Circuit Diagram
8/101 E

NORDMENDE

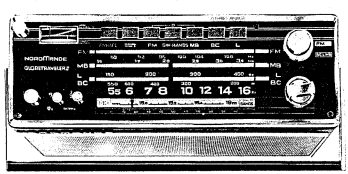
Service

Transistor Portable

Chassis-No. 768.101 E

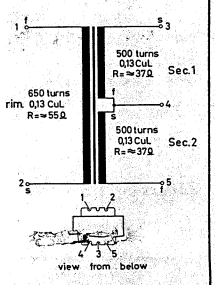
Globetraveler II

Technical Data:

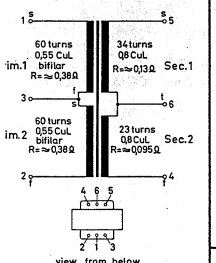


Power:	5 flashlight cells of 1,5 V each or car battery 6/12 V resp. or built-in power unit 110/220 V or external power supply 7,5 V
Consumption:	approx. 10 W with operation on built-in power supply unit and max. output (1 kc) approx. 70 mA at 50 mW output. (1 kc sine)
Fuse:	2×0,05 A medium acting
Transistors:	4× AF 106, AF 125, 3× AF 126, AF 137 a, AC 122, BC 109 cf, AC 163, 2 AD 155, AC 117
Diodes and Stabilizer:	4× AA 112, 2× AA 118, BA 111, 0,8 St 80, St 2,1—0,7/10 S, 1,4 St 10 La, ZD 8,2, B 30 C 450 Kb.
Total-Circuits:	7 AM 2 variable by C 13 FM 2 variable by L 10 SW-Bands 3 variable by C
IF-Circuits:	5 AM — 460 kc 10 FM — 10,7 Mc SW-Bands: 2 AM circuits additionally
Ranges:	FM 87,5 ... 108 Mc MW 515 ... 1650 kc LW 145 ... 420 kc SW 1,5 ... 3,65 Mc 13-, 16-, 19-, 20-, 25-, 31-, 41-, 49-, 59-, β1-, 80-m band.
Push-Buttons:	7 (5 range button, 1 AFC, 1 bandwidth)
Switches:	4 (ON/OFF, illumination, battery-test, band selector.)
AVC:	AM effective at 1rst IF-stage (double) and 2nd IF-stage and at SW-bands also at RF-stage.
Antenna:	ferrite antenna for BC, L, telescope antenna (extendable in two main sections) for SW-Bands, MB and FM.
Connecting sockets:	standardized PU/TR socket, 1 outside speaker/earphone socket, car mount, antenna/ground, external power supply 7,5 V, mains supply 110/220 V.
Tone Control:	bass-, treble control.
Negative feedback:	multiple negative feedback in AF-amplifier, sound network at AF-prestage.
Speaker:	permanent dynamic 130×180 mm, 3,5 Ω.
Max. Power-Rating:	2 W, car operation 4 W.
Cabinet:	wood, leatherette covered. width 31 cm height 21 cm depth 10,5 cm
Special Features:	4 mesa transistors at SW and FM-tuner, 11 spread SW-bands, 3 knob-tuning. Dial illumination by depressing treble control button. Permanent dial illumination if operated with external (7,5 V) or built-in (110/220 V) power supply. Large indicator instrument. Battery test by depressing the treble control button. Extra long (130 cm) telescope antenna, extendable in two different steps. AM-variometer tuning at car operation (MW/BC). Selective tuned RF-stage at SW-Bands. Drum dial for SW-Bands. Built-in power unit 110/220 V. Enclosed container box for mains cord. Band-spread switch for AM. In connection with car mount 968.180 A: automatically connected to car battery (6/12 V reversable), to the car antenna and car speaker. Dial illumination permanently illuminated if set is switched on. Automatically switched to 4 W output.

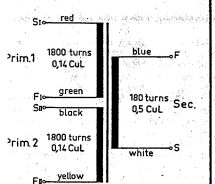
Input Transformer 522.076.13



Output Transformer 522.071.13

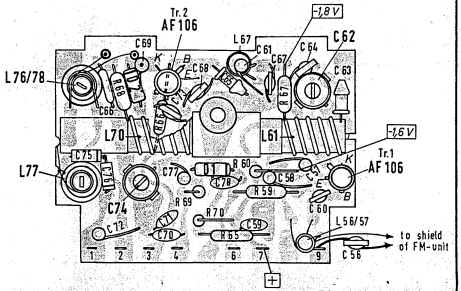


Mains Transformer 521.137.23

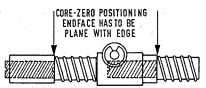


FM-printed-board 580.078.29

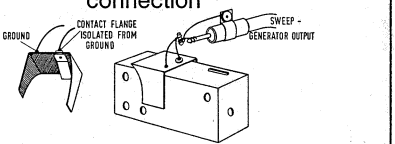
(component side)



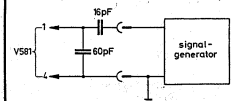
Adjustments of FM-Variometer-cores



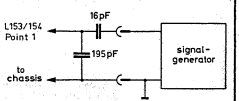
Clip-termination for FM-Sweep-signal connection



