

COMPRESSOR LIMITER

**USER
MANUAL**

DNR

Geachte klant,

Wij danken u hartelijk voor uw keuze en het vertrouwen dat u in ons produkt stelt.
U deed een goede keus, dit produkt is ontworpen door en voor professionele gebruikers.

Er is gebruik gemaakt van onze enorme "know how" in mengtafel en signaal processor technieken en dit gekombineerd met hoogwaardige componenten geeft u de zekerheid van een lange gebruiksduur.

Bovenstaande eigenschappen resulteren in een zeer betrouwbaar en bedrijfszeker eindprodukt.

Deze gebruiksaanwijzing helpt u in het optimaal benutten van alle mogelijkheden die dit produkt in zich heeft.

*Wij excuseren ons voor het feit dat deze gebruiksaanwijzing uitsluitend in het engels verkrijgbaar is.
Dit is een gevolg van het feit dat 99% van onze produkten geexporteerd worden en het engels de algemeen aanvaarde internationale voertaal is.*

Mocht u nog vragen hebben dan kunt u zich altijd tot onze dealers wenden.

Dear client,

Thank you for choosing this product.

This product is designed by specialists in the field of professional audio and is intended to be used as a professional tool.

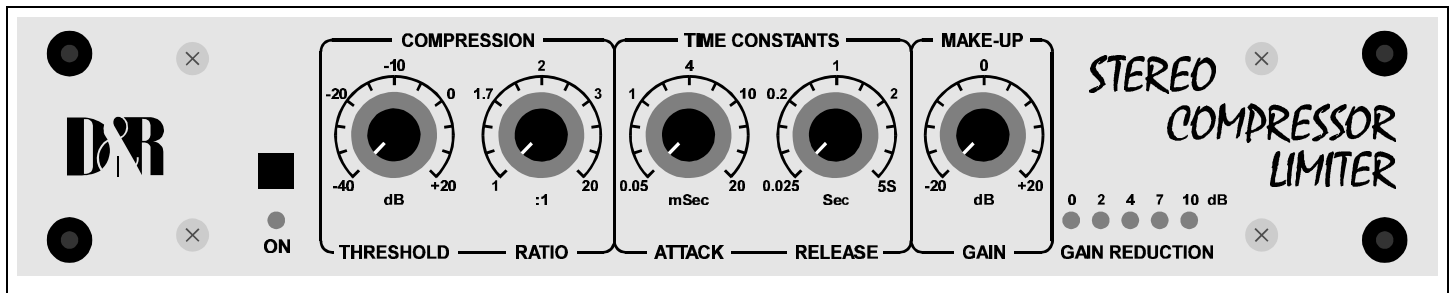
We are confident that you will be using this product for many years to come, and wish you much success.

We always value suggestions from our clients, and we would therefore be grateful if you could complete and return the questionnaire included at the back of this manual, once you have become familiar with this product. We will certainly learn from your comments, and very much appreciate your time doing this.

With kind regards,

D&R ELECTRONICA WEESP B.V.
Rijnkade 15B
1382 GS WEESP-HOLLAND
The Netherlands
Phone: 0294-418 014
Fax: 0294-416 987
Website: <http://www.d-r.nl>
E-mail: info@d-r.nl

Duco de Rijk
President



1. System description.

The D&R Stereo Compressor/Limiter is designed to deal with excessive dynamics in music and speech. Its wide input Threshold range and Ratio's make it possible to control any incoming signal from as low as -40dBu up to +20dBu .

To manipulate the behavior of the control signal the "time constants" controls, called Attack and Release, can change the response time of the control signal.

A "Make-Up" gain controls restores the lost gain when compressing the input signal.

A gain reduction meter shows the amount of gain reduction and behavior of the control signal in terms of attack and release.

The ON switch cancels the control voltage to the VCA when in the "up" position. The VCA will stay in the signal path, even when the compressor is not active. The gain will be unity at that time.

The back panel of the unit has four 1/4" jack sockets, two unbalanced inputs and two ground compensated outputs. The Stereo Compressor/Limiter has a combined control chain which is fed by both inputs at the same time. Mono use of the unit is possible by using only one channel. It is not possible to use the unit as two individual compressor/limiters.

