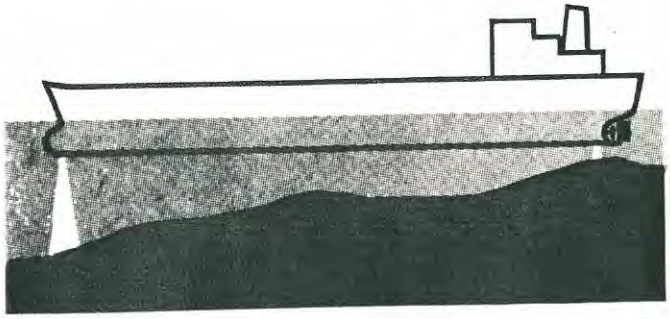
SIMRAD 603N
NAVIGATION SOUNDER



SKIPPER Electronics A/S
Trollåsveien 4, Mastemyr
1410 Kolbotn - Norway

Telephone: 47 2 80 50 50
Telefax: 80 03 07
Telex: 72529 sim n

SKIPPER

TECHNICAL SPECIFICATIONS

Scale Range

Range setting	0:	Digital depth indicator 0-999 meters. Recorder Off		
Range setting	A:	0	-	50 meters
Range setting	B1:	0	-	500 meters
Range setting	B2:	300	-	800 meters
Range setting	B3:	600	-	1100 meters

Transmitter

Frequency: 50 kHz

Output power: 350 Watts

Source level: 107dB/1 u Bar ref. 1m

Pulse duration: Range 0 and A -0.6 msec.
All B ranges -0.3 msec.

Receiver

Frequency: 50 kHz

Bandwidth: 1.5 kHz

TVG function: 20 log R

Gain control: Continuously variable

Recorder

Type: 6 inch belt recorder

Paper speed: Continuously variable

Range A: 6-12 mm/min
Range B: 1.2-2.4 mm/min

Voltage supply

Mains voltage: 24V DC
Power consumption: 50 Watts

Transducer

Type: Ceramic with 25 m cable in steeltank

Active face: 70 mm circular

Cabinet

Dimensions:

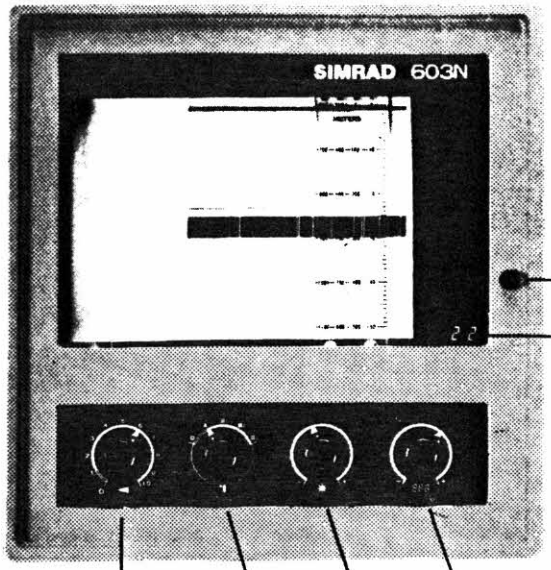
Height: 350 mm
Width: 330 mm
Depth: 150 mm

Weight

Net 12 kg
Gross 14 kg

Total gross weight of cabinet and transducer with steel tank: 30 kg

INTERNAL CONTROLS



Push to open cabinet

Digital depth indicator

Illumination Control
Provides continuous regulation of the illumination of the digital depth indicator

Illumination control

The illumination control provides continuous regulation of the illumination of the echogram and the front panel controls.

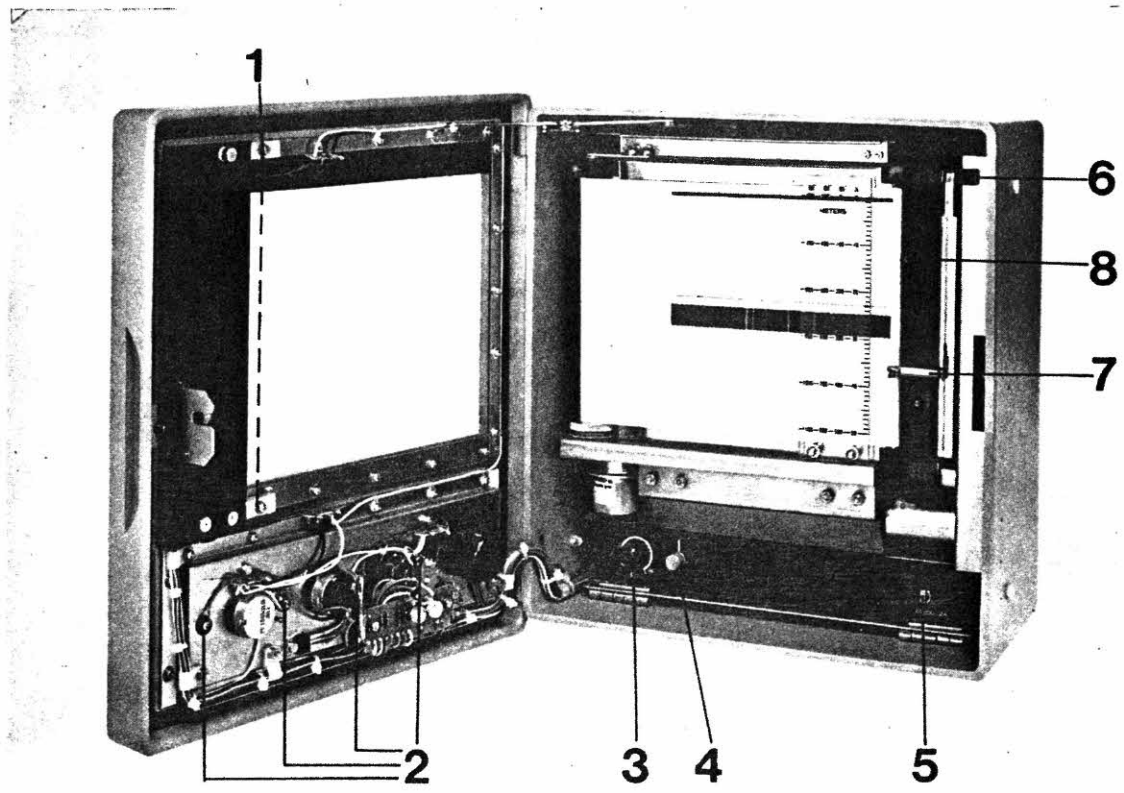
On/Off
Receiver Gain Control

Range Selector
Recorder On/Off

This control selects the basic ranges according to the table given under technical specifications. In position 0 the recorder is switched off and the depth will be shown only on the digital depth indicator.

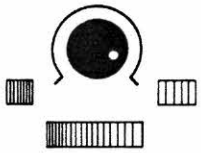
This control regulates the amplification of the received signals. Correct setting: Turn the knob clockwise until a stable depth indication is obtained on the digital depth indicator. If the setting is too low the depth indicator will start blinking. Too high setting may result in false depth indication from air bubbles, plancton layers, side lobes etc. By turning the control fully anti clockwise the echosounder is switched off.

INTERNAL CONTROLS



(1) Scale illumination lamps

(2) Control illumination lamps

(3) 

Paper Speed Control
All ranges: 1.2-12 mm per minute
continuously variable.

(4) 

Marker Control
A black line is drawn across the ehcogram when the knob is depressed

(5) 

Fuse Holder
Fuse: 24V DC-2A

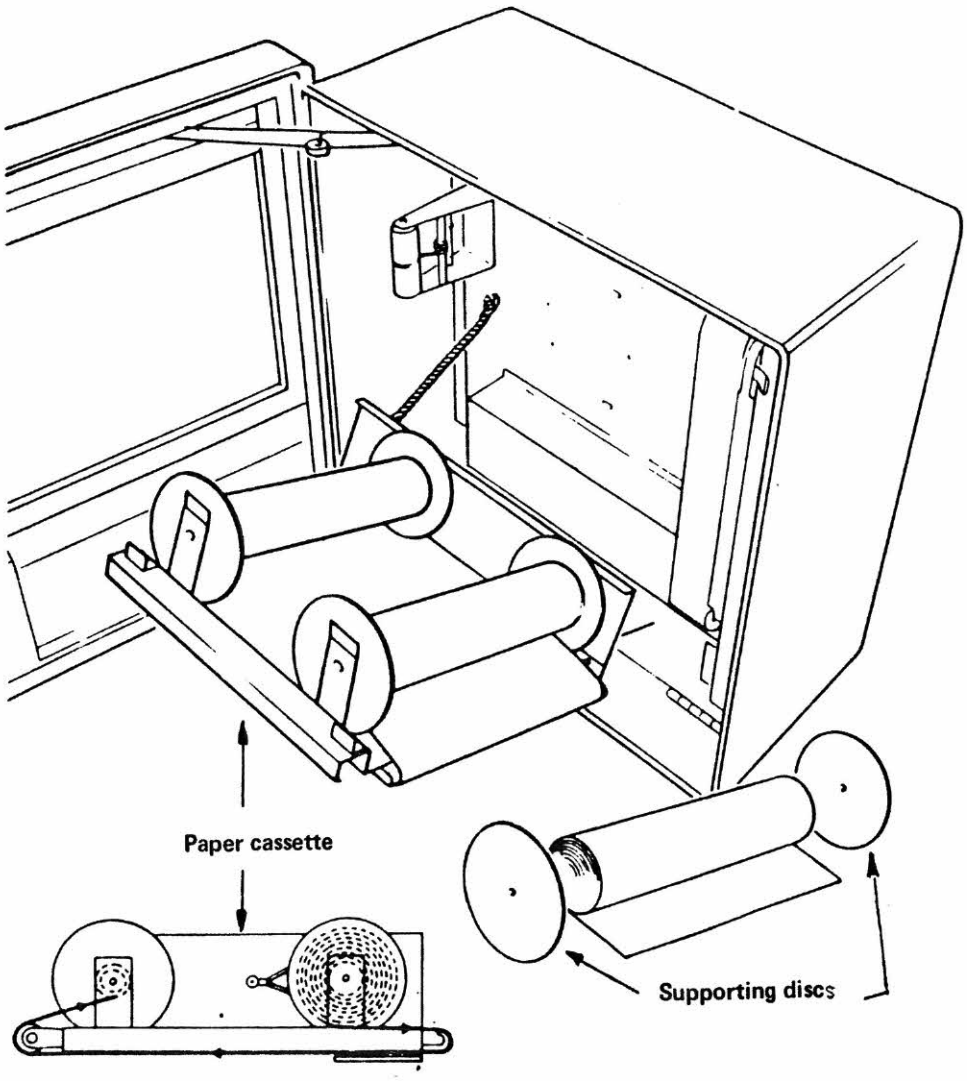
(6) Zero-Line adjuster
For adjustment of the zero-line to correspond with the scale.

By moving the zero-line downwards corresponding to the ship's (transducer's) draft true water depth is read on the echogram.

(7) Recording stylus
Contact spring

(8) Trigger magnet

Replacement of recording paper



1. Switch off the echosounder
2. Rotate the pen belt so that the recording pen is located at the back.
3. Take hold of the top front of the paper casette, pull it out and let it swing down carefully.
4. Pull out the end disc knob for the magazine and remove the used paper roll.
5. Transfer the empty spool from right to left side and make sure that the end supporting discs enter the spool.
6. Insert a new roll of recording paper and thread the paper as shown of the figure.
7. Thread the end of the paper into the slot in the paper spool and turn the spool to tighten the roll.
8. Lift and lock the paper casette in the recorder.

