

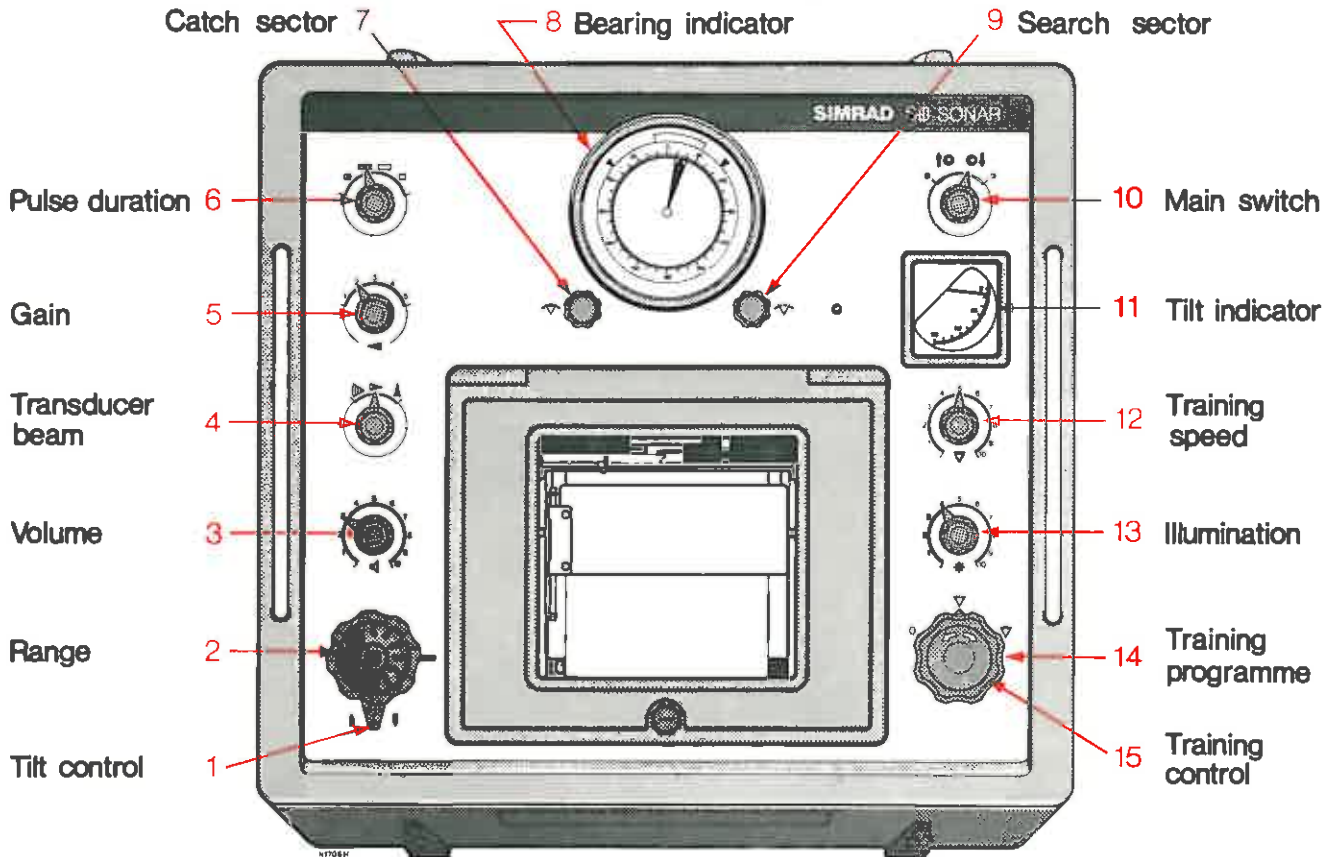
CHARACTERISTICS

SIMRAD SU Sonar is a long-range, high-power sonar with a retractable, streamlined dome for transducer protection. The hydraulically operated dome is designed for a maximum search speed of 18 knots. The transducer is mechanically connected to the dome system and follows the raising and lowering of the dome.

SU Sonar has six recording ranges, from 375 to 3500 metres. The transmitter delivers 4000W pulse power at a frequency of 15 kHz (standard frequency).

The sonar has two automatic training programmes, one search programme and one catch programme. The transducer may be trained 360° manually.

The transducer may be tilted from +5° to -90°.