2. Voltage selection

Before plugging your D&R into the mains be sure that you have told the manufacturer your local voltage, it has been set to the appropriate voltage for your area by the manufacturer. If you want a different input voltage, a qualified service technician can change this inside the unit.

To avoid any risk of shock do not open the unit by yourself.

3. Installation

A. Input connections

Unbalanced using 1/4 inch stereo phone plugs

Tip is in phase
Ring is ground
Sleeve is ground

B. Output connections

Ground compensated balanced using 1/4" stereo phone plugs

Tip is in phase
Ring is compensated ground
Sleeve is ground

C. ON Switch

This switch either activates or bypasses the compressor/limiter. When Off, the compressor/limiter is bypassed, the signal applied to the input terminals is sent to the output terminals. The ON LED located below the ON switch lights when the compressor circuitry is active.

D. THRESHOLD Control

This control determines the signal level at which compression/limiting begins. Input signals below the threshold level will pass through the compressor/limiter unprocessed.

Signals which approach the threshold level or are above threshold level will be processed according to the settings of RATIO, ATTACK and RELEASE.

Signals which approach the threshold level will not be fully processed immediately because of the soft-knee circuitry. If the input level increases it will slowly pass the threshold area until full compression takes place according to the front panel settings.

E. RATIO Control

This control determines the compression ratio applied to the processed signal above the threshold level. The compression ratio is expressed in terms of the amount of change in level of the input signal related to the corresponding amount of change in level of the output signal.

A compression ratio of 2:1 indicates an input/output ratio where in a 2 dB increase in input signal will produce a 1 dB increase in output signal.

F. ATTACK Control

This control determines how long it takes before the full amount of compression is applied once the threshold level is exceeded. The attack time ranges from 50 micro seconds, a very fast attack, to a relatively slow 20 milliseconds.

G. RELEASE Control

This control determines how long it takes for the amount of compression to return to zero once the audio signal falls below the threshold level. The release time range is from 25 milliseconds to 5 seconds.

H. Gain Control

This control varies the amount of gain (up to ± 20 dB) in the output amplifier stage. It does not affect the settings of Threshold and/or Ratio.

I. Gain Reduction meter

This LED meter indicates how much compression is being applied to the processed signal in terms of gain reduction in dB's. The 5 LED's indicate 0, 2, 4, 7 and 10 dB of gain reduction.

USING YOUR D&R STEREO COMPRESSOR LIMITER

Turn all controls fully anti clockwise.
Set On switch in the up position (compressor not active)

Connect the input(s) of the compressor to the signal to be compressed e.g.. the output of a mixer. make sure that there is enough signal present to activate the compressor (a low impedance mic produces not sufficient input signal).

The output level and impedance is capable of feeding all available equipment.
An ideal place for inserting a compressor is the insertion point of a mixing desk. In the by-pass position the compressor circuitry is completely out of circuit and has no influence whatsoever upon the incoming signal.

The minimum signal amplitude necessary for compression is -40dB

Push the ON switch and set the make up gain control to its 0 position,

Now turn the ratio control clockwise to for instance the "2" position (in/output signal is compressed by a factor 2)

By slowly turning up the Threshold control you will see the gain reduction meter indicating that compression is taking place. It is completely up to the desired effect how soon you will apply this factor 2 compression to your material. let's say you have set this Threshold control in a way that occasionally there is again reduction of 4 to 7 dB.

You will notice that the overall level has decreased by the amount of compression taking place. The "make-up: gain control can restore the lost level by turning it up slowly while comparing with the uncompressed signal.

USING YOUR D&R STEREO COMPRESSOR LIMITER

If you wish to use the compressor as a limiter set the ratio control at 20 (20:1) and the Threshold control so that the gain reduction meter only occasionally light.

The settings of the Attack and Release control are dependent upon frequency content of the signal being treated. Fast peaks in percussion need a fast attack time while using a slower attack time will give the signal a punchy character. The Release control holds the control signal a while at its latest level dependent upon control settings. A slower release avoids the so called "pumping" of the audio signal. The adjustments of the attack and release controls is a matter of taste.