Adjusting the recording pen

The recording pen has a magazine of thin steel wire which must be pulled out when the tip is worn down. This is usually done every time a new roll of paper is inserted.

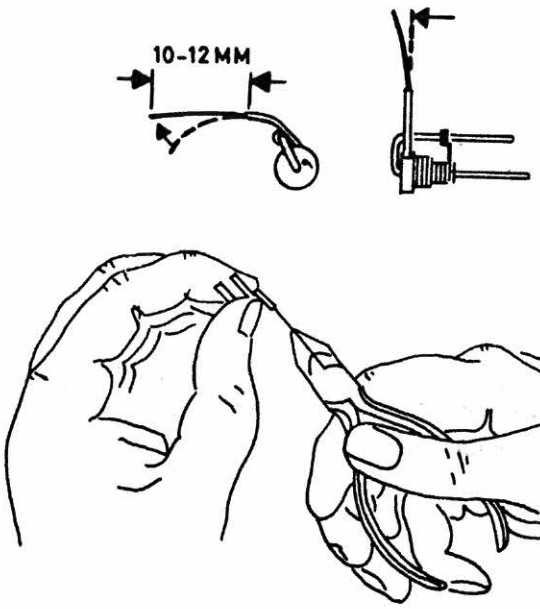
1. Switch off the echosounder, open the cabinet door and rotate the penbelt till the pen is in front.

2. Remove the pen from its beltholder.

3. Hold the pen as shown with a pair of pliers. Pull the wire slowly out from the thin guiding tube. Be careful not to damage the tube. Total length of wire outside the tube should be 10-12 mm (3/8 -1/2 in). If the wire has been pulled out too far, cut to correct length.

4. Straighten the wire as an extention of the guiding tube.

The pen should be bent slightly to the left.



SIMRAD 603N
Navigation Echosounder
Installation

1. GENERAL

The SIMRAD 603N Echosounder consists of the following units:

Control recorder cabinet and transducer with 25 meters cable.

SIMRAD 603N is delivered with transducer in steel tank approved by Det Norske Veritas and Lloyd's Register of Shipping.

If more than one cabinet or one transducer is to be installed, a suitable selector unit is available.

Junction box for transducer cable extension is supplied by SIMRAD free of charge.

2. ASSISTANCE

SIMRAD offers free advise for installation planning such as location of transducers, special arrangements etc.

3. POWER SUPPLY

SIMRAD 603N is designed for operation on 24V DC. The power consumption is approximately 50 Watt.

4. LOCATION AND MOUNTING OF THE RECORDER/CONTROL CABINET

The recorder/control cabinet is designed for bulkhead or panel mounting. The position of the cabinet should provide a good view of the echogram, and the digital indicator as well as easy access for operation.

For bulkhead mounting the cabinet is fastened with three bolts supplied by SIMRAD. Hardware for panel mounting is available on special request.

5. LOCATION AND MOUNTING OF THE TRANSDUCER

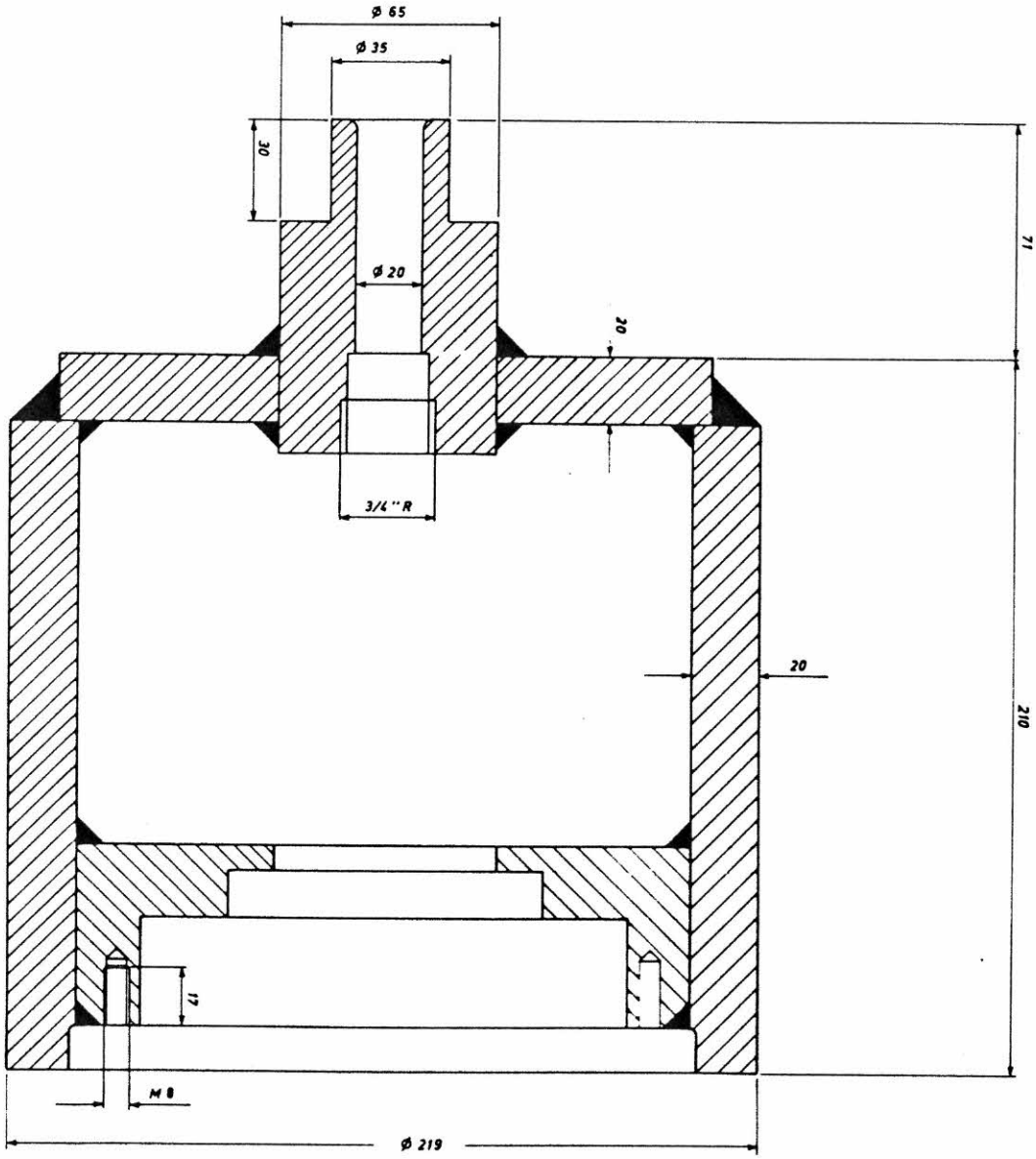
If only one transducer is to be fitted it is recommended to install it in the foreship. Most larger vessels are fitted with two transducers, one forward and one aft. Installation too close to the propellers should be avoided due to risk of propeller noise.

The transducer should not be installed aft of sea vents, bottom plugs etc.

The shell plating 4-5 meters ahead and 2-3 meters aside of the transducer should be free from protruding obstacles and as smooth as possible. It is recommended to install the transducer as close to the keel plate as possible. The active element of the transducer must be treated carefully and must not be painted.

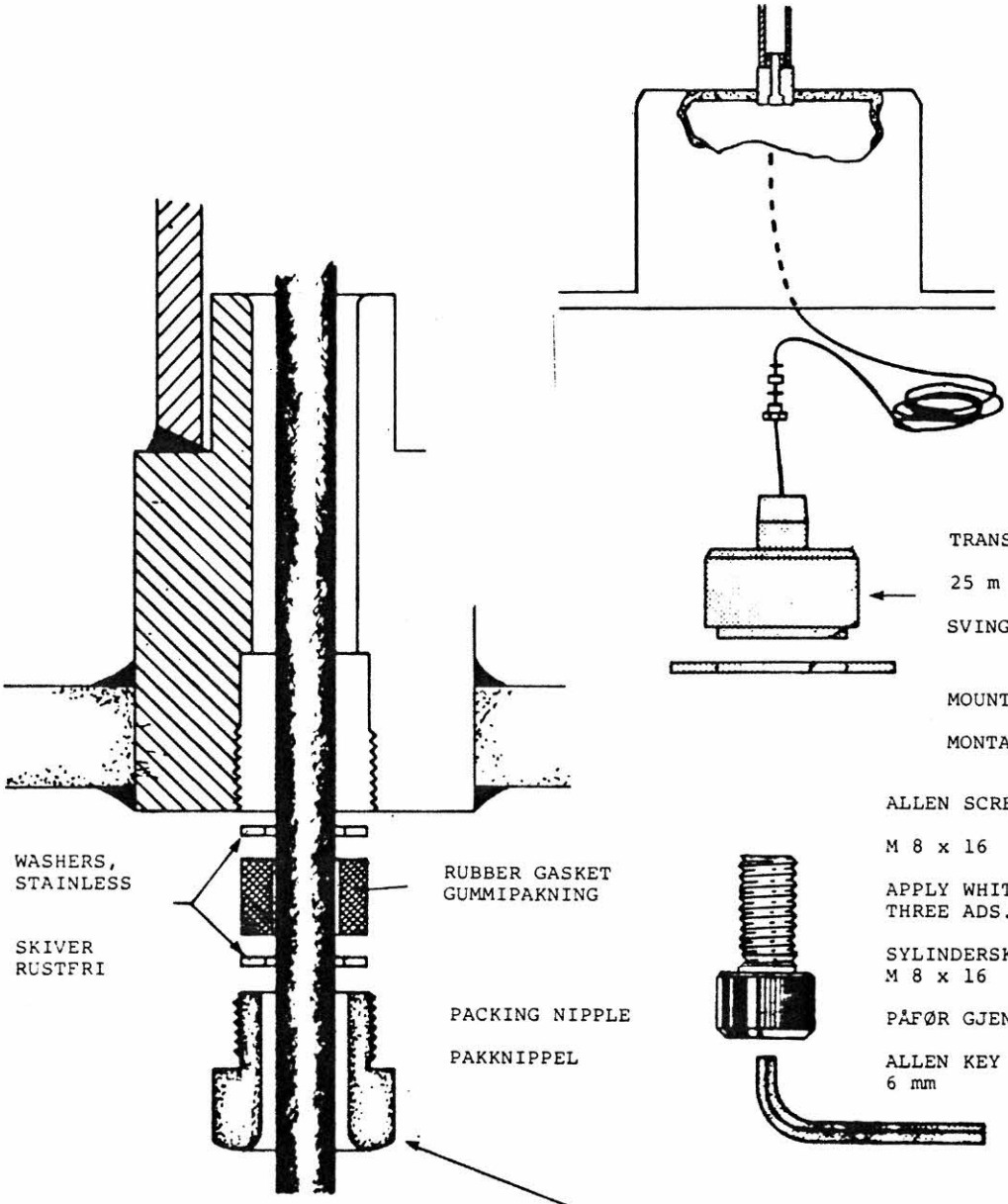
6. CABLING

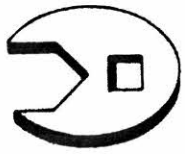
The transducer elements are fitted with 25 meters cable. It is recommended to run this cable in a steel protecting pipe. The cable may be shortened or extended.
In the latter case a water tight junction box should be used. The screens of the transducer cables are to be connected, but must not be grounded in the junction box.