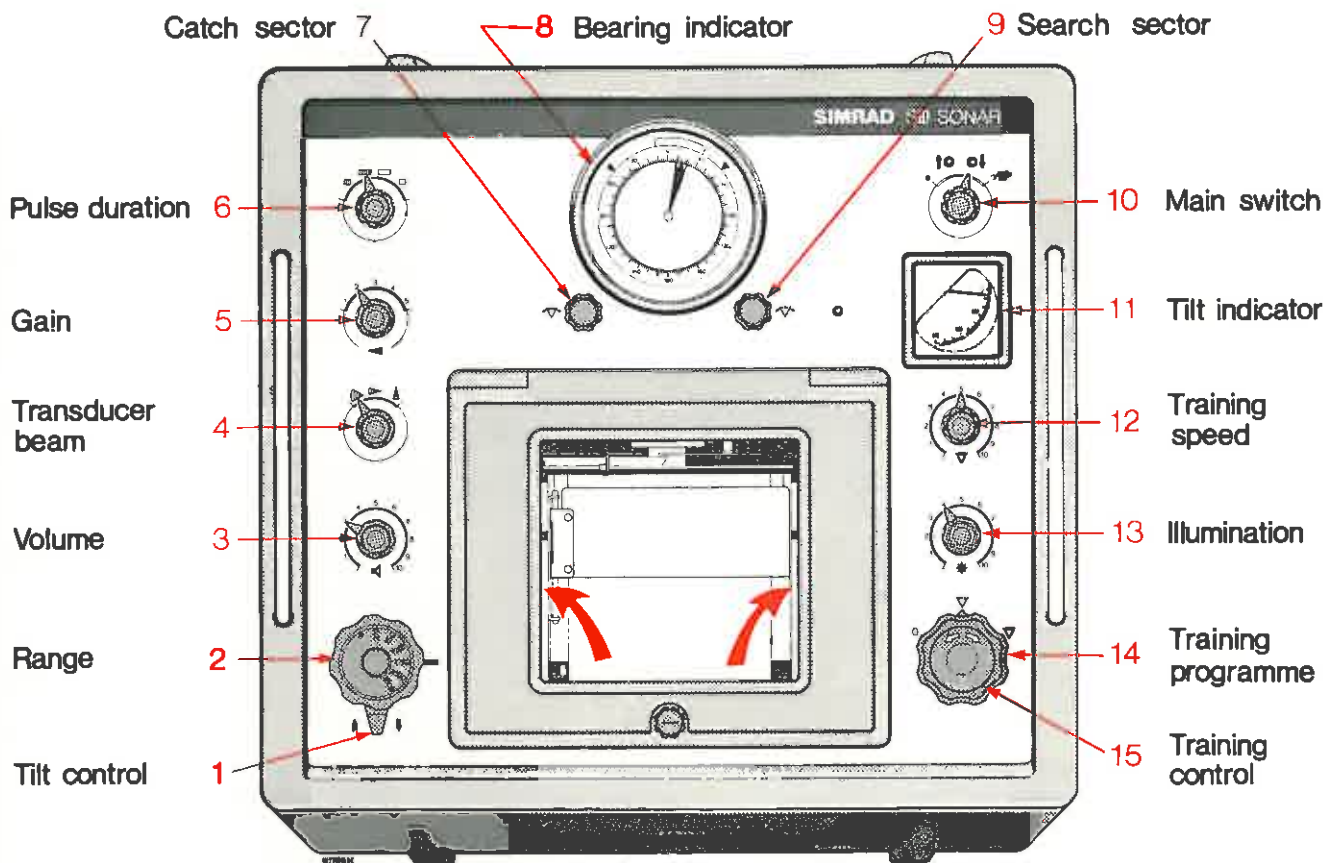
All operating controls are located on the control cabinet, the main controls on the front panel and the secondary controls inside the echogram window.

START PROCEDURE

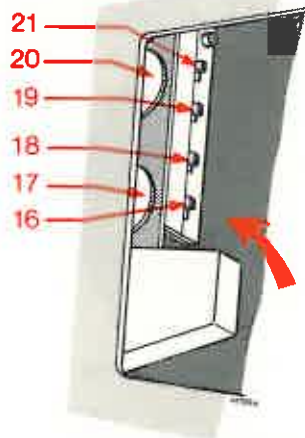
1. Open the echogram window and pull forward moist recording paper, see last page.
2. Switch on the mains power on the main switchboard.
3. Set the range selector (2) to the 0 position.
4. Set the training programme selector (14) to 0 (manual).
5. Turn the main switch (10) to position \uparrow (transducer up). The green lamp will now light, indicating that the sonar is switched on. The transmitter is operative in about one minute.
6. Adjust the illumination control (13) for a convenient illumination of the recorder and indicators. If required, also adjust the light level of the position lamps above the main switch (10), using the dimmer control (25).
7. Provided sufficient depth for lowering the dome, turn the main switch (10) to position \downarrow (transducer down). Both position lamps will now light, indicating that the dome and transducer are being lowered.

When the dome reaches its "down" position, the green lamp extinguishes.