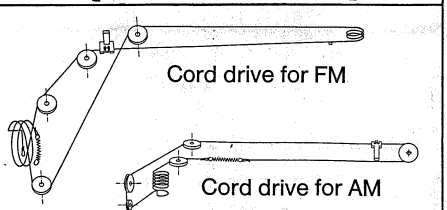
Dummy antenna for alignment of RF-stages (car operation)



Dummy antenna for AM Variometer-Alignment

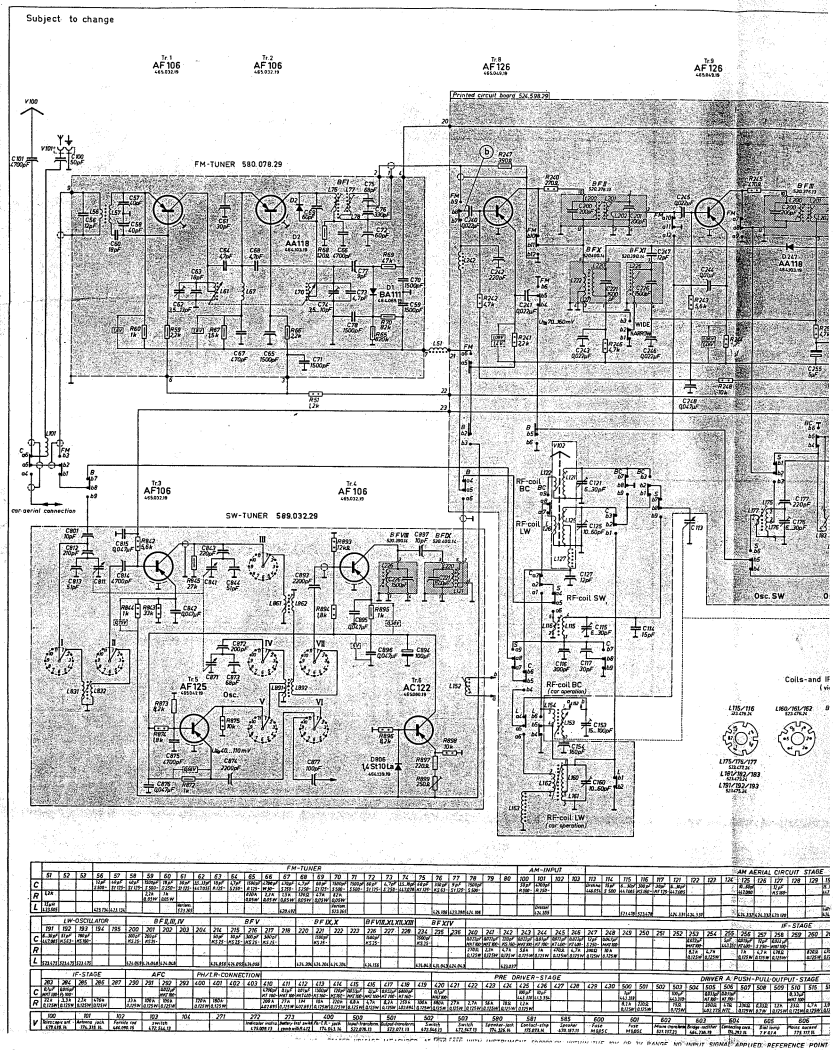


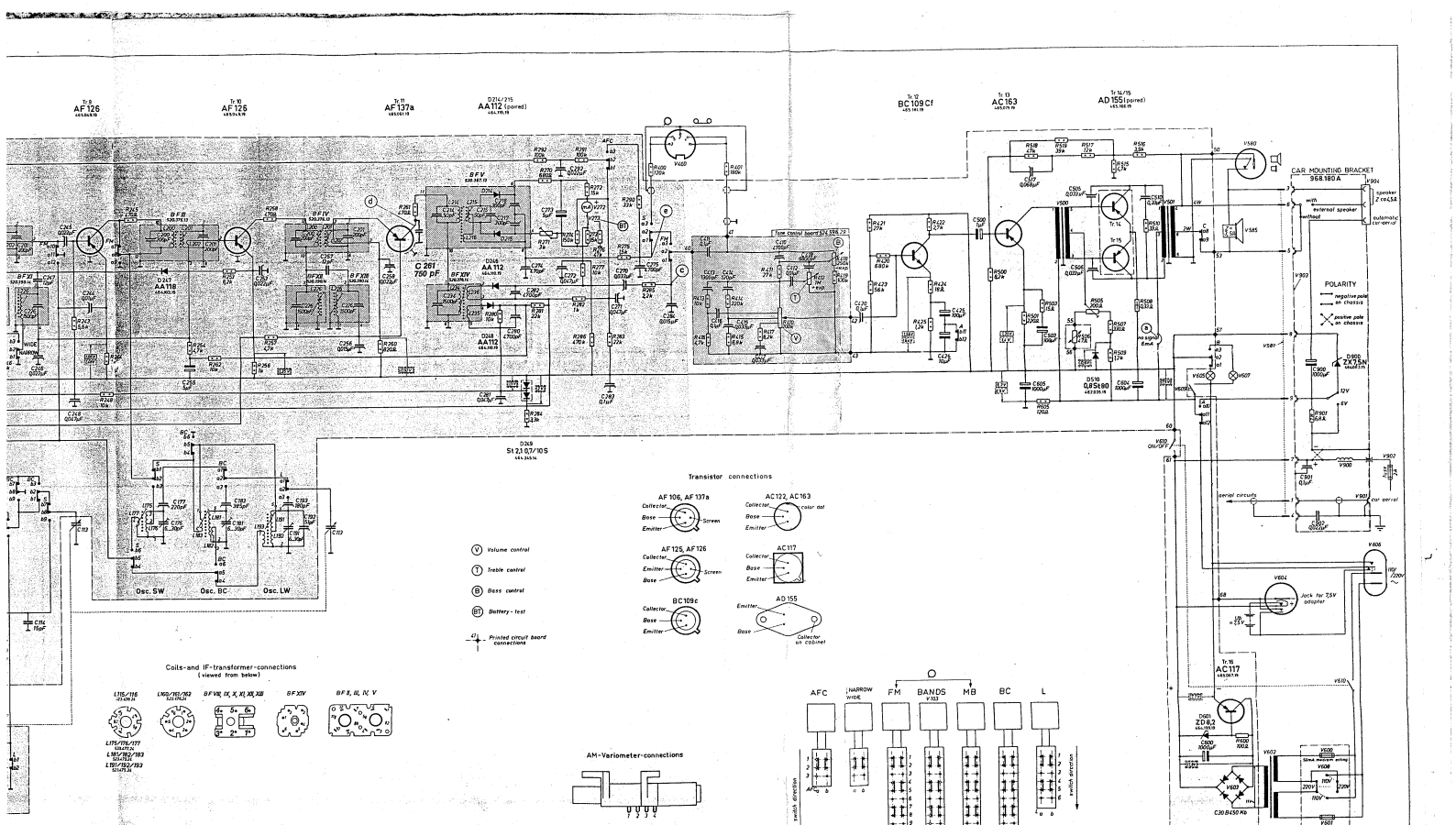
Cord drive for FM



Cord drive for AM

Subject to change





NORDMENDE

Transistor Portable

8/101 E

Globetraveler II

184.368.18

Alignment-Procedure

A) Operating point of output stage
Volume control fully counterclockwise, no input signal applied. Measure current of the common collector-lead at point a, and adjust to 6 mA with control **R 505.**

B) IF-Alignment
AM-IF 460 kc
Depress button BC, turn tuning capacitor fully outwards. Bandwidth button into position „narrow".

Alignment using Sweep-Generator
Connect sweeper output via balun (winding-ratio 3:1) **to point b and ground.** Connect oszilloscope via low-pass filter (1,5 kΩ/4,7 nF) **to point c and ground.** Response curve: adjust AM-circuits **X ... XIV** to maximum and best symmetry. Depress bandwidth button and check response curve. If resulting curve is now unsymmetrical, the alignment procedure must be repeated in position "narrow".

Alignment using signal-generator
Connect outputmeter across voice coil of speaker. Connect generator via 0,22 µF capacitor **to point b and ground.** Adjust AM-circuits **X ... XIV** to maximum output (460 kc). Bandwith button in position "wide band". Detune generator 3 kc to both sides of 460 kc. Deflection of meter pointer must be equal to both sides. (Repeat alignment — in position "narrow" — if necessary.)

FM — IF 10,7 Mc
Depress button FM, dial pointer to be at **108 Mc.** Key AFC disengaged.

Alignment using Sweep-Generator
