CABLE SPECIFICATION

MAXIMUM LOOP RESISTANCE 100 OHMS
MAXIMUM SHUNT CAPACITANCE 0.25uF
MINIMUM RESISTANCE LINE TO LINE 50K OHMS
MINIMUM RESISTANCE LINE TO SCREEN 50K OHMS
MINIMUM RESISTANCE TO ADJACENT METALWORK 500K OHMS
CABLE OPERATING VOLTAGE 20 VOLTS AT 15–30 mA

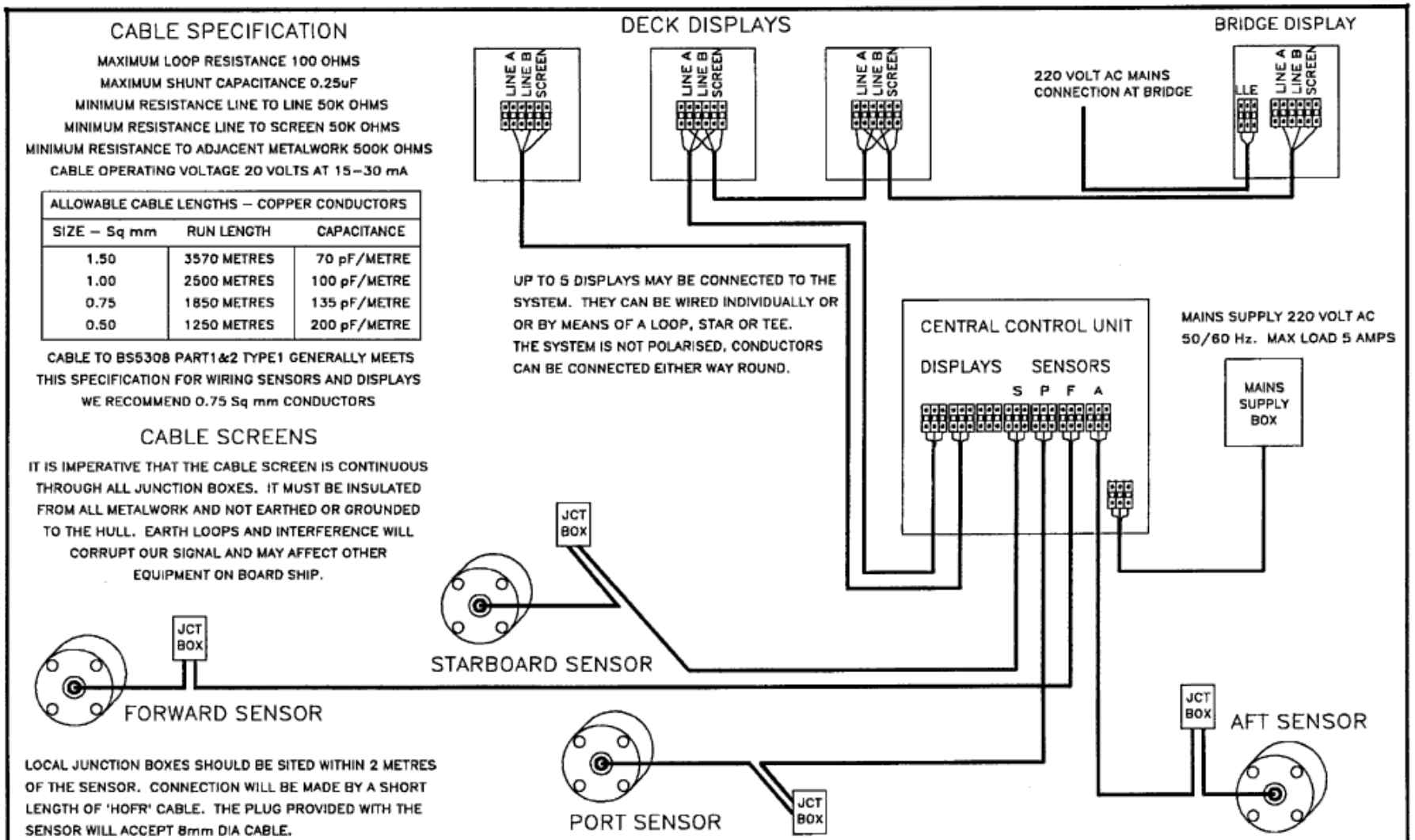
ALLOWABLE CABLE LENGTHS – COPPER CONDUCTORS		
SIZE – Sq mm	RUN LENGTH	CAPACITANCE
1.50	3570 METRES	70 pF/METRE
1.00	2500 METRES	100 pF/METRE
0.75	1850 METRES	135 pF/METRE
0.50	1250 METRES	200 pF/METRE

CABLE TO BS5308 PART1&2 TYPE1 GENERALLY MEETS THIS SPECIFICATION FOR WIRING SENSORS AND DISPLAYS
WE RECOMMEND 0.75 Sq mm CONDUCTORS

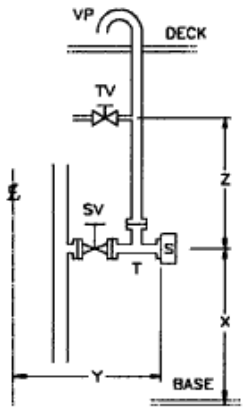
CABLE SCREENS

IT IS IMPERATIVE THAT THE CABLE SCREEN IS CONTINUOUS THROUGH ALL JUNCTION BOXES. IT MUST BE INSULATED FROM ALL METALWORK AND NOT EARTHED OR GROUNDED TO THE HULL. EARTH LOOPS AND INTERFERENCE WILL CORRUPT OUR SIGNAL AND MAY AFFECT OTHER EQUIPMENT ON BOARD SHIP.