ALL DIMENSIONS IN MILLIMETERS

PROJ. METODE			TOLERANSER FOR IKKE SPESIELT TOLERANSESATTE MÅL. MIDDELS NS 1430	SIMRAD Trading A/S
MÅLEST.			TRANSDUCER TANK	T 2002
TEGN.	81.01.30	K.M.		
KONTR.	81.02.06			
GODKJ.	81.02.06			ARKIV NR





PROVIDE APPROX. 3/4 m OF CABLE BETWEEN CABLE LEAD IN AND THE TRANSDUCER ELEMENT

SØRG FOR AT KABELLENGDEN MELLOM KABEL-GJENNOMFØRINGEN OG SVINGERELEMENTET ER CA. 3/4 m.

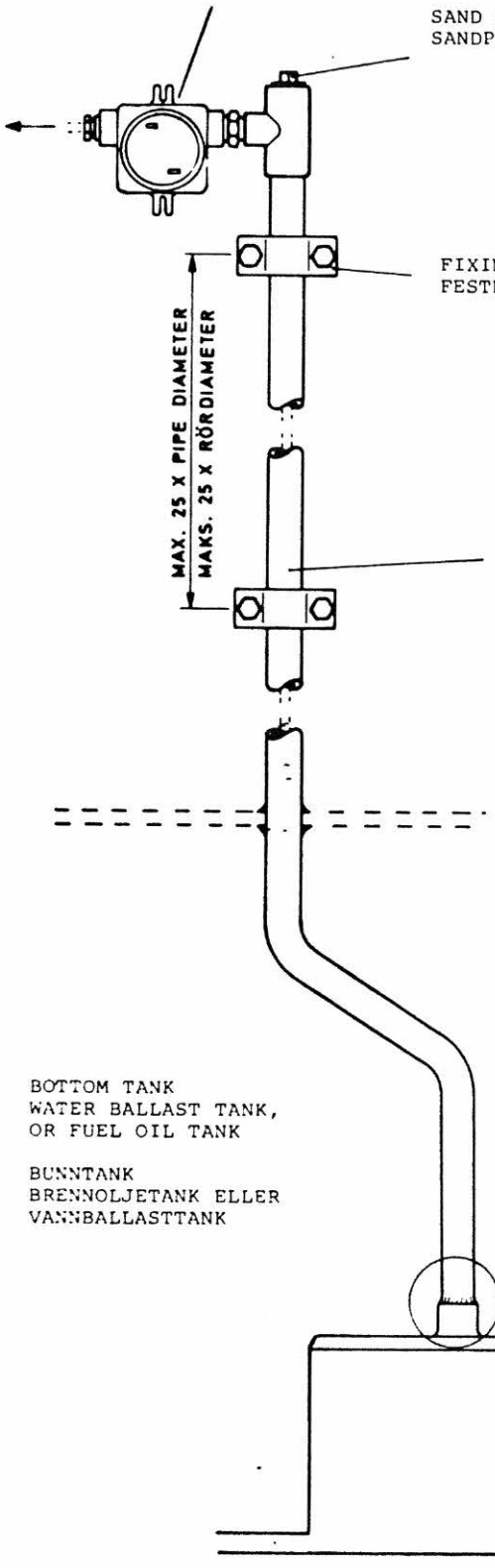
SPECIAL WRENCH FOR TIGHTENING OF PACKING NIPPLE

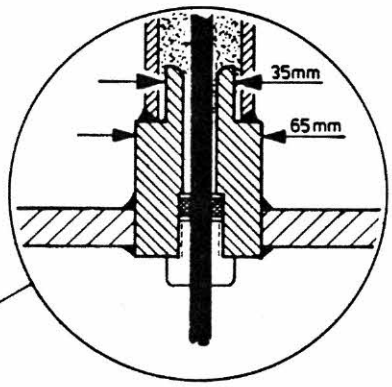
SPESIALNØKKEL FOR PAKKNIPPEL

PROJ. METODE		TOLERANSER FOR IKKE SPESIELT TOLERANSESATTE MÅL: MIDDELS NS 1430	SIMRAD Trading A/S
MÅLEST		MOUNTING OF TRANSDUCER IN STEEL TANK. MONTASJE AV SVINGER I STÅLTANK.	TB 3003
TEGN.	81.02.05 K.M.		
KONTR.	—"— ABH		
GODKJ.	—"— ABH		ARKIV NR

WATERTIGHT JUNCTION BOX (SUPPLIED BY SIMRAD)
MUST BE SITED FOR EASY ACCESS IN AN
EXPLOSION-SAFE PLACE.

VANNTETT KOPLINGSBOKS (LEVERES AV SIMRAD)
PLASSERES PÅ IKKE EKSPLOSJONSFARLIG,
LETT TILGJENGELIG STED



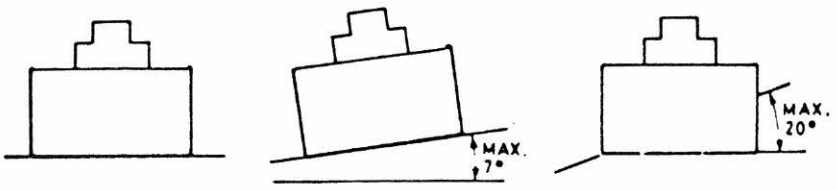


STEEL PIPE, MINIMIM 35mm DIAMETER INSIDE.
WALL THICKNESS: ON GALVANIZED PIPE 8mm ON BLACK PIPE 10mm
MINIMUM:
QUALITY OF MATERIAL: STATED IN VERITAS CAP. X PARA. 7A TYPE III.
THE PIPE TO BE WELDED BEFORE PULLING THE CABLE EXPANDING POSSIBILITIES MUST BE ARRANGED.
MAXIMUM DISTANCE BETWEEN PIPE CLAMPS, 25 x PIPE DIAMETER.
THE PIPE MUST BE FILLED WITH SAND AFTER CABLE IS PULLED.

STÅLRØR, INNVENDIG DIAMETER MINIMIM 35mm
VEGGTYKKELSE: PÅ GALVANISERTE RØR 8 mm PÅ SORTE RØR 10mm
MINIMUM:
MATERIALKVALITET: SE VERITAS REGLER KAP. X PARA 7A, TYPE III
RØRET SVEISES INN MED TILSTREKKELIG EKSPANSJONS-MULIGHET, FØR KABELEN TREKKES.
MAKSIMUM KLAMMEAVSTAND PÅ RØRET 25 x RØRDIAMETER.
RØRET FYLLES MED SAND ETTER AT KABELEN ER TRUKKET.

PROJ. METODE			TOLERANSER FOR IKKE SPESIELT TOLERANSESATTE MÅL: MIDDELS NS 1430	SIMRAD Trading A/S
MÅLEST.			GASTIGHT CABLE PIPE FOR TRANSDUCER TANK GASSTETT KABELRÖR FOR SVINGERTANK	TA 3004
TEGN.	81.02.06	K.M.		
KONTR.	— " —	ABH		
GODKJ.	— " —	ABH		ARKIV NR.

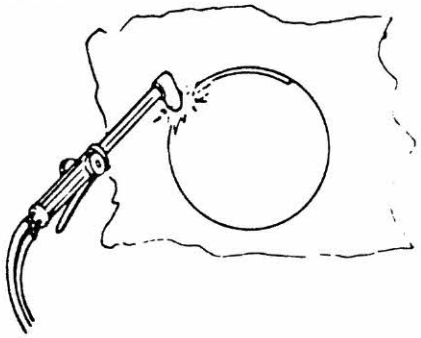
Installation alternatives
Installasjons-muligheter



Flush

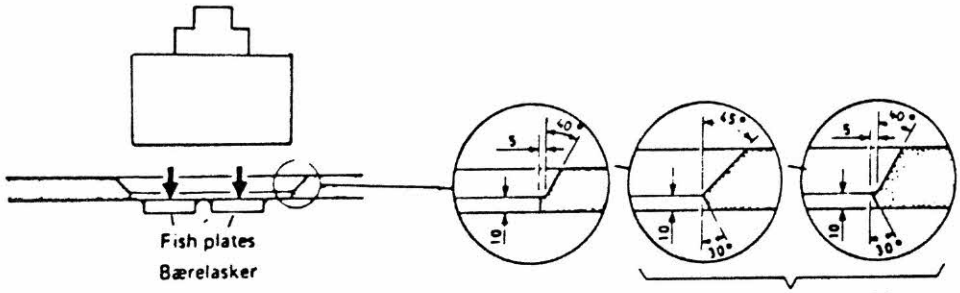
Flush

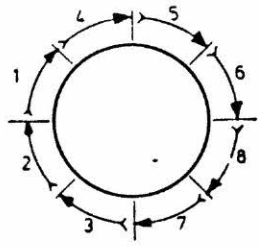
Protruding
Utstikkende



Material thickness: Top and sides 20mm,

Godstykkelse: Topp og sider 20 mm,





Weld the tank according to procedure as shown.
Use low-hydrogen electrodes, e.g. OK4800.
In order to avoid contraction strain, hammer each welding seam before applying the next.
Allow the tank to cool down during welding.

Do not hammer the last welding seam!

Grind flush all weldings within 5 m in front of, and 3 m to the side of transducer.

Finally, paint the transducer tank inside and outside with a non-corrosive coating.

Sveis tanken i henhold til viste prosedyre.
Bruk lavhydrogen-elektroder, f. eks. OK4800.
For mest mulig å unngå krympespenninger, hamres hver sveisestreng før neste legges, og tanken holdes så kald som mulig under sveis-ingen.

Siste sveisestreng må ikke hamres!

Planslip alle sveisesømmer innen et areale av 5 m i front av, og 3 m til hver side for svingeren.

Til slutt males svingertanken innvendig og utvendig med korrosjonshindrende maling.