Connect sweeper output via balun (ratio of turns 3:1) by the aid of a handmade clamping device as shown in sketch, to the FM-tuner. Connect oscilloscope via 1 pF capacitor to **point d and ground**, or in parallel **to point 1 and 6 of BF XIV.** Adjust BF VI ... I and primary of BF V to maximum and best symmetry of response curve. Next adjust secondary of **BF V** for energy-draw. Disconnect sweeper from point **(6)** and connect to point **(e)** to align ratio curve. Adjust RF output to a level that limiting of curve does not occur. Adjust ratio (S-curve) with secondary of **BF V** for best symmetry and primary of **BF V** for best slope steepness of S-curve. Thereafter adjust **R 271** for minimum noise content. Check ratio symmetry and repeat alignment of **BF V** if necessary.

Alignment using Signal-Generator
(Ri = 60 Ω, Frequ. deviation = 22,5 kc)
Connect outputmeter in parallel to voice coil of speaker. Feed generator signal via clamping device (see sketch) **to FM-tuner.** Adjust **RF V ...** I to maximum. Reduce generator output to a level that limiting does not occur. Switch generator to AM-modulation and adjust **BF V** for maximum AM-supression.

C) RF-Alignment FM
Connect signal generator (Ri = 60 Ω) parallel to **telescope antenna** (antenna pushed in). Tune dial pointer to gauge mark at **87 Mc** (if not possible, adjust dial pointer). With generator signal at **87 Mc** adjust **C 74** to maximum. Signal generator to **99 Mc** (≙ 71 mm dial movement). Adjust now **C 62** to maximum. With signal generator and receiver turned to **88 Mc** check alignment position of intermediate circuit trimmer **C 62.** Does the resulting maximum output level change only to a small amount, the alignment is good. If the output level changes to a greater amount, the alignment has to be carried out again in the following manner:

Turn dial pointer to **87 Mc** gauge mark (if not possible, adjust dial pointer). Turn dial pointer to **108 Mc.** In this position adjust variometer core as shown in sketch.