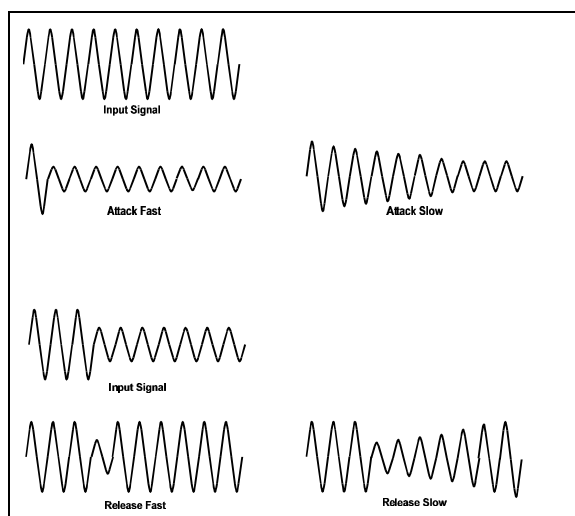
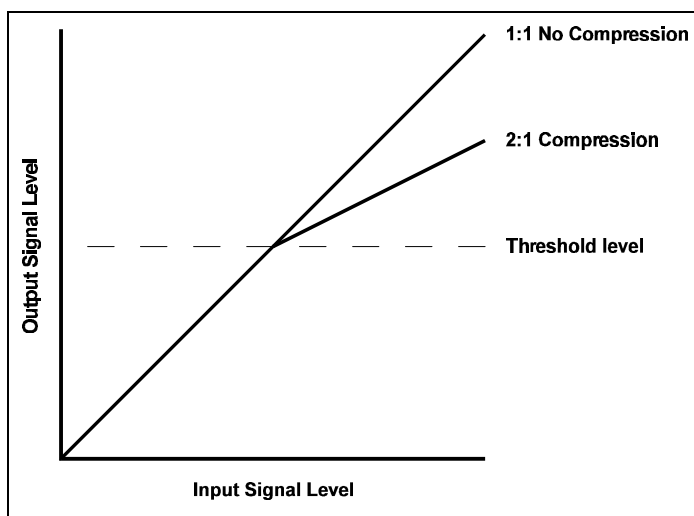
We recommend you to patch your stereo Compressor/limiter into a pre-fade patch point or insert on your console or patchbay. However before patching this or any other signal processing device, adjust your levels correctly.

Technical specifications

Frequency response	10Hz - 20.000 Hz (0.5dB)
maximum in/output level:	+22dBu
Inputs:	Unbalanced 20kOhm
Outputs:	Ground compensated balanced 47Ohm
Distortion:	0.015 (compressor off) 0.02 (compressor on)

Threshold:	-40dBu - +20dBu
Ratio (soft knee)	1:1 up to 20:1
Attack	50 uSec up to 20mS
Release	25mSec up to 5 Sec.
Make-up gain	-20dB to +20dB

Gain reduction	maximum of 40dB
Signal to noise at unity gain	-90dB



We hope to have given you a good start to handle your overload problems with this very musical sounding compressor/limiter.

DECLARATION OF CONFORMITY

Manufacturers Name: D&R Electronica Weesp b.v.

Manufacturers Address: Rijkade 15B,
1382 GS Weesp,
The Netherlands

declares that the product

STEREO COMPRESSOR/LIMITER

conforms to the following product specifications:

EMC: **EN 55022: 1987**
CISPR 22 (1993) class B

EN 500082-1 (1992)

Supplementary Information:

The products herewith complies with the requirements of the EMC Directive 89/336/EEC (1989) as amended by the CE Marking Directive 93/68/EEC (1993).

D&R Electronica Weesp b.v.
Rijkade 15 B
1382 GS WEESP
The Netherlands
President of Engineering

PRODUCT SAFETY

This product is manufactured with the highest standards and is double checked in our quality control department for reliability in the "HIGH VOLTAGE" section.

CAUTION

Never remove any panels, or open this equipment. No user servicable parts inside.

Equipment power supply must be grounded at all times.

Only use this product as described, in user manual or brochure.

Do not operate this equipment in high humidity or expose it to water or other liquids.

Check the AC power supply cable to assure secure contact.