NR.	SIGN.
ENDRINGS-MELDING	

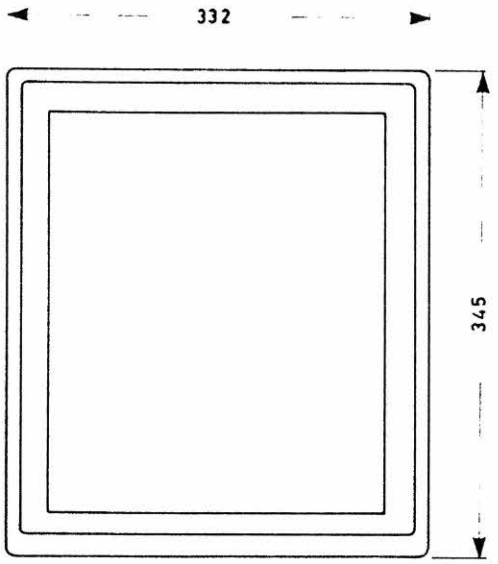
PROJ. METODE		TOLERANSER FOR IKKE SPESIELT TOLERANSE-SATTE MÅL: MIDDELS NS 1430	
MÅLEST.		INSTALLATION OF TRANSDUCER	
TEGN.	81.01.13	K.M.	
KONTR.	—"—	ABH	
GODKJ.	—"—	ABH	

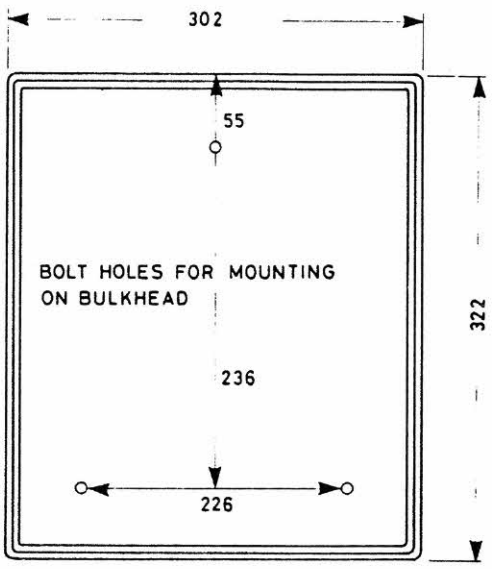
SIMRAD
Trading A/S

TB 3001

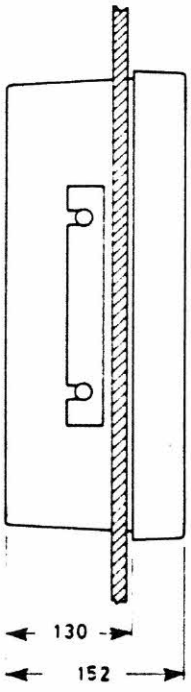
ARKIV NR

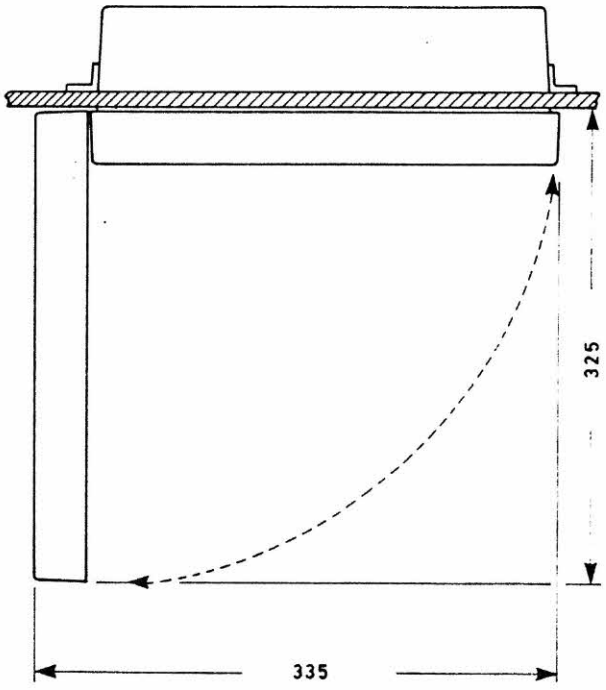
ISO-TOLERANSER





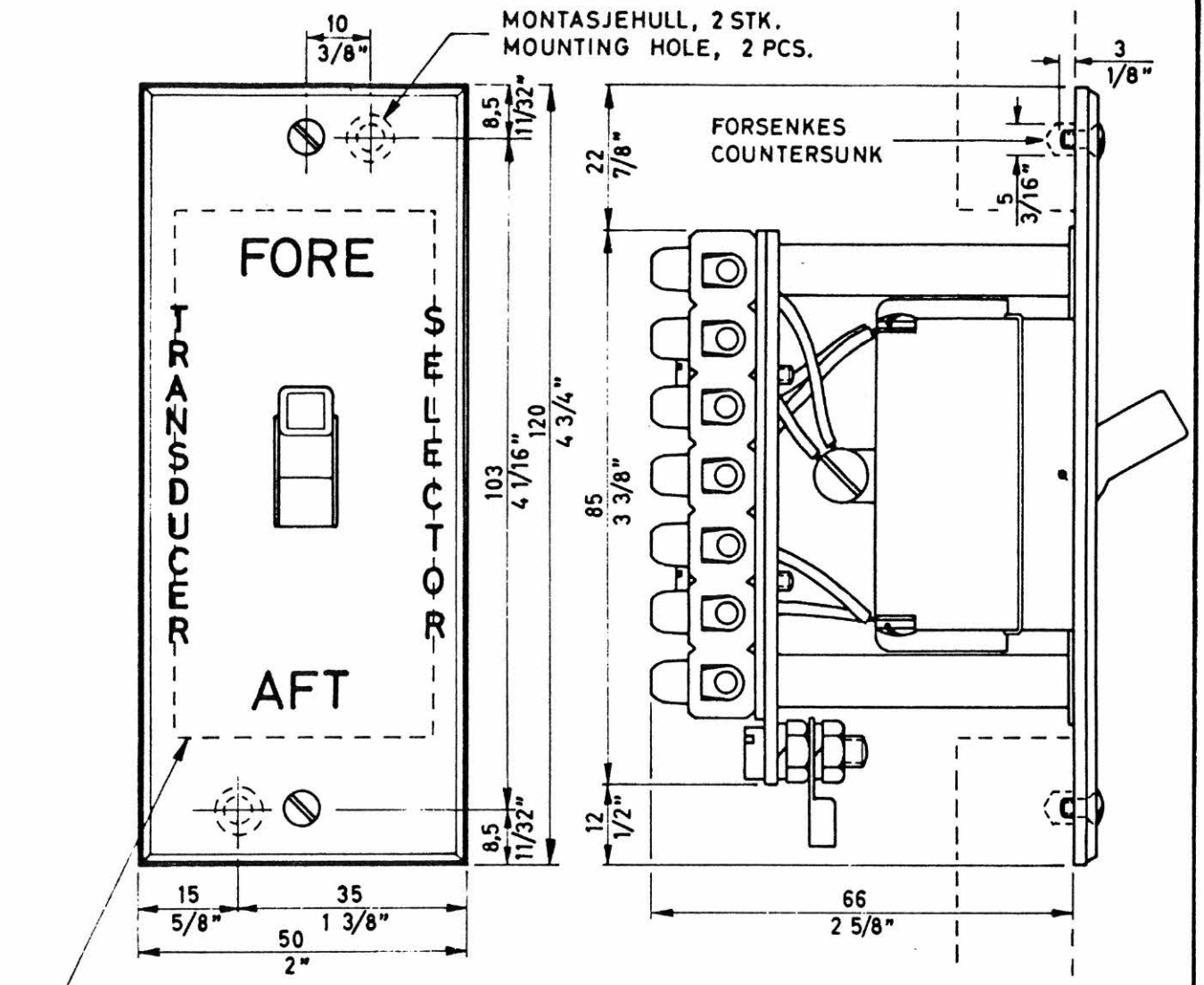
PANEL OPENING 322 x 302, R4



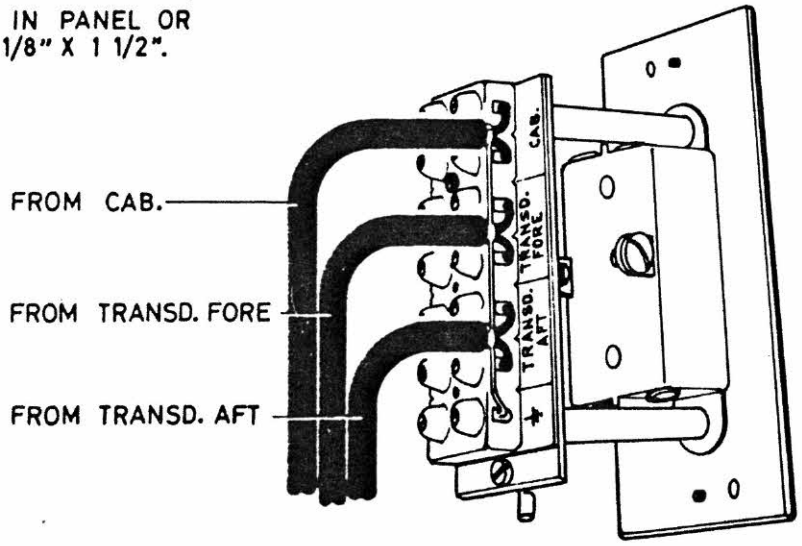


DIMENSIONS IN MILLIMETERS

PROJ METODE			TOLERANSER FOR IKKE SPESIELT TOLERANSESATTE MÅL MIDDELS NS 1430	SIMRAD Trading A/S
MÅLEST			OUTLINE DIMENSIONS OF SIMRAD 603 N	TC 2004
TEGN	81.02.13	K.M.		
KONTR				
GODKJ				ARKIV NR



LYSÅPNING FOR MONTASJE, 80 X 40 MM I PANEL ELLER SKOTT.
CLEAR WIDTH IN PANEL OR BULKHEAD, 3 1/8" X 1 1/2".



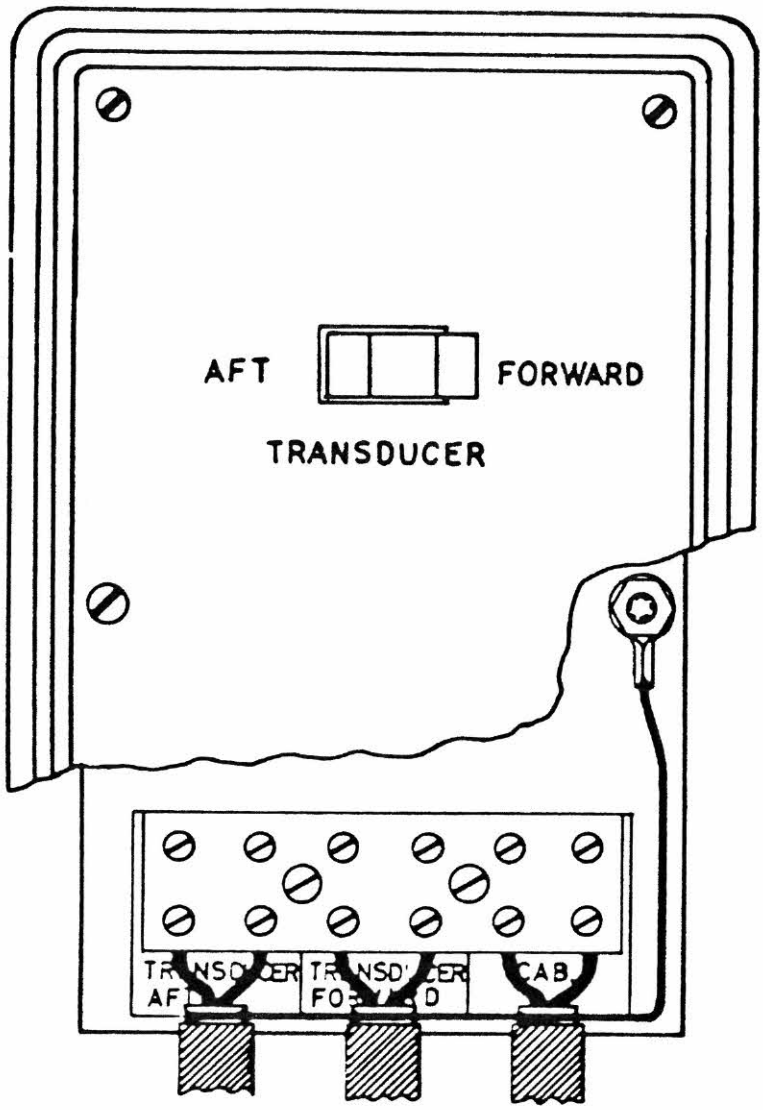
nr.	datum
Forandring	

SIMRAD

Skala	~	
Tegn.	18/4-66	NL
Kontr.	21/4-66	
Godkj.		