Tune signal generator and receiver to **87 Mc** and adjust **C 74** to maximum output. Turn receiver to gauge mark **99 Mc** (≙ 71 mm dial movement). Signal generator frequency **99 Mc.** Adjust **L 70** to maximum output. Repeat alignment of **C 74** at **87 Mc.** At **88 Mc** adjust intermediate circuit trimmer **C 62** and at **99 Mc** adjust intermediate circuit coil **L 61** both to maximum. Repeat alignment of **C 62** at **88 Mc.**

D) RF-Alignment AM
(receiver operating as portable)

a) Medium Wave (BC) 515 ... 1650 kc
Turn tuning capacitor fully inwards. Adjust dial pointer of receiver to gauge mark at end (see sketch). Feed generator signal via coupling loop into ferrit antenna. Set signal generator to **515 kc** and align oscillator coil **L 181/183** to max. With signal generator and receiver set to **1500 kc** ≙ 124,1 mm dial movement has to be adjusted. Align **C 181** to maximum. Repeat alignment, until movement range o.k.

Set signal generator and receiver to **555 kc** and adjust FA-prestage coil **L 121** to maximum. Set signal generator and receiver to **1500 kc** and adjust prestage trimmer **C 121** to maximum. Repeat alignment until no further improvement possible.

b) **Long Wave:** (145 ... 420 kc)
Feed signal of generator via coupling loop into ferrite antenna. Tuning capacitor fully inward position. With signal at **145 kc** adjust oscillator coil **L 191/193** to max. Turn tuning capacitor in full outward position. With signal generator at **420 kc** adjust oscillator trimmer **C 191** to max. Repeat alignment until no further improvement possible.

Set signal generator and receiver to **160 kc** and align FA-prestage coil **L 125** to max. Now tune generator and receiver to **350 kc** and align prestage trimmer **C 125** to max.

Repeat alignment, until no further improvement possible.

c) **Short-Wave** (MB) : (1,5 ... 3,65 Mc)
Connect signal generator via 10 pF capacitor to pushed-in telescope antenna. Tuning capacitor of receiver fully inwards. Signal generator frequency to **1,5 Mc.** Adjust oscillator coil **L 175/177** to max. Turn tuning capacitor fully outwards and signal frequency to **3,65 Mc** and adjust **C 176** to max.

Repeat alignment until no further improvement possible.

For prestage alignment set frequency of generator and receiver to **1,6 Mc and adjust L 115/116** to max.

Repeat alignment until no further improvement possible.

For RF-alignment of SW-tuner see backpage of circuit diagram of the coil-gang.

RF-AM Alignment
(receiver operating as car radio)
Put switch into position car reception by switching pin as being used in car mount. Short-cut pin 5 and 6 of the multiway connector **V 591.** Output meter in parallel to voice coil of speaker.

a) Medium Wave
Connect signal generator via dummy antenna 16/60 pF (see sketch) to pin **(1)** and **(4)** of the multiway connector **V 581.**
Preliminary alignment of AM-variometer.
(Only necessary, if variometer has been exchanged or detuned.)
Disconnect lead to **point 1** of variometer. Connect signal generator via dummy antenna 16/195 pF **(see sketch)** to **point 1.** At **550 kc** adjust variometer **L 153/154** with set screw to max. Resolder disconnected lead to **point 1.**
Tune signal generator and receiver to **555 kc** and adjust prestage trimmer **C 153** to max. Tune generator and receiver to **1500 kc** and adjust prestage coil **L 152** to max.
Repeat alignment util no further improvement possible.

b) Long-Wave
Connect signal generator in the same manner as on **MW (BC).** Tune signal alignment and receiver to alignment frequency of **145 kc** and adjust RF-coil **L 160/162** to max. Now tune generator and receiver to alignment frequency **420 kc.** Adjust RF-Trimmer **C 160** to max. Repeat alignment until no further improvement possible.

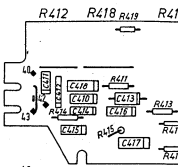
c) Short-Wave (MB)
Check function only, no alignment required.

Stated voltages at FM at AM are measured at the corresponding circuit component!

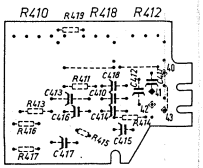
Red print = soldered side.
Black print = component side.

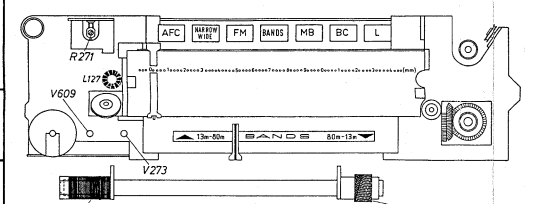
Tone control board 524.596.29

(component side)

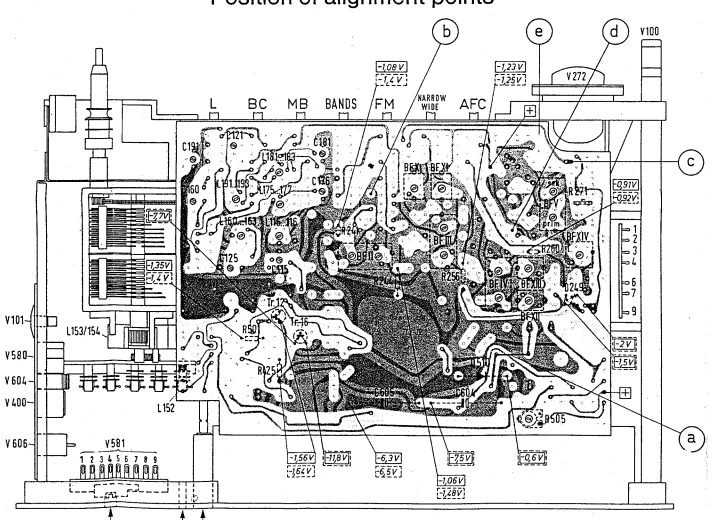


(printed side)