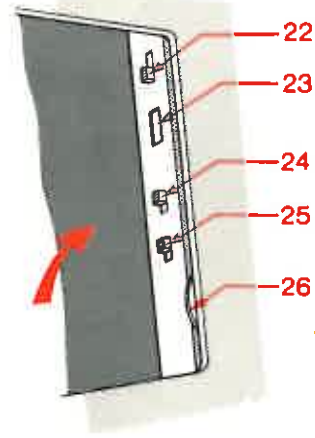
Note that the yellow lamp to the left of the tilt indicator lights whenever the hydraulic pump is activated to maintain the hydraulic pressure.
8. Check the bearing alignment. See last page.
9. Set the paper speed sleeve in position II. See last page.



AGC on/off
Receiver gain
Loudspeaker on/off
Bandwidth
Pulse duration
Transmitter power



Step angle
Align lamp (0° train)
Azimuth on/off
Align lamp on/off
Control lamp intensity



INITIAL SETTING OF SECONDARY CONTROLS

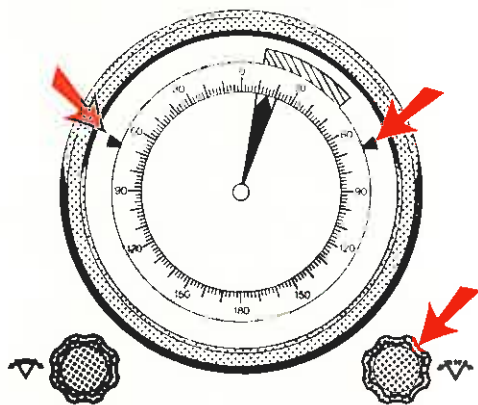
For normal sonar search operation the controls (16) – (21) should be set as indicated:

Transmitter power (16):	NORM	Loudspeaker on/off (19):	ON
Pulse duration (17):	N	Receiver gain (20):	5
Bandwidth (18):	NORM	AGC on/off (21):	ON

Note! When searching for fish that produces weak echoes, such as mackerel or similar types, it may be preferable to set the transmitter power control (16) to position 1/1.

CONTROL SETTING FOR AUTOMATIC SEARCH PROGRAMME

1. Tilt the transducer with the tilt control (1) until the tilt indicator (11) reads 2 to 3 degrees downwards. Use slight tilt only when searching on long ranges.
2. Set the transducer beam selector (4) to narrow (▶).
3. Set the pulse duration selector (6) to long pulse, AGC (position ▢▢▢▢).
4. Turn the range selector (2) to the longest range. When sonar conditions are poor, shorter scale ranges may have to be used.
5. Set the gain control (5) as high as background noise permits.
6. Adjust the volume control (3) for a suitable loudspeaker volume.
7. Turn the search sector controls (9) to set the limits of the search sector as indicated by the two arrows on the bearing indicator (8). Purse seiners often use 70° starboard to 70° port, while trawlers prefer 30° starboard to 30° port.
8. Set the training programme selector (14) to its centre position (▽). The transducer will now train step by step side-to-bow. The step angle may be set to 3, 5 or 8° with the step angle control (22).

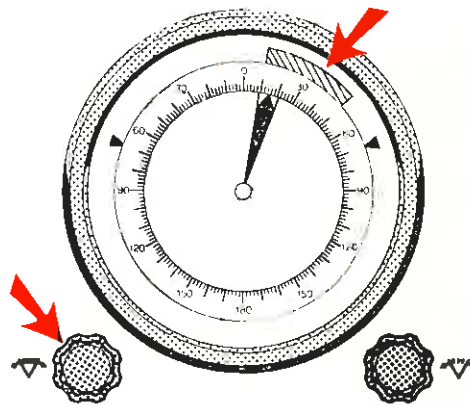


Search sector controls set for a search sector of 70° on each side of the bow.

AUTOMATIC CATCH PROGRAMME FOR CLOSE CONTACT

1. When contact is established and the target followed to a range of 400–500 metres, change from search to catch programme.
2. Turn the training programme selector (14) to the right position (▽). The transducer will now train continuously within the catch sector indicated by a yellow band on the bearing indicator (8).
3. Adjust the size and position of the sector with the two catch sector controls (7).
4. Adjust the training speed as required with the training speed control (12).
5. Increase the tilt angle with the tilt control (1) to keep the target within the transducer beam as the distance decreases.
6. When approaching the target, reset controls as follows:
 - Pulse duration (6): Short pulse (▢ or □)
 - Range selector (2): 375 or 750 metres
 - Gain control (5): Reduce as required

Recheck size and position of the catch sector to keep the target within the sector.



Catch sector controls set for a catch sector from 10° to 50° starboard.