MÅLSKISSE OG KABELTILKOPL.
TRANSDUCER SELECTOR 517-43
OUTLINE DIMENSIONS AND CABLE CONNECTION

519-674



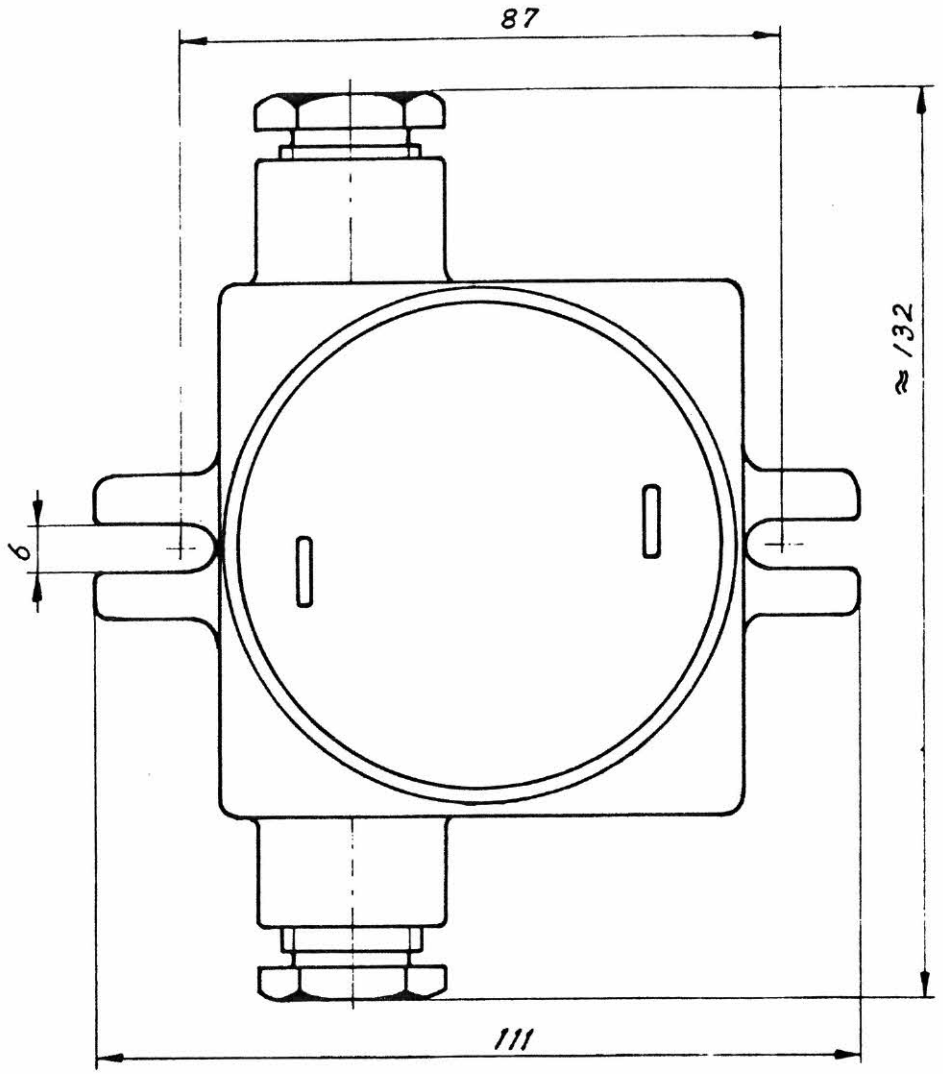
1 KABINETT, 2 SVINGERE.
1 CABINET, 2 TRANSDUCERS.

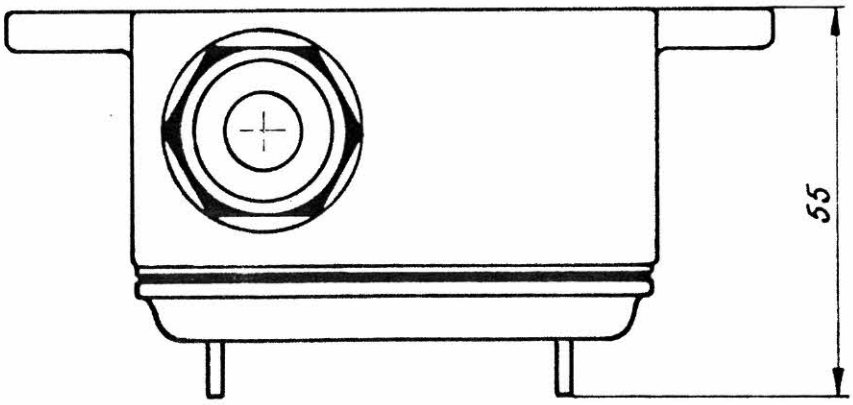
UTVENDIGE DIMENSJONER:
OUTWARD DIMENSIONS:

HÖYDE (HEIGHT)	160 mm (6,3")
BREDDE (WIDTH)	98 mm (3,86")
DYBDE (DEPTH)	84 mm (3,31")

nr.	datum	Forandring
1	10/8-72	

SIMRAD	Skala			KABELTILKOPLING I VENDERBOKS TYPE 517-24. CABLE CONNECTIONS TO TRANSDUCER SELECTOR 517-24	519-511
	Tegn.	8-9-62			
	Kontr.	10/9-62			
	Godkj.				



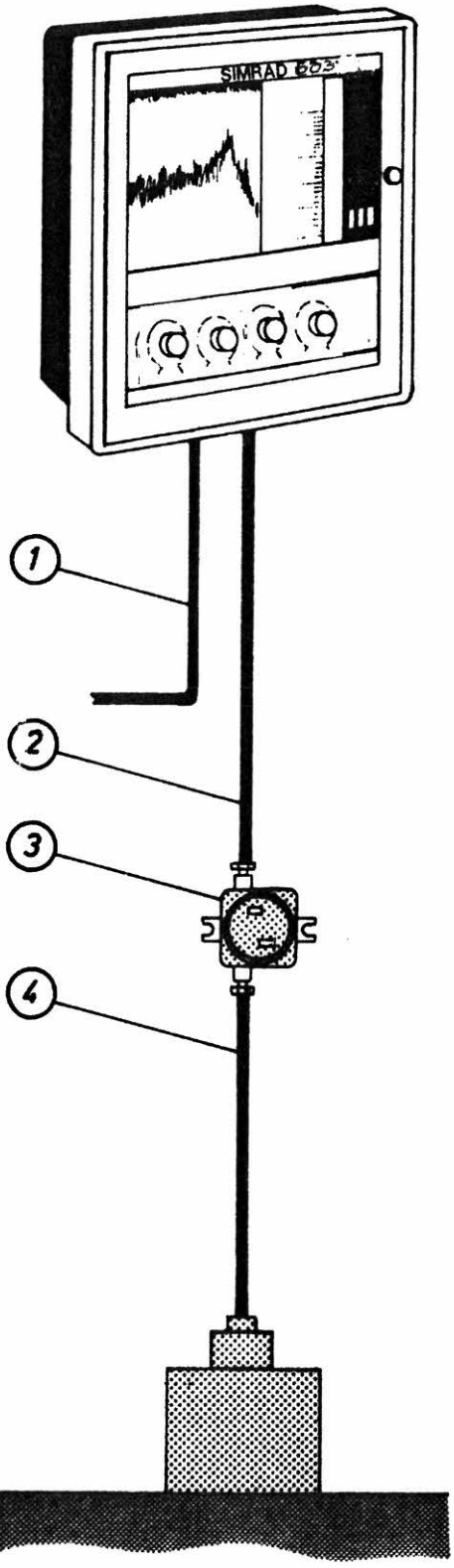


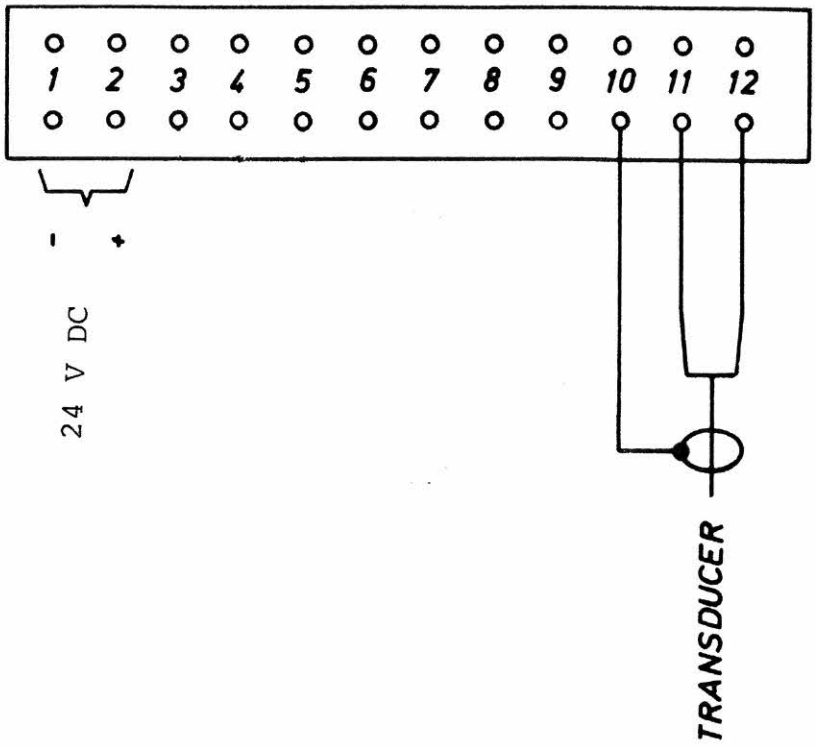
MÅL I MM
DIMENSIONS IN MM

nr.	datum	Forandring

SIMRAD	Skala			MÅLSKISSE AV KOPLINGS-BOKS TEF 2079.	519-1045
	Tegn.	74.01.03	JH		
	Kontr.	74.01.09	BS	OUTLINE DIMENSIONS OF JUNCTION BOX TEF 2079.	
	Godkj.	74/01/09	BS		