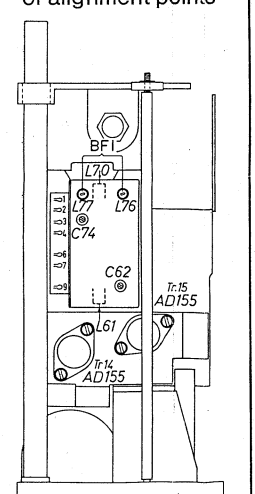




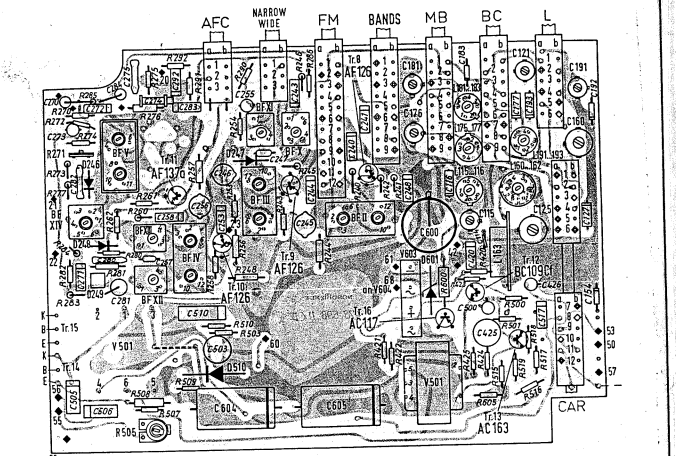
Position of alignment points



FM-tuner position of alignment points

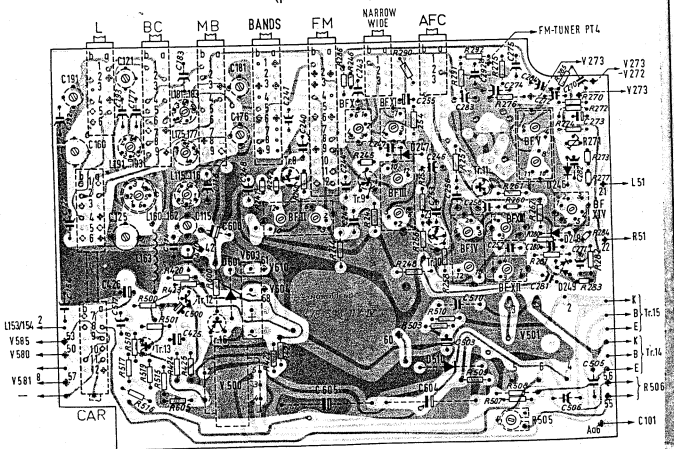


Printed circuit board 524.598.29
(component side)



55 ◆ connection points

Printed circuit board 524.598.29
(printed side)



57 ◆ connection points

Circuit Diagram
8/101 E

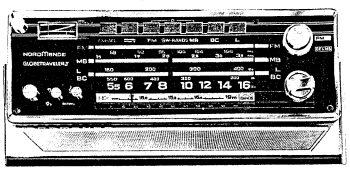
NORDMENDE

Service

Transistor Portable

Chassis-No. 768.101 E

Globetraveler II



Technical Data:

Power:	5 flashlight cells of 1,5 V each or car battery 6/12 V resp. or built-in power unit 110/220 V or external power supply 7,5 V
Consumption:	approx. 10 W with operation on built-in power supply unit and max. output (1 kc) approx. 70 mA at 50 mW output. (1 kc sine)
Fuse:	2×0,05 A medium acting
Transistors:	4× AF 106, AF 125, 3× AF 126, AF 137 a, AC 122, BC 109 cf, AC 163, 2 AD 155, AC 117
Diodes and Stabilizer:	4× AA 112, 2× AA 118, BA 111, 0,8 St 80, St 2,1—0,7/10 S, 1,4 St 10 La, ZD 8,2, B 30 C 450 Kb.
Total-Circuits:	7 AM 2 variable by C 13 FM 2 variable by L 10 SW-Bands 3 variable by C
IF-Circuits:	5 AM — 460 kc 10 FM — 10,7 Mc SW-Bands: 2 AM circuits additionally
Ranges:	FM 87,5 ... 108 Mc MW 515 ... 1650 kc LW 145 ... 420 kc SW 1,5 ... 3,65 Mc 13-, 16-, 19-, 20-, 25-, 31-, 41-, 49-, 59-, 61-, 80-m band.
Push-Buttons:	7 (5 range button, 1 AFC, 1 bandwidth)
Switches:	4 (ON/OFF, illumination, battery-test, band selector.)
AVC:	AM effective at 1rst IF-stage (double) and 2nd IF-stage and at SW-bands also at RF-stage.
Antenna:	ferrite antenna for BC, L, telescope antenna (extendable in two main sections) for SW-Bands, MB and FM.
Connecting sockets:	standardized PU/TR socket, 1 outside speaker/earphone socket, car mount, antenna/ground, external power supply 7,5 V, mains supply 110/220 V.
Tone Control:	bass-, treble control.
Negative feedback:	multiple negative feedback in AF-amplifier, sound network at AF-prestage.
Speaker:	permanent dynamic 130×180 mm, 3,5 Ω.
Max. Power-Rating:	2 W, car operation 4 W.
Cabinet:	wood, leatherette covered. width 31 cm height 21 cm depth 10,5 cm
Special Features:	4 mesa transistors at SW and FM-tuner, 11 spread SW-bands, 3 knob-tuning. Dial illumination by depressing treble control button. Permanent dial illumination if operated with external (7,5 V) or built-in (110/220 V) power supply. Large indicator instrument. Battery test by depressing the treble control button. Extra long (130 cm) telescope antenna, extendable in two different steps. AM-variometer tuning at car operation (MW/BC). Selective tuned RF-stage at SW-Bands. Drum dial for SW-Bands. Built-in power unit 110/220 V. Enclosed container box for mains cord. Band-spread switch for AM. In connection with car mount 968.180 A: automatically connected to car battery (6/12 V reversable), to the car antenna and car speaker. Dial illumination permanently illuminated if set is switched on. Automatically switched to 4 W output.