Have your equipment checked yearly by a qualified dealer service center.

Hazardous electrical shock can be avoided by carefully following the above rules.

EXTRA CAUTION FOR LIVE SOUND

Ground all equipment using the ground pin in the AC power supply cable.

Never remove this pin. Ground loops should be eliminated only by use of isolation transformers for all inputs and outputs.

Replace any blown fuse with the same type and rating only after equipment has been disconnected from AC power.

If problem persists, return equipment to qualified service technician

PLEASE READ THE FOLLOWING INFORMATION

Especially in sound equipment on stage the following information is essential to know.

An electrical shock is caused by voltage and current, actually it is the current that causes the shock.

In practise the higher the voltage the higher the current will be and the higher the shock.

But there is another thing to consider and it is resistance.

When the resistance in Ohms is high between two poles, the current will be low and vica versa.

All three of these; voltage, current. and resistance are important in determining the effect of an electrical shock.

However, the severity of a shock primarily determined by the amount of current flowing through a person.

A person can feel a shock because the muscles in a body respond to electrical current and because the heart is a muscle it can affect, when the current is high enough.

Current can also be fatal when it causes the chest muscles to contract and stop breathing. At what potential is current dangereous.

Well the first feeling of current is a tingle at 0.001 Amp of current.

The current between 0.1 Amp and 0.2 Amp is fatal.

Imagine that your home fuses of 20 Amp can handle 200 times more current than is necessary to kill. How does resistance affect the shock a person feels.

A typical resistance between one hand to the other in "dry" condition could well over 100,000 Ohm.

If you are playing on stage your body is perspiring extensively and your body resistance is lowered by more than 50%. This is a situation in which current can easily flow.

Current will flow when there is a difference in ground potential between equipment on stage and in the P.A. system.

Please do check if there is any potential between the housing of the mikes and the guitarsynth amps, which will be linked by your body on stage. Imagine, a guitar in your hand and your lips close to the mike! A ground potential difference of above 10 volts is not unusual, in improperly wired buildings it can possibly be as high as 240 volts.

Although removing the ground wire sometimes cures a system hum, it will create a very hazardous situation for the performing musician.

Always earth all your equipment by the grounding pin in your mains plug.

Hum loops should be only cured by proper wiring and isolation input/output transformers.

Replace fuses always with the same type and rating after the equipment has been turned off and unplugged.

If the fuse blows again you have an equipment failure, do not use it again and return it to your dealer for repair.

And last but not least be careful not to touch a person being shocked as you, yourself could also be shocked.

Once removed from the shock, have someone send for medical help immediately

Always keep the above mentioned information in mind when using electrically powered equipment.

Dear CLIENT,

We care very much about your opinion of our product, and would very much appreciate if you could complete the following questionnaire, and return it to the address below.

Please use a copy of this form if you do not want to damage your manual.

USER NAME

ORGANIZATION

ADDRESS

TOWN

POST CODE

COUNTRY

EMAIL: info@d-r.nl.....

PURCHASING DATE:

CONFIGURATION

DEALER

HOW DID YOU HEAR ABOUT THIS PRODUCT? (please circle)

(Dealer / Advertisement / Exhibition / Other user / Other)

WHAT JOURNALS DO YOU TAKE ON A REGULAR BASIS?

.....
WHAT IS YOUR OPINION OF THE PRICE/QUALITY OF THE 'AIRLAB'?

.....
WHAT PRICE WOULD YOU CONSIDER SUITABLE FOR THE 'AIRLAB'?

.....
ANY OTHER SUGGESTIONS?

.....
I REQUIRE INFORMATION ABOUT

.....
WHAT OTHER EQUIPMENT DO YOU USE?