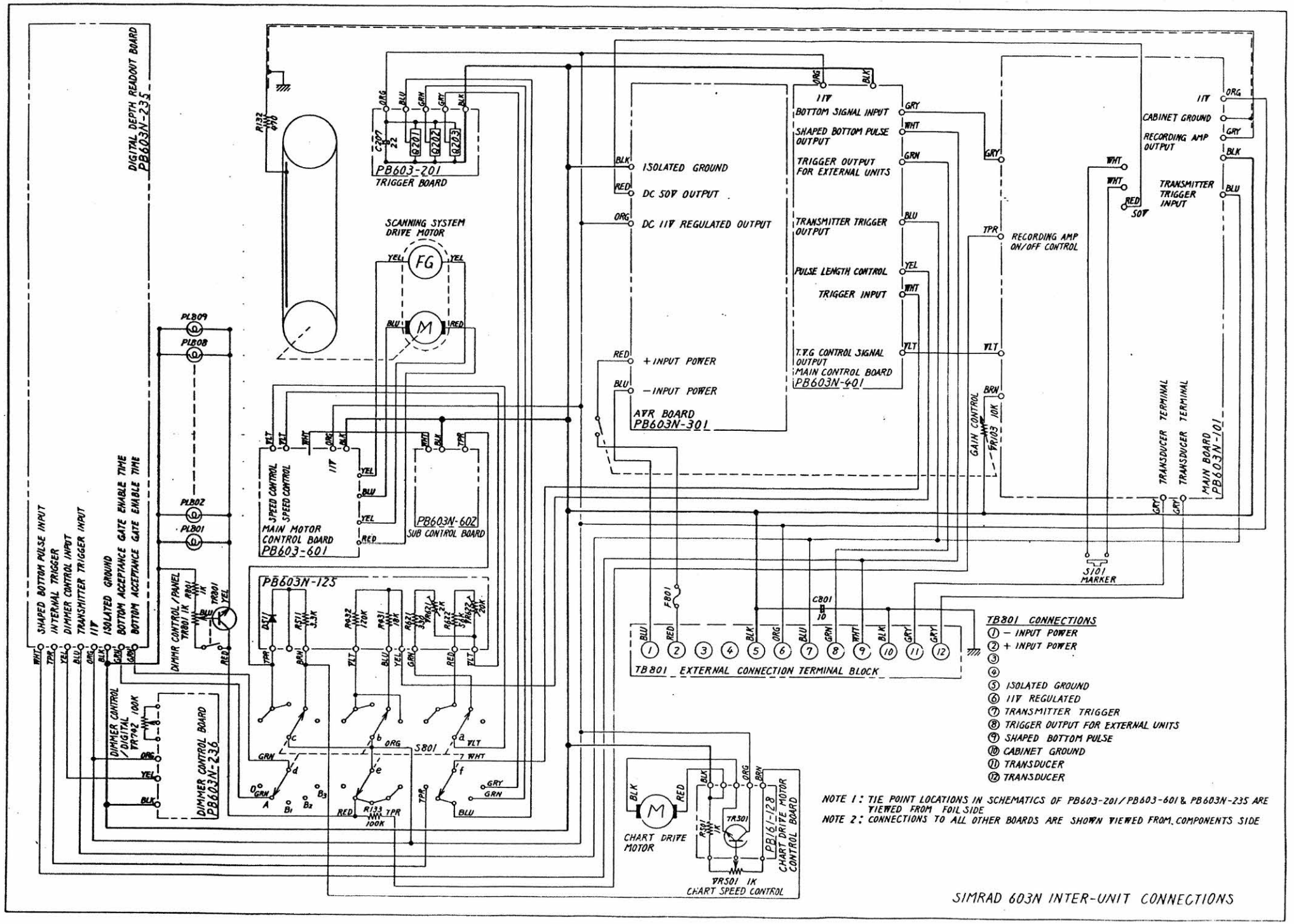
Phos. 1000. A4. 4-72. Solbakken A.s





1. MAINS CABLE, 2x1.5mm^2 WITH SCREEN. POWER CONSUMPTION 50 WATTS.
2. TRANSDUCER CABLE, 2x1.5mm^2 WITH SCREEN.
3. JUNCTION BOX. SUPPLIED BY SIMRAD. SCREENS OF TRANSDUCER CABLE TO BE CONNECTED - MUST NOT BE GROUNDED.
4. TRANSDUCER CABLE. 25meter SUPPLIED WITH TRANSDUCER. SHOULD BE RUN IN A STEEL PROTECTING PIPE.

PROJ. METODE			TOLERANSER FOR IKKE SPESIELT TOLERANSE-SATTE MÅL: **MIDDELS NS 1430**	**SIMRAD** Trading A/S
MÅLEST.			CABLE PLAN FOR SIMRAD 603 N	
TEGN.	81.02.24	K.M.		603 N
KONTR.	—"—	ABH		
GODKJ.	—"—	ABH		ARKIV NR.



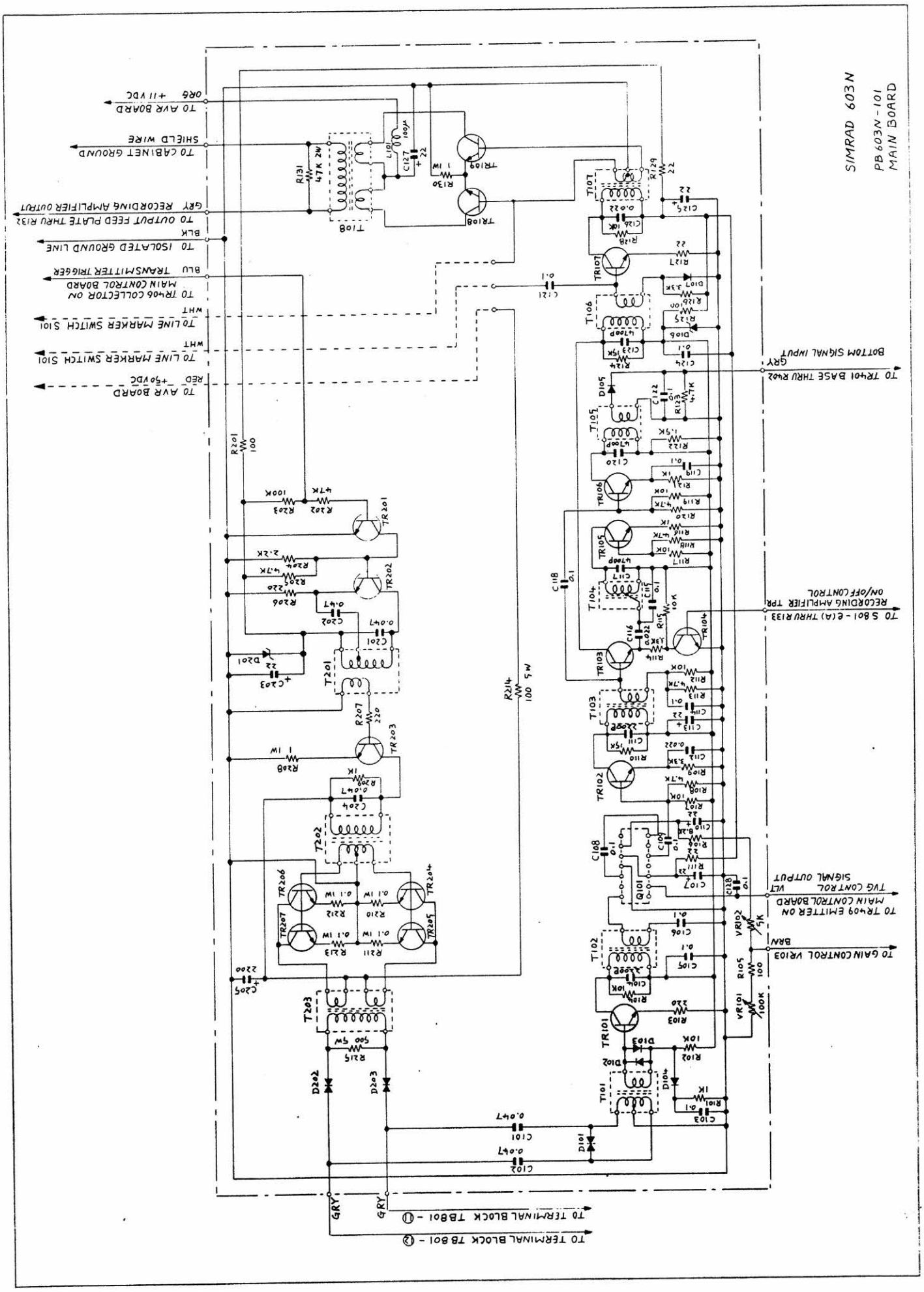
TB801 CONNECTIONS

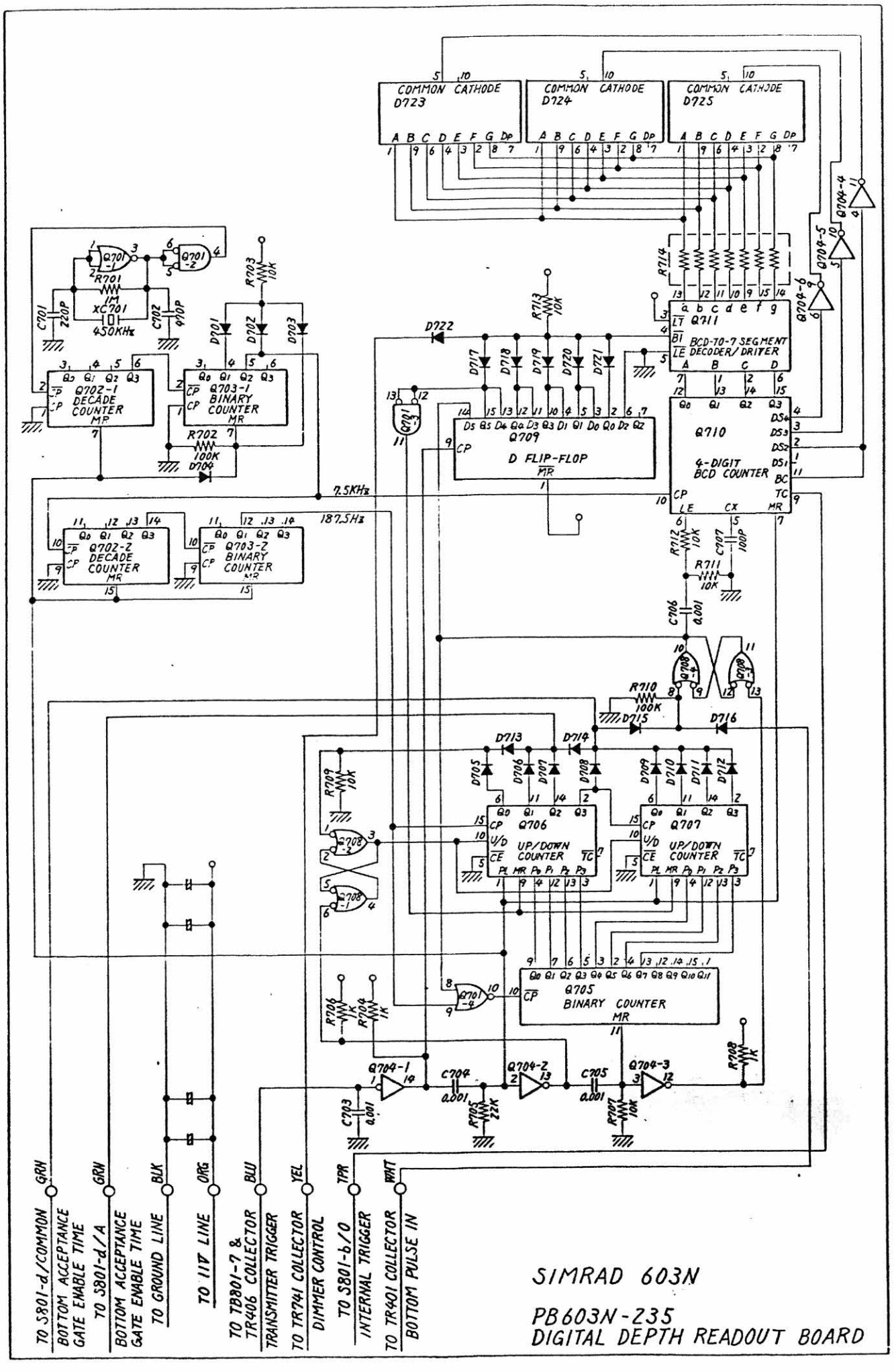
1. − INPUT POWER
2. + INPUT POWER
3.
4.
5. ISOLATED GROUND
6. 11V REGULATED
7. TRANSMITTER TRIGGER
8. TRIGGER OUTPUT FOR EXTERNAL UNITS
9. SHAPED BOTTOM PULSE
10. CABINET GROUND
11. TRANSDUCER
12. TRANSDUCER