Alignment Procedure for SW-Bands

Operating point: Depress button "BANDS" and adjust stabilized voltage of Tr. 4 and 5 with control **R 899** to 5 V with instrument across capacitor **C 894.**

IF-Alignment: Tune volume control to maximum output so that noise is audible.
Tune **BF VIII** and **IX** to maximum noise level.
Connect RF-generator to antenna input **V 101** (telescope antenna pushed-in).

Calibrating: Switch-in the **49 m-Band.** Turn tuning capacitor inwards. Crystal controlled calibration frequency = **5,9 Mc.** Adjust **L 877/878** to maximum.
Set Signal generator (crystal controlled) to **6,1 Mc** and turn tuning capacitor until RF-input frequency of **6,1 Mc** is received.

Attention!
The tuning capacitor positon now found is being used during alignment on all SW-ranges and should not be changed. Set dial pointer to the gauge mark at **6,1 Mc.**

Alignment: The oscillator coil O,
the intermediate coil I and
the RF-circuit R
of the following ranges have to be adjusted to maximum with the stated coils L.../...
Reduce generator RF-output continously in order to find the alignment optimum.

80-m-Band
Range 3,63 ... 3,84 Mc — O L 871/872, R L 811/812, I L 841/842
Tie-down-point 3,75 Mc

61-m-Band
Range 4,61 ... 4,87 Mc — O L 873/874, R L 813/814, I L 843/844
Tie-down-point 4,75 Mc

59-m-Band
Range 4,85 ... 5,13 Mc — O L 875/876, R L 815/816, I L 845/846
Tie-down-point 5 Mc

49-m-Band
Range 5,9 ... 6,25 Mc — O L 877/878, R L 817/818, I L 847/848
Tie-down-point 6,1 Mc

41-m-Band
Range 6,98 ... 7,38 Mc — O L 879/880, R L 819/820, I L 849/850
Tie-down-point 7,2 Mc

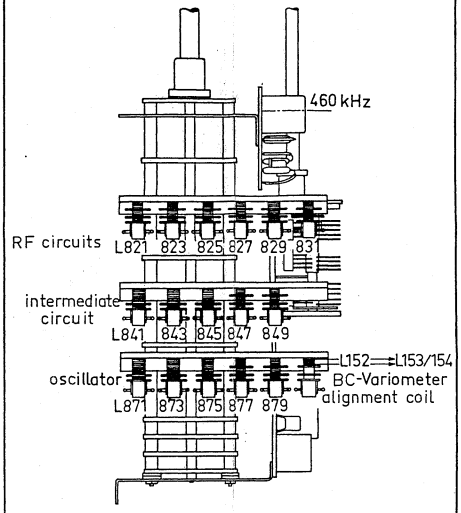
31-m-Band
Range 9,37 ... 9,88 Mc — O L 881/882, R L 821/822, I L 851/852
Tie-down-point 9,65 Mc

25-m-Band
Range 11,5 = 12,15 Mc — O L 883/884, R L 823/824, I L 853/854
Tie-down-point 11,85 Mc

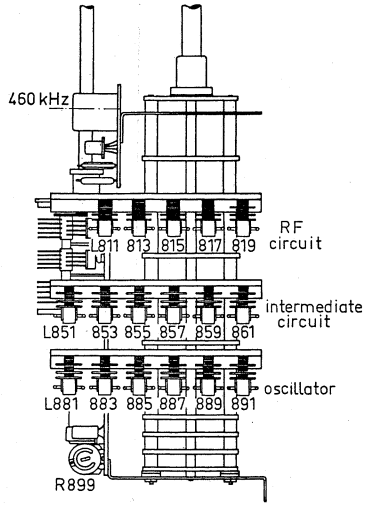
20-m-Band
Range 13,78 ... 14,5 Mc — O L 885/886, R L 825/826, I L 855/856
Tie-down-point 14,18 Mc

19-m-Band
Range 14,8 ... 15,6 Mc — O L 887/888, R L 827/828, I L 857/858
Tie-down-point 15,25 Mc