.....
PLEASE SEND/FAX TO:

D&R Electronica Weesp bv, Rijnkade 15B, 1382 GS WEESP, The Netherlands **FAX: +31 294 416987**

COMPRESSOR LIMITER

SERVICE MANUAL

Date: 28-05-96 [12:571 B I L L O F M A T E R I A L
D & R Electronica Weesp BV (SERVICE MANUAL) Comp: 1
60898536 Coinpressor/limiter stereo

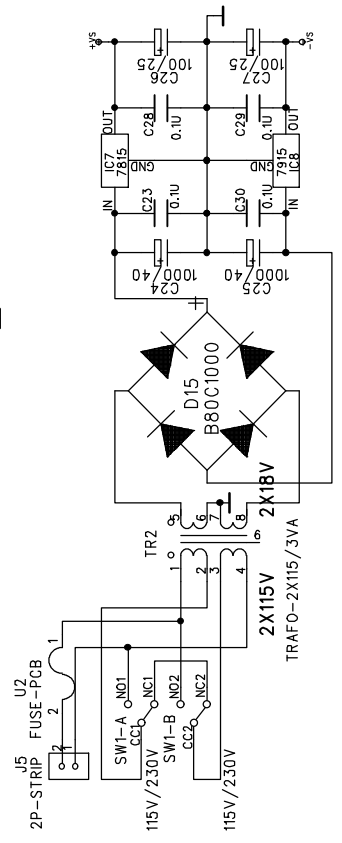
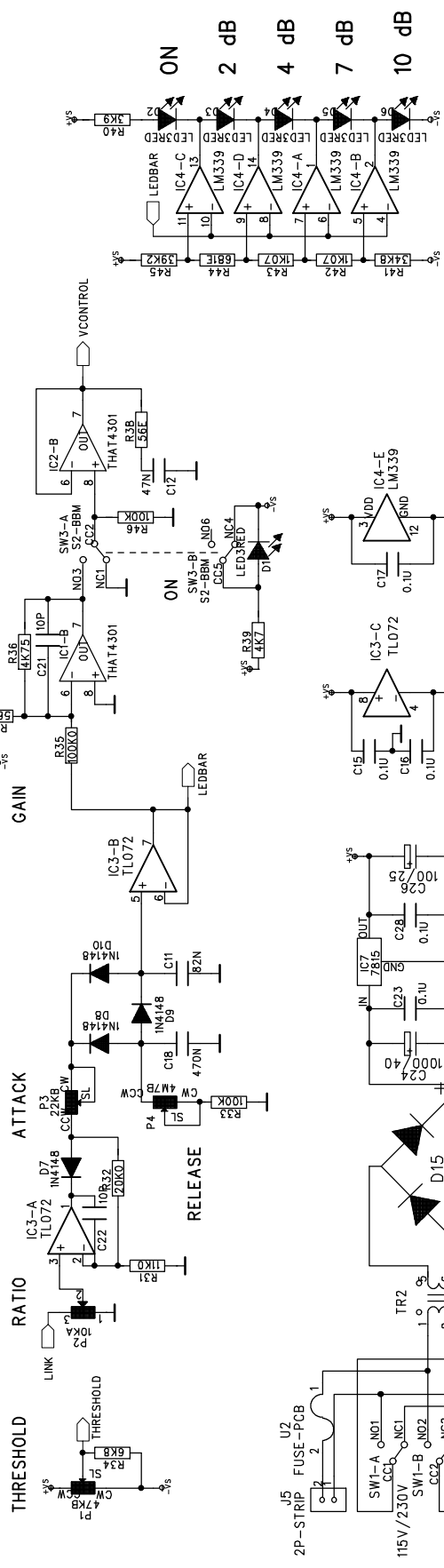
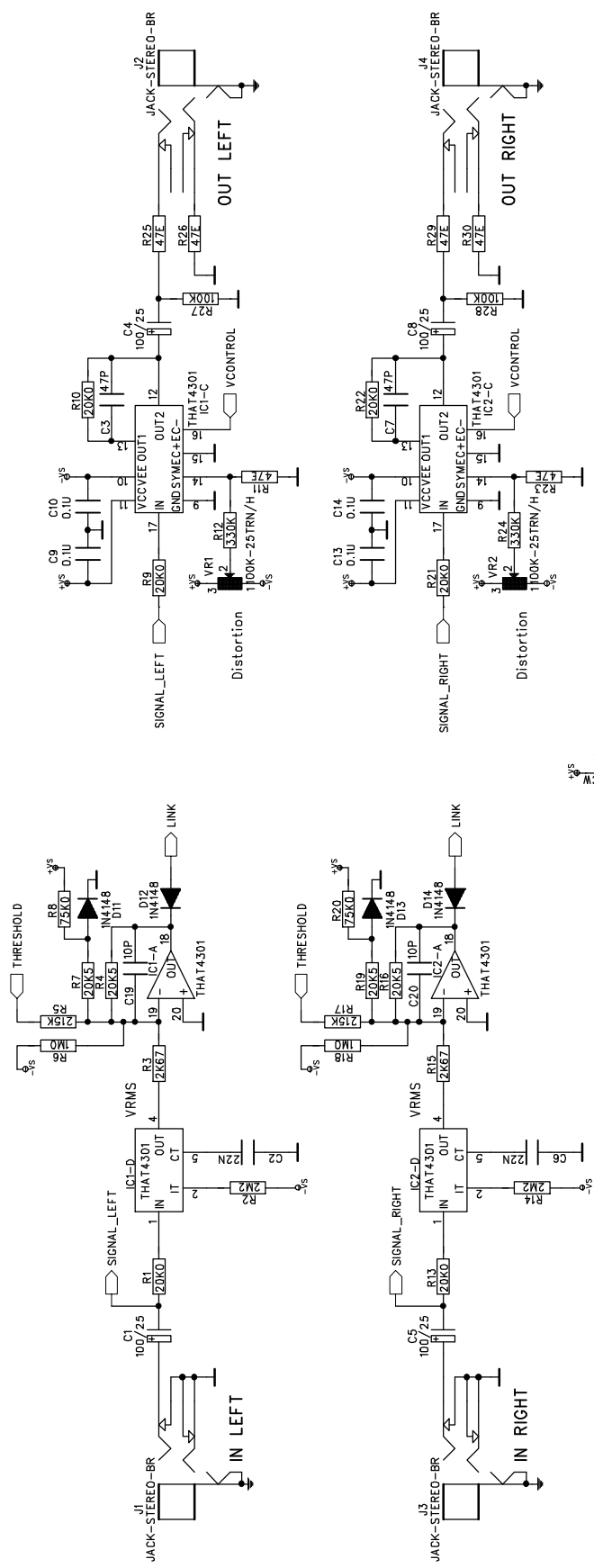
Articlecode	Description	Quantity	Units
.10250345	Brugcel B80C1000 (rond)	1.0000	st
.10400213	Condensator ker 10p R2.5	4.0000	st
.10400221	Condensator ker 47p R2.5	2.0000	st
.10401241	Condensator ker 10OnF/32V R5.0	11.0000	si
.10400277	Condensator poly 22n R5.0	2.0000	si
.10401258	Condensator poly 47n R5.0	1.0000	si
.10401242	Condensator poly 82n R5.0	1.0000	si
.10400270	Condensator poly 470n R5.0	1.0000	si
.10600180	Connector netaansklem 2p 5mm	1.0000	si
.10250342	Diode 1N4148 (signaal)	8.0000	si
.10400292	Elco 100uF 25V radiaal R5.0	6.0000	si
.10400297	Elco 100uF 40V axiaal	2.0000	si
.10250320	Ic 7815 T0220 SGS (volt.reg)	1.0000	si
.10250321	Ic 7915 T0220 SGS (volt.reg)	1.0000	si
.10250316	Ic LM-339 (comparator)	1.0000	si
.10250043	Ic THAT 4301 (VCA,RMS,3xopamp)	2.0000	si
.10250304	Ic TL-072 CP TI (dual-opamp)	1.0000	si
.10600394	Ic-voet 8 pins (vork-contact)	1.0000	si
.10600395	Ic-voet 14 pins (vork-contact)	1.0000	SI
.10600398	Ic-voet 20 pins (vork-contact)	2.0000	SI
.10300203	Instelpot 25-turn 100k H T93YB	2.0000	SI
.10600432	Jack chassis break	4.0000	si
.10300897	Potm.12 lx 10kA lin	1.0000	si
.10300360	Potm.12 lx 22kA lin	1.0000	SI