NOTE 1: TIE POINT LOCATIONS IN SCHEMATICS OF PB603-201/PB603-601 & PB603N-235 ARE VIEWED FROM FOIL SIDE

NOTE 2: CONNECTIONS TO ALL OTHER BOARDS ARE SHOWN VIEWED FROM COMPONENTS SIDE

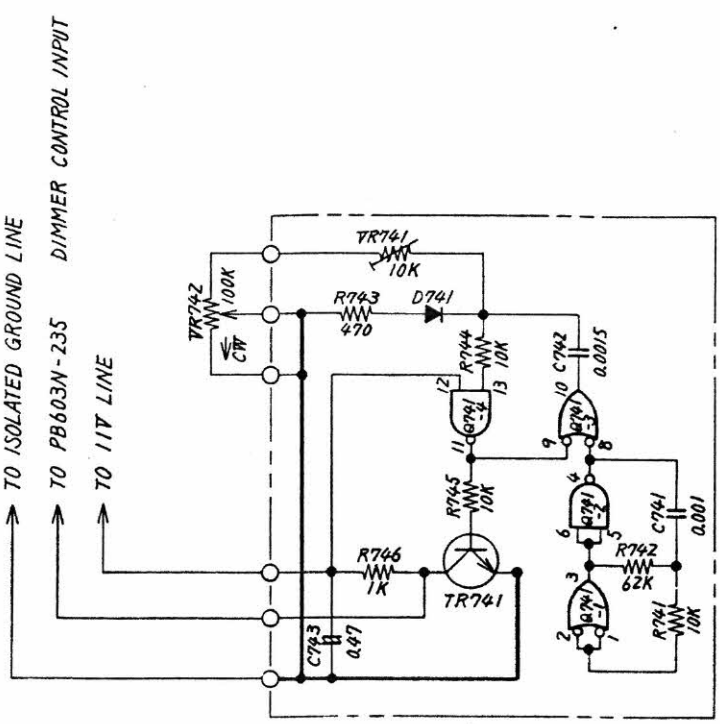
SIMRAD 603N INTER-UNIT CONNECTIONS


SIMRAD 603N
PB 603N-101
MAIN BOARD
TO AVR BOARD ORG +11 VDC
TO CABINET GROUND SHIELD WIRE
TO OUTPUT FEED PLATE THRU R132 GRY RECORDING AMPLIFIER OUTPUT
TO ISOLATED GROUND LINE BLK
TO TRANSMITTER TRIGGER BLU
TO TR406 COLLECTOR ON MAIN CONTROL BOARD
TO LINE MARKER SWITCH S101 WHT
TO LINE MARKER SWITCH S101 WHT
TO AVR BOARD RED +50 VDC
TO TERMINAL BLOCK TB801 - ①
TO TERMINAL BLOCK TB801 - ②
TO TR401 BASE THRU R402 GRY BOTTOM SIGNAL INPUT
TO S801 - E(A) THRU R133 RECORDING AMPLIFIER TPR ON/OFF CONTROL
TO TR409 EMITTER ON MAIN CONTROL BOARD VLT TVG CONTROL SIGNAL OUTPUT
TO GAIN CONTROL VR103 BRN
T108
T107
T106
T105
T104
T103
T102
T101
T201
T202
T203
TR101
TR102
TR103
TR104
TR105
TR106
TR107
TR108
TR109
TR201
TR202
TR203
TR204
TR205
TR206
TR207
D101
D102
D103
D104
D105
D106
D107
D108
D201
D202
D203
Q101
VR101
VR102
VR103