MANUAL TRAINING OF THE TRANSDUCER

1. Manual training of the transducer is performed with the spring-loaded training control (15). By turning the training control clockwise, the transducer is trained towards starboard, and vice versa.
2. In the manual programme, position 0 on the training programme selector (14), the transducer stops at the bearing where the training control is released.
3. In the search and catch programmes, positions ▽ and ▽ on the programme selector (14), the manual training control (15) overrides the automatic training. When the training control (15) is released, the transducer returns to the selected sector and continues to train automatically within the sector limits.

STOP PROCEDURE

1. Set the training programme selector (14) to the 0 position.
2. Turn the range selector (2) to 0.
3. For a temporary interruption only, the main switch (10) may be set to the stand-by position (⊖). The transducer remains down, and the sonar is ready for an immediate re-start.
4. To switch off the sonar completely, set the main switch (10) to position ⬆ (transducer up). Both position lamps will light during the raising operation.
5. When the red lamp extinguishes, the transducer is housed. Now set the main switch (10) to the off position (○) and switch off the power on the main switchboard.

ALIGNMENT OF THE BEARING INDICATOR

Numbers in brackets refer to figure on page 2.

Each time the sonar is started, the bearing indicator (8) must be checked for correct indication.

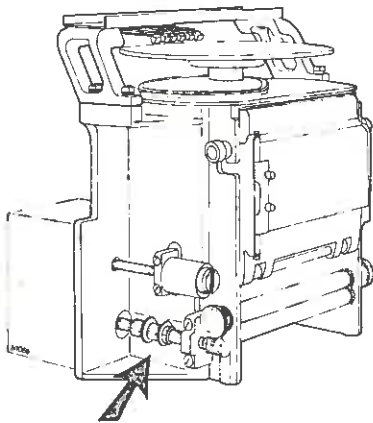
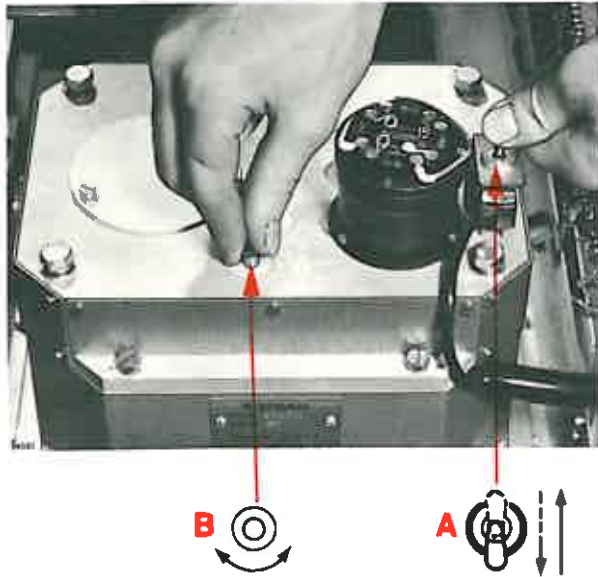
Switch on the align lamp (25) and set the programme selector (14) to 0. Train the transducer manually with the training control (15) until the align lamp (23) inside the window lights up. The transducer bearing is now 0°, i.e. the transducer points forwards.

If the bearing indicator does not read 0°, open the cabinet and align the indicator as shown in the figure:

Press switch A and turn the serrated knob B until the bearing indicator reads 0°. Release the switch.

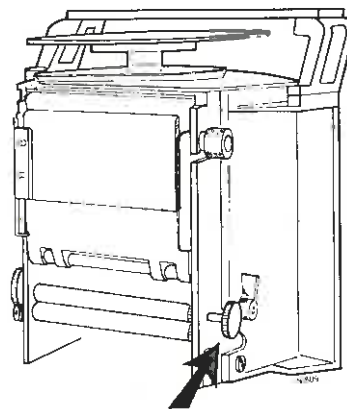
Check the alignment by training the transducer to both sides. The align lamp should extinguish at the same angle on each side of the 0° mark.

To avoid disturbing flashing during operation, the lamp may be switched off (switch 25) after the alignment.



Paper speed selector

Sleeve in: I } See table
Sleeve out: II } below



Paper feed wheel

Ranges	Pulse rate per min.	Line density lines/cm		Paper speed mm/min.		Paper duration	
		I	II	I	II	I	II
0- 375	96	76.5	17	12.55	54.67	26h 30 min	6h 5 min
0- 750	48	76.5	17	6.28	27.33	53h	12h 10 min
0-1250	28.8	23	17	12.55	16.40	26h 30 min	20h 20 min
0-1750	20.6	16.4	17	12.55	11.72	26h 30 min	28h 25 min
0-2500	14.4	23	17	6.28	8.20	53h	40h 40 min
0-3500	10.3	16.4	17	6.28	5.86	53h	56h 50 min