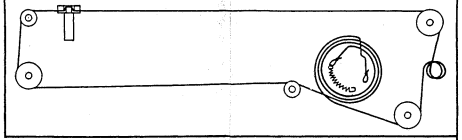
SW-bands tuner



SW-bands tuner



Cord drive for drum type dial



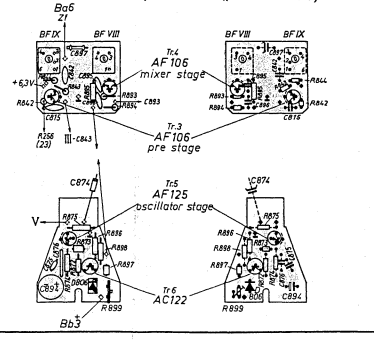
16-m-Band
Range 17,36 ... 18,3 Mc — O L 889/890, R L 829/830, I L 859/860
Tie-down-point 17,9 Mc

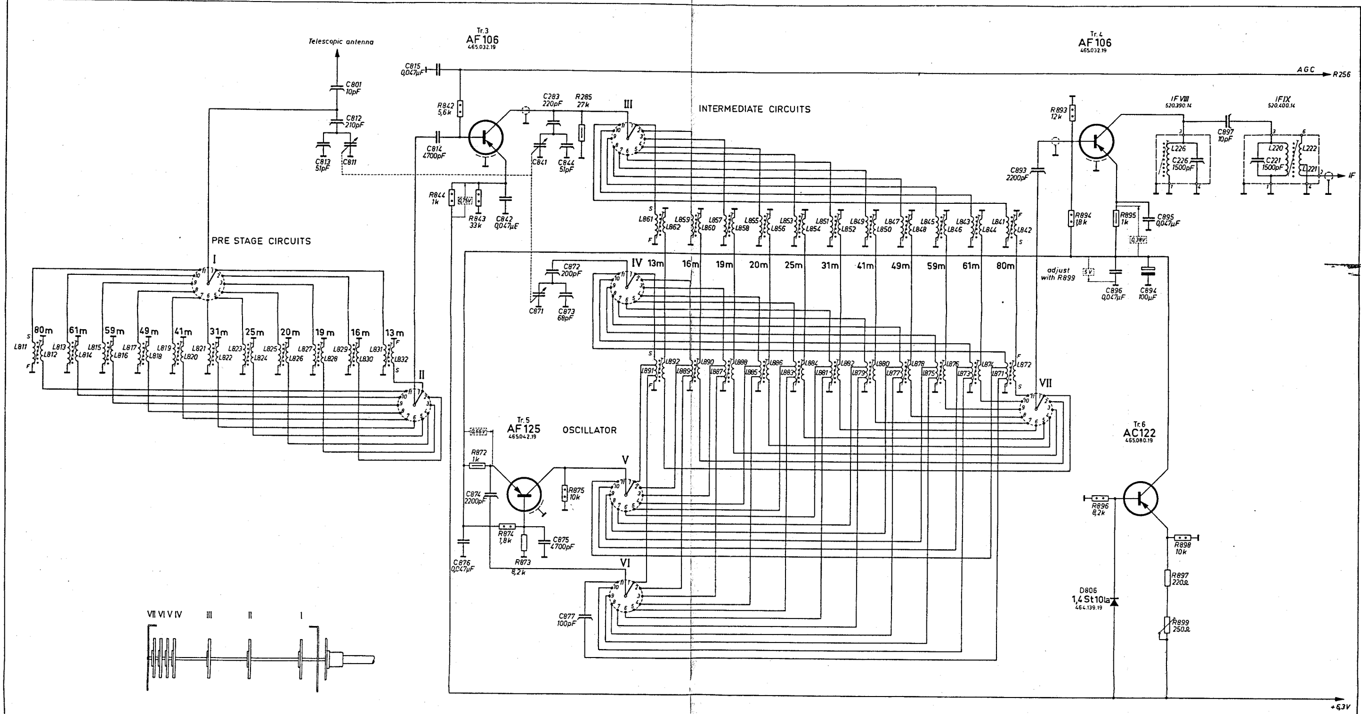
13-m-Band
Range 21,0 ... 22,1 Mc — O L 891/892, R L 831/832, I L 861/862
Tie-down-point 21,6 Mc

Observe at image-frequency test:
Within the **19- and 20-m-Band** the oscillator resonates below the RF-input frequency, in all remaining bands above RF input frequency.

Printed-board SW-bands tuner

(component side) (printed side)





	INPUT			PRE STAGE CIRCUITS											
	801	802	803	811	812	813	814	815	816	817	818	819	820	821	822
C	10pF R500-			var.cap. 446.056	210pF KS160-	51pF KS160-	4700pF W30/90-	0,047µF S12-							
R															
L				424.240	424.240	424.241	424.241	424.242	424.242	424.243	424.243	424.244	424.244	424.245	424.245

	PRE STAGE CIRCUITS												
	823	824	825	826	827	828	829	830	831	832	833	834	835
C													
R													
L	424.246	424.246	424.247	424.247	424.248	424.248	424.249	424.249	424.250	424.250			

	INTERMEDIATE CIRCUITS															
	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856
C	var.cap. 446.056	0,047µF S12-	220pF KS160-	51pF KS160-												
R		5,6k 0,125W	33k 0,125W	1k 0,125W												
L	424.251	424.251	424.252	424.252	424.253	424.253	424.254	424.254	424.255	424.255	424.256	424.256	424.257	424.257	424.258	424.258

