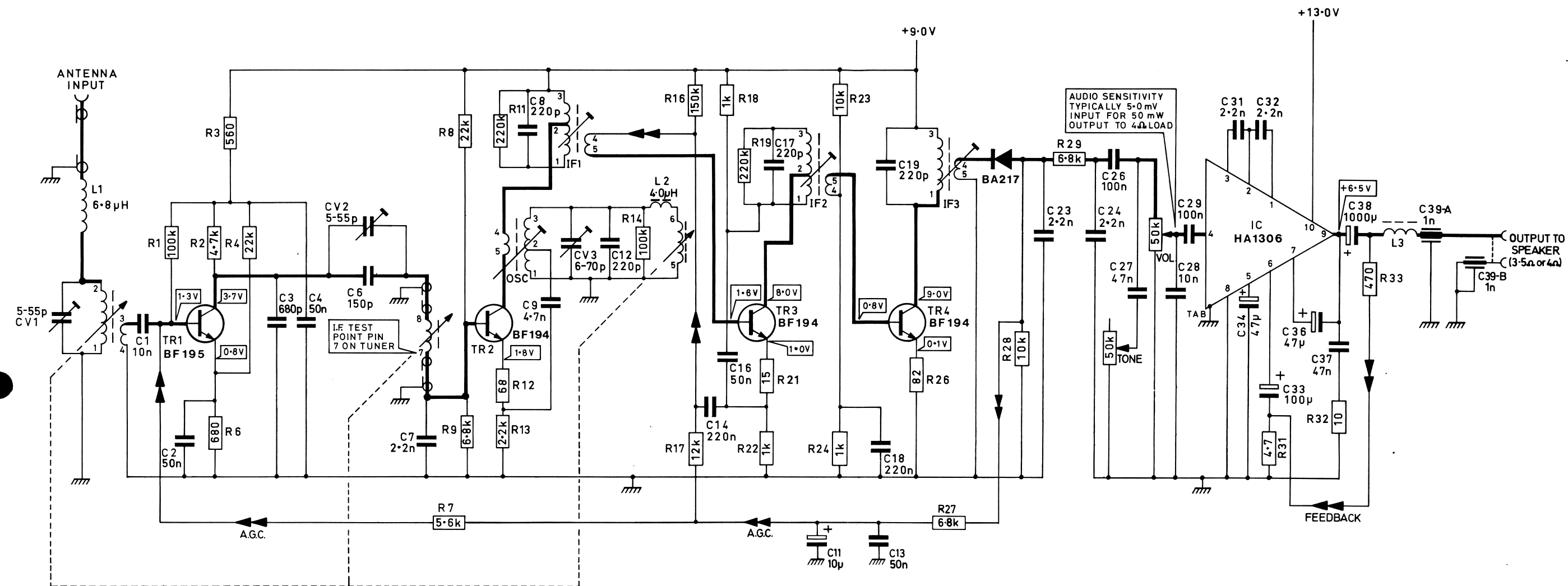


TOP VIEW

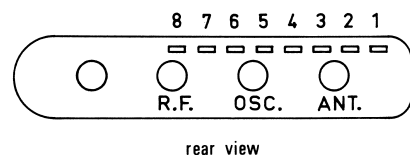


UNDERSIDE VIEW

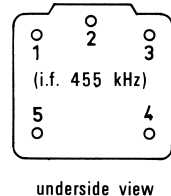
CIRCUIT BOARD CONNECTIONS KP35-SERIES CAR RADIO RECEIVERS



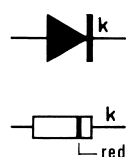
Permeability Tuner — 525-1615 kHz (approximately)



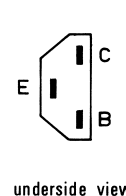
I.F. & Oscillator Transformers



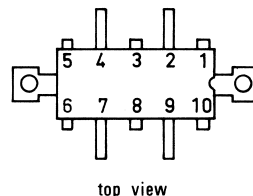
Diode



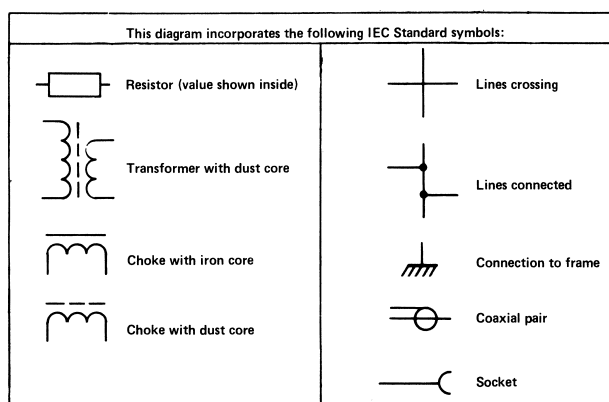
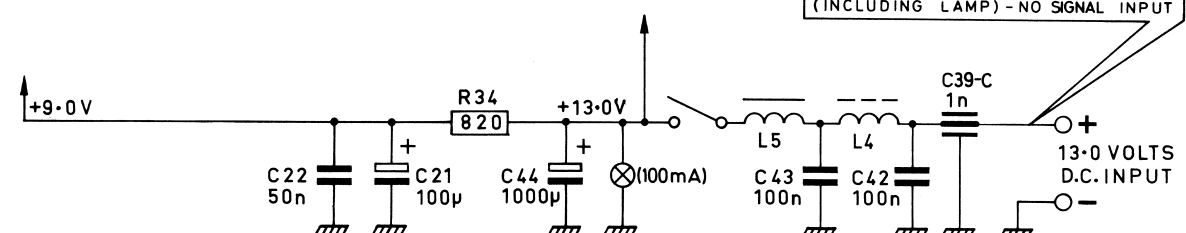
Transistors



Integrated Circuit HA1306



CURRENT CONSUMPTION = 150 mA (INCLUDING LAMP) - NO SIGNAL INPUT



GENERAL NOTES

All voltages measured between points indicated and receiver chassis with a vacuum tube voltmeter (no signal input).

Resistor values are in ohms unless otherwise indicated

Capacitor values are in picofarads (p), nanofarads (n) or microfarads (μ).

To convert nanofarads to microfarads, move decimal point three places to the left.

To convert nanofarads to picofarads, move decimal point three places to the right.

Example: 4.7 n = 0.0047 μF
= 4700 pF

The power supply is shown separately below the main circuit. Each distribution branch point is shown on the power supply circuit (thus) directly below the point supplied. The voltage supplied is marked on the main circuit at the point of connection.

These receivers are sold under the following stock numbers:

CR902A	CW902A
CR903A	CW903A
CR904A	CW904A
CW905A	CW906A

and others in this series.

KP35-SERIES CAR RADIO RECEIVERS

Car Radio Service Data

KP35-Series Receivers