.10300896	Potm.12 lx 22kB log	1.0000	SI
.10300887	Potm.12 lx 47kB log	1.0000	SI
.10300881	Potm.12 lx: 4M7B log	1.0000	si
.10201162	Print Compressor/limiter ST/A	1.0000	SI
.10950582	Printtrafo 2x115V->2x18V 3.OVA	1.0000	SI
.10550400	Schakelaar Alps 2p-ns (2 x om)	1.0000	SI
.10350517	Weerstand 1/4W OE	24.0000	SI
.10350827	Weerstand 1% 1/4W lklo	1.0000	SI
.10350832	Weerstand 1% 1/4W 1k37	3.0000	SI
.10350844	Weerstand 1% 1/4W 4k75	1.0000	SI
.10350907	Weerstand 1% 1/4W 5k23	2.0000	SI
.10350849	Weerstand 1% 1/4W 10k5	5.0000	SI
.10350856	Weerstand 1% 1/4W 20k0	6.0000	SI
.10350858	Weerstand 1% 1/4W 22k1	1.0000	SI
.10350861	Weerstand 1% 1/4W 28k7	1.0000	SI
.10350870	Weerstand 1% 1/4W 75k0	2.0000	SI
.10350871	Weerstand 1% 1/4W 100k	1.0000	SI
.10350876	Weerstand 1% 1/4W 475k	2.0000	SI
.10350713	Weerstand 5% 1/4W 47E	6.0000	SI
.10350714	Weerstand 5% 1/4W 56E	1.0000	SI
.10350736	Weerstand 5% 1/4W 3k9	1.0000	SI
.10350737	Weerstand 5% 1/4W 4k7	1.0000	SI
.10350743	Weerstand 5% 1/4W 15k	1.0000	st
.10350753	Weerstand 5% 1/4W 100k	4.0000	SI
.10350759	Weerstand 5% 1/4W 330k	2.0000	SI
.10350762	Weerstand 5% 1/4W 560k	1.0000	SI
.10350765	Weerstand 5% 1/4W 1M0	2.0000	SI
.10350768	Weerstand 5% 1/4W 2M2	2.0000	SI
-10990675	Zekeringhouder print + kap	1.0000	SI
10450195	Deksel SiFam grey (limm)	4.0000	SI
10450152	Deksel SiFam red (cap) (limm)	1.0000	SI
10800924	Doos Randapparatuur 9.511	1.0000	SI
10700975	Dubbelzijdig plakband 12mm dun	20.0000	cl
10100015	Front 9.511 Compressor/E	1.0000	SI
10500084	Isolatieplaat 9.511 randapp.PVC	1.0000	SI