	INTERMEDIATE CIRCUITS									OSCILLATOR					
	857	858	859	860	861	862	863	864	865	871	872	873	874	875	876
C										var.cap. 446.056	200pF KS160-	68pF R500-	2200pF KS63-	4700pF W30/90-	0,047µF W30/90-
R											1k 0,05W	8,2k 0,33W	1,8k 0,125W	10k 0,125W	
L	424.259	424.259	424.260	424.260	424.261	424.261				424.262	424.262	424.263	424.263	424.264	424.264

	OSCILLATOR															
	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892
C	100pF KS63-															
R																
L	424.265	424.265	424.266	424.266	424.267	424.267	424.268	424.268	424.269	424.269	424.270	424.270	424.271	424.271	424.272	424.272

	OSCILLATOR							IFVIII			IFIX		
	893	894	895	896	897	898	899	226	227	228	220	221	222
C	2200pF KS63-	100µF 443.309	0,047µF S12-	0,047µF S12-	10pF R500-			1500pF KS25-				1500pF KS25-	
R	12k 0,125W	1,8k 0,125W	1k 0,05W	8,2k 0,125W	220Ω 0,33W	10k 0,125W	250Ω 402.656						
L								520.390			520.400	520.400	520.400

VOLTAGE MEASUREMENTS WERE CARRIED OUT BY MEANS OF A 50000Ω/V VOLTMETER IN THE RANGE OF 3 RESPECTIVELY 10V

NORDMENDE

SW-BANDS-TUNER

8/101 E

184.368.18

by switching pin as being used in car mount. Short-
ector V 591. Output meter in parallel to voice coil of

antenna 16/60 pF (see sketch) to pin (1) and (4) of the

exchanged or detuned.)
ter. Connect signal generator via dummy antenna 16/
kc adjust variometer L 153/154 with set screw to max.

o 555 kc and adjust prestage trimmer C 153 to max.
and adjust prestage coil L 152 to max.
rement possible.

manner as on MW (BC). Tune signal alignment and
IS kc and adjust RF-coil L 160/162 to max. Now tune
frequency 429 kc. Adjust RF-Trimmer C 160 to max.
vement possible.

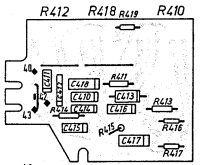
ired.

at AM are measured at the
component!

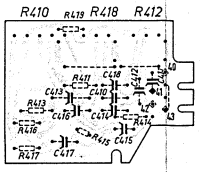
side.
ent side.

Tone control board 524.596.29

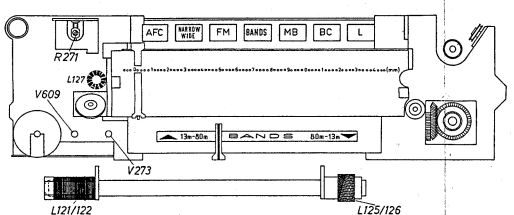
(component side)



(printed side)

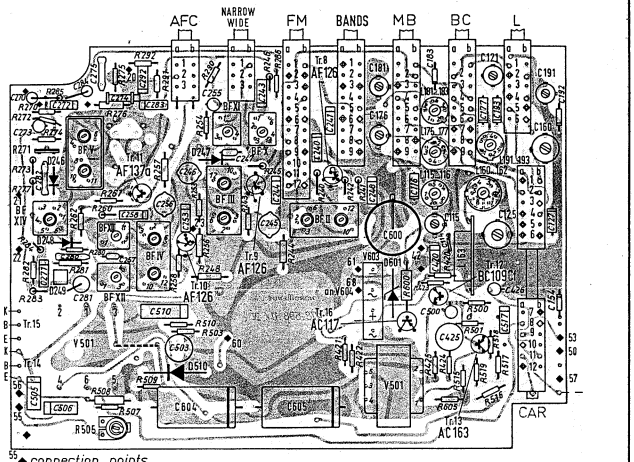


40 ◆ connection points

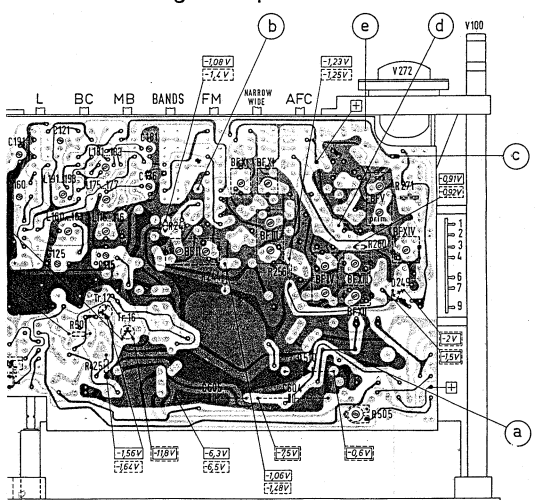


Printed circuit board 524.598.29

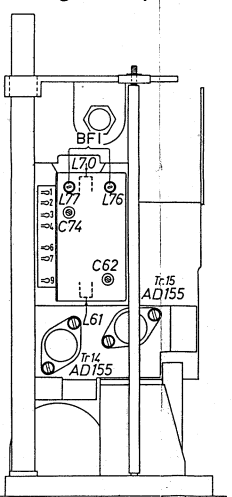
(component side)



Position of alignment points



FM-tuner position of alignment points



Printed circuit board 524.598.29

(printed side)