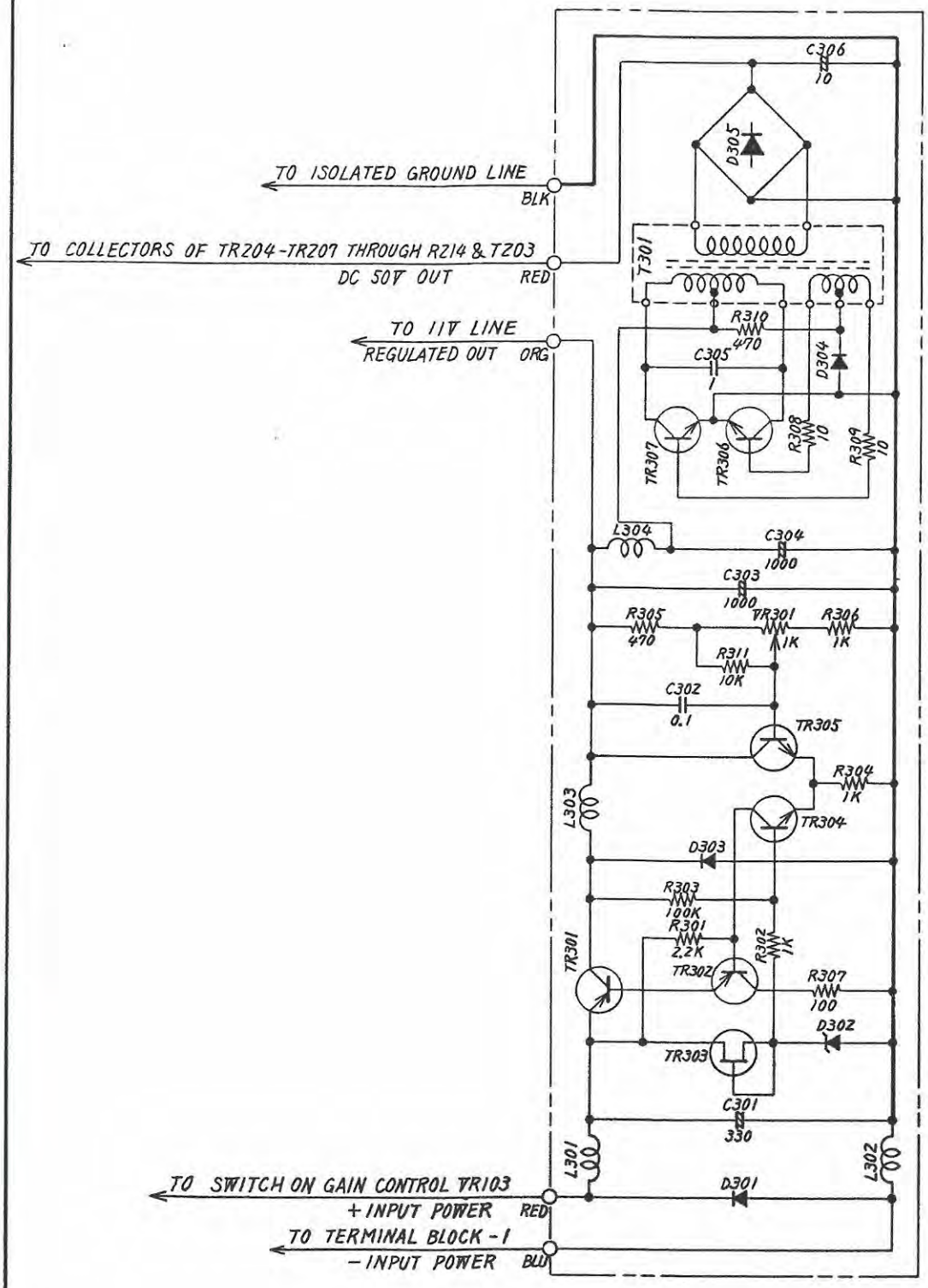
SIMRAD 603N

PB603N-235
DIGITAL DEPTH READOUT BOARD



SIMRAD 603N

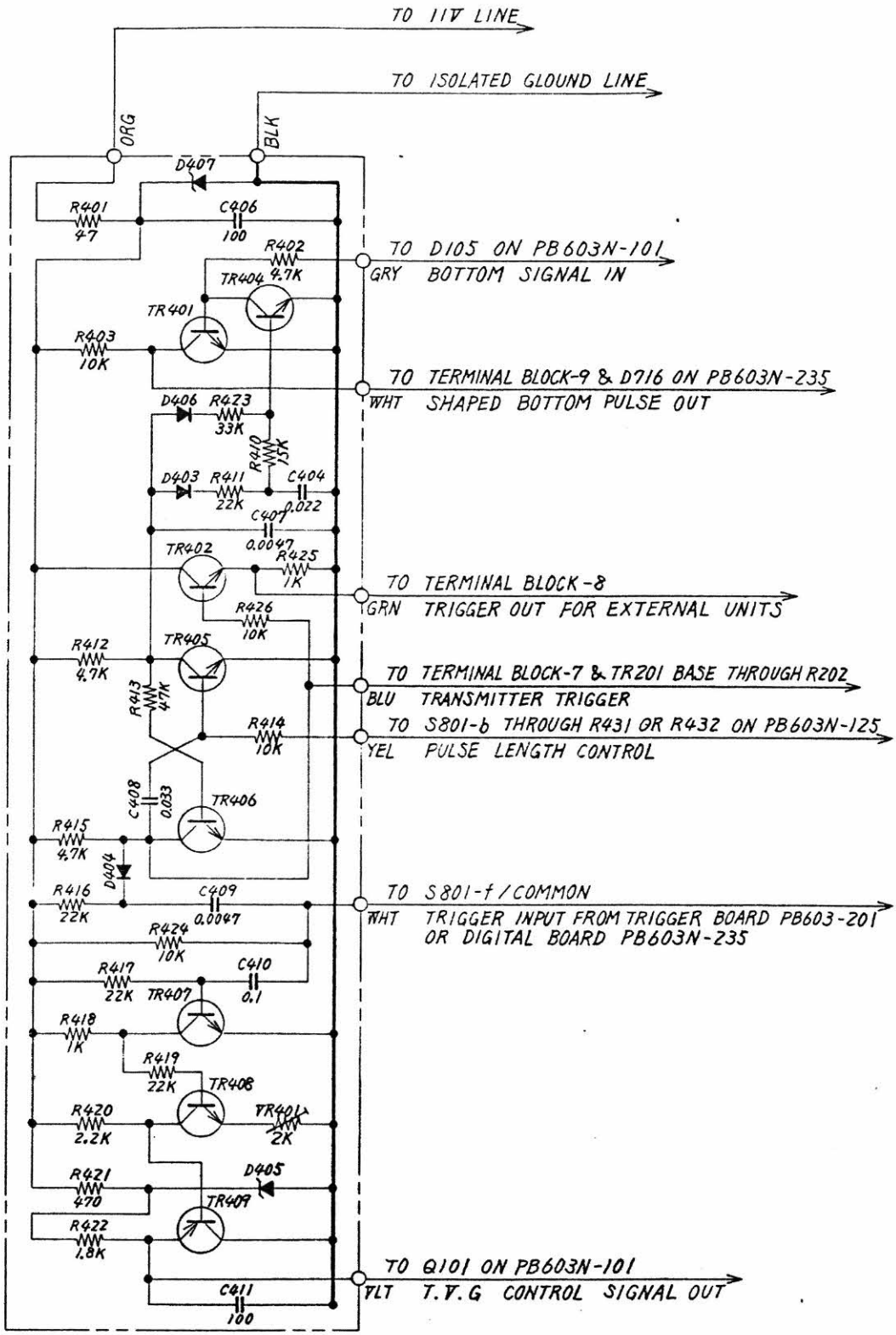
PB603N-236
DIMMER CONTROL BOARD



222 - 05029

SIMRAD 603N

PB603N-301
AVR BOARD



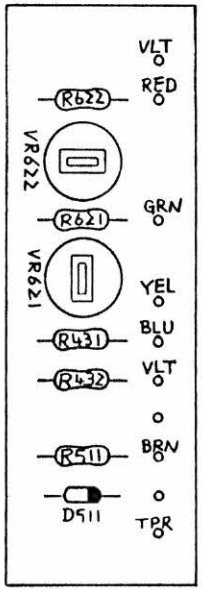
SIMRAD 603N

PB603N-401
MAIN CONTROL BOARD

SIMRAD 603N

PB 603N-101
MAIN BOARD

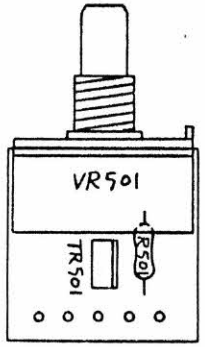
222-05032



SIMRAD 603N

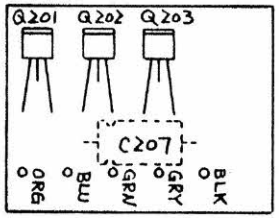
PB 603N - 125

SCAN SPEED CALIBRATION & PULSE LENGTH SELECTION BOARD



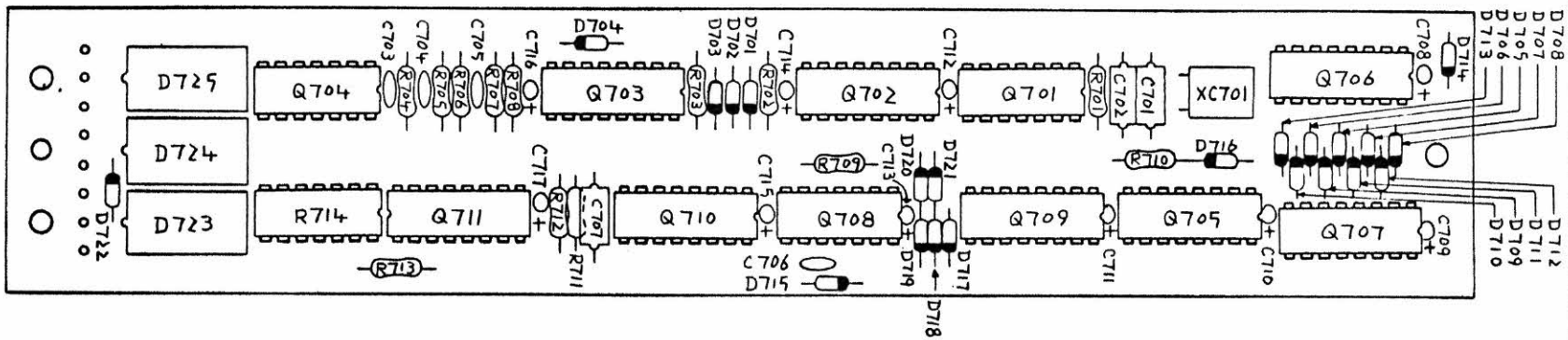
SIMRAD 603N

PB 161-128
CHART DRIVE MOTOR
CONTROL BOARD



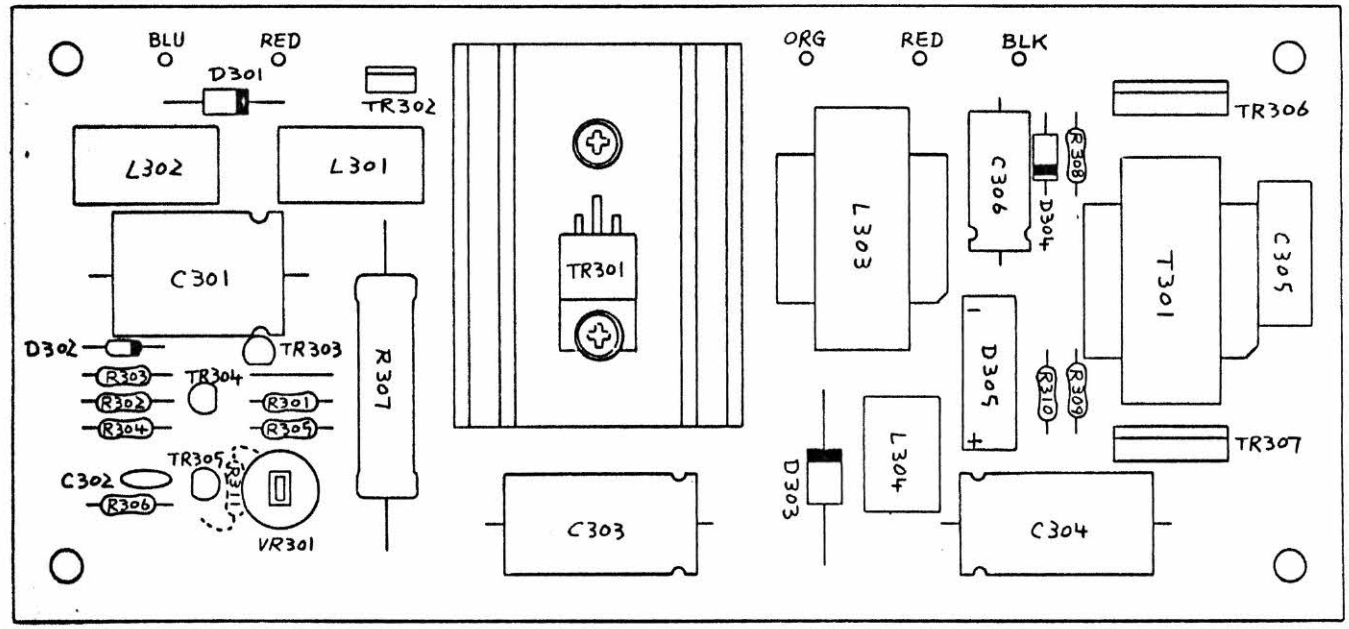
SIMRAD 603N

PB603-201
TRIGGER BOARD



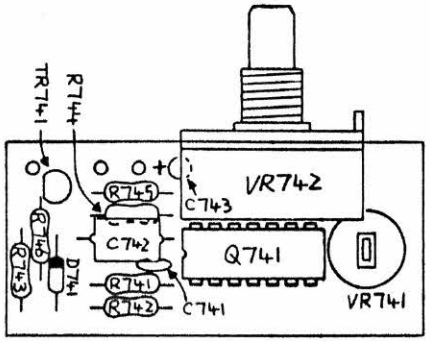
SIMRAD 603N

PB 603N - 235
DIGITAL DEPTH READOUT BOARD



SIMRAD 603N

PB603N-301
AVR BOARD



SIMRAD 603N

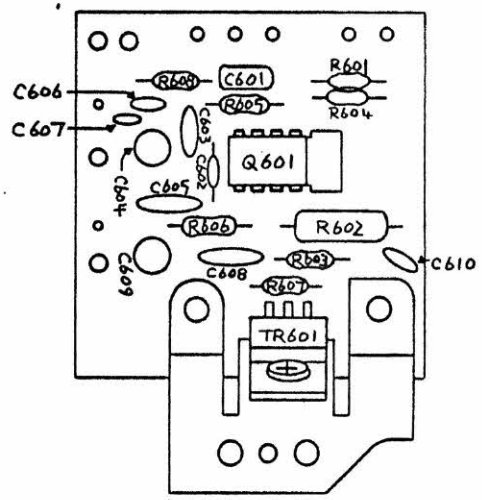
PB603N - 236

DIMMER CONTROL BOARD

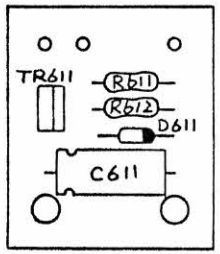
SIMRAD 603N

PB603N-401

MAIN CONTROL BOARD



PB603-601

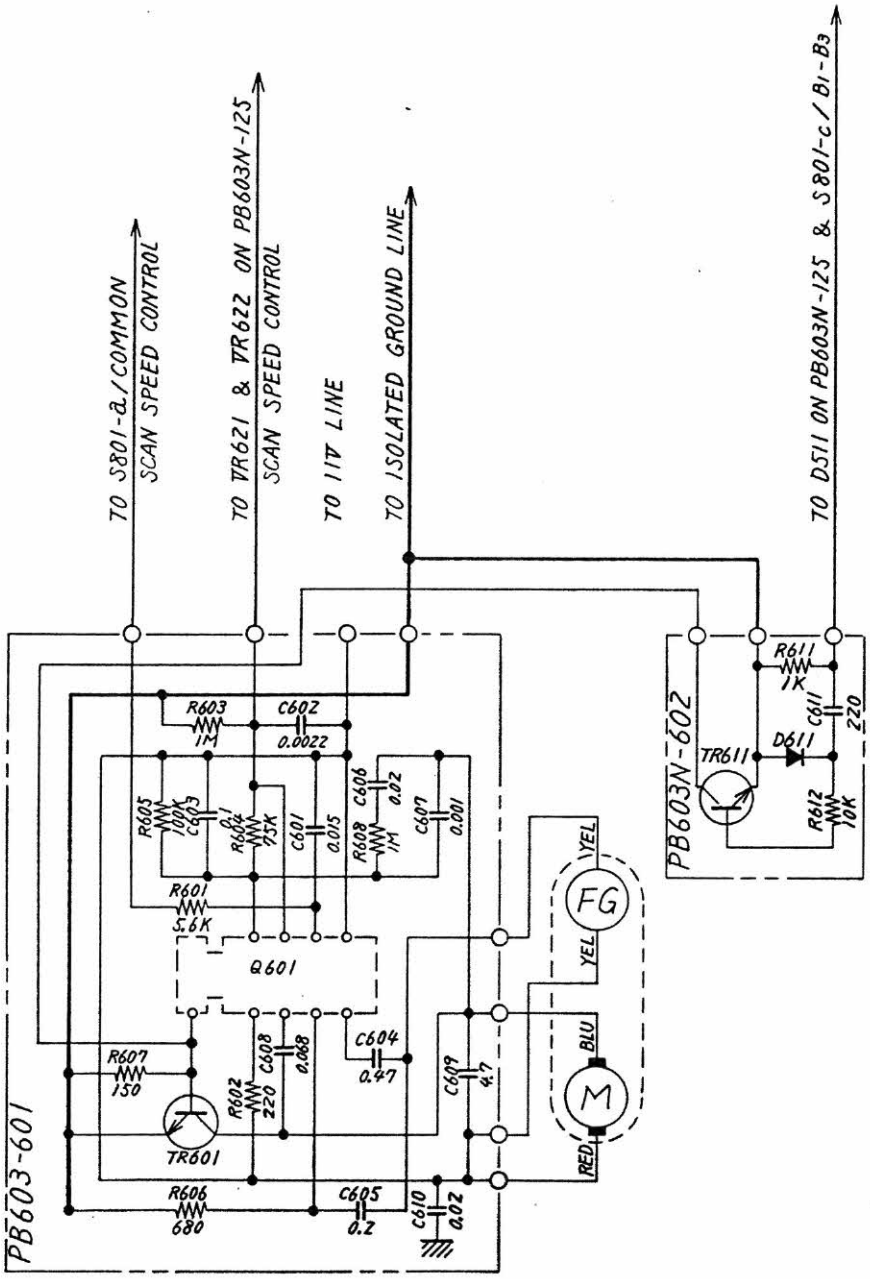


PB603N-602

SIMRAD 603N

PB603-601
MAIN MOTOR CONTROL BOARD

PB603N-602
SUB CONTROL BOARD



SIMRAD 603N

PB603-601
MAIN MOTOR CONTROL BOARD
PB603N-602
SUB CONTROL BOARD