Date: 28-05-96

[12:571 BILLOF MATERIAL

D & R Electronica Weesp BV (SERVICE-MANUAL) 60898536 Compressor/limiter stereo

<u>Articlecode</u>	<u>Description</u>	<u>Quantity</u>	<u>Units</u>
10600437	Jack fiberring (zwart)	3.0000	S'
10600436	Jack moer	3.0000	S'
10700685	Kartelring M 10 potmeter dun	5.0000	S'
10700570	Kartelring M 12 (buitenvertan)	1.0000	S
10150093	Kast 9.511 1HE version C	1.0000	S'
10450197	Knop Druktoets 3.3 grey-rectan	1.0000	S'
10450104	Knop SiFam grey D-shaft(limm)	5.0000	S'
10250387	Led 3mm red round	6.0000	S'
10600493	Netsnoer 3 aderig soldeer	1.0000	S
20851162	Print bestukt ster. Compr/lim.	1.0000	S
10800956	Schuimblok 9.511	2.0000	S
10700694	Soldeerlip groot	1.0000	S
10800275	Sticker OUT/IN	2.0000	S
10800421	Sticker WARNING (rood)	1.0000	S
10700790	Taplute M3x6 verzkop/pozidr/zw	8.0000	S
10700691	Trekontlasting voeding rond	1.0000	S



Project: **COMPRESSOR**
 Title: **COMPREST.SCH** Rev: **A**
 File: **COMPREST.SCH**
 Date: **22-02-1996**
 Sheet: **1** of **1**

Rijnkade 15b
 1382 GS Weesp
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 phone: 0294-418014
 fax: 0294-416987

D&R Electronica B.V.
 Design: E.v.d.Krans