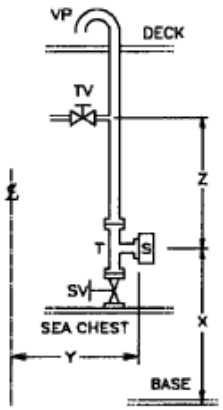
LOCAL JUNCTION BOXES SHOULD BE SITED WITHIN 2 METRES OF THE SENSOR. CONNECTION WILL BE MADE BY A SHORT LENGTH OF 'HOFR' CABLE. THE PLUG PROVIDED WITH THE SENSOR WILL ACCEPT 8mm DIA CABLE.



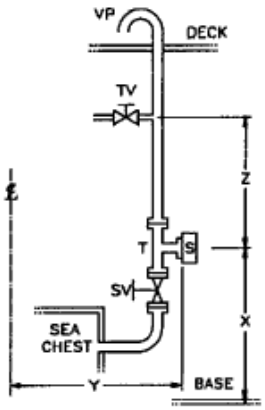
MALIN INSTRUMENTS LTD 9E SWAINS MILL, CRANE MEAD WARE, HERTFORDSHIRE SG12 9PY PHONE 01920 469269 FAX 01920 469600	DRAUGHT INDICATOR ELECTRICAL INSTALLATION DETAILS	Drawn N.E.	Scale N.T.S.	Date 01/01/01
		Drawing No. SB 1203.05		



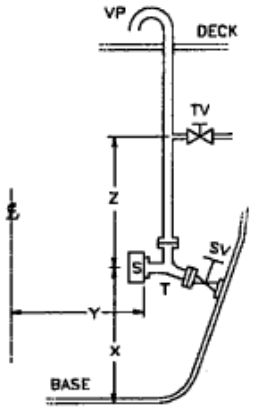
FITTING TO EXISTING UNVENTED PIPE



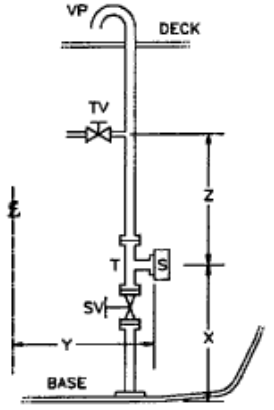
FITTING TO SEA CHEST



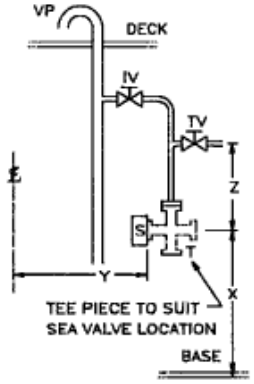
ALTERNATE FITTING TO SEA CHEST



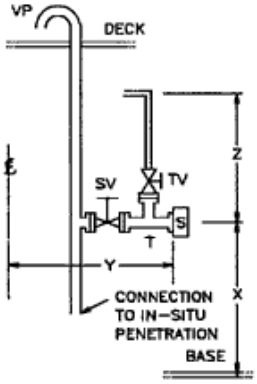
FITTING DIRECTLY THROUGH HULL



FITTING DIRECTLY THROUGH BASE



SHARING EXISTING VENT PIPE



FITTING TO EXISTING VENT PIPE

RECOMMENDED PIPE SIZES
SEA VALVE & TEE PIECE
NOMINAL 2" (50mm)
TABLE 'F' FLANGE
TEST VALVE & VENT PIPE
NOMINAL 1" (25mm)

NOTE. VENT PIPE MUST RISE CONTINUOUSLY FROM THE SENSOR AND TEST VALVE TO DECK LEVEL TO AVOID AIR LOCKS.

THE TEST VALVE SHOULD NOT DISCHARGE OVER THE SENSOR. THE OUTLET MUST BE BELOW THE LIGHT SHIP WATER LINE.

KEY
S SENSOR
T TEE PIECE
SV SEA VALVE
TV TEST VALVE
VP VENT PIPE
IV ISOLATION VALVE
X SENSOR TO BASE/KEEL
Y SENSOR TO CENTRE LINE
Z DATUM CHECK HEIGHT

REFER TO DRAWING SB1206 FOR GENERAL ARRANGEMENT AND TO DRAWING SB1209 FOR DETAILS OF FLANGE AND SENSOR. SEE INSTALLATION INSTRUCTIONS FOR MORE INFORMATION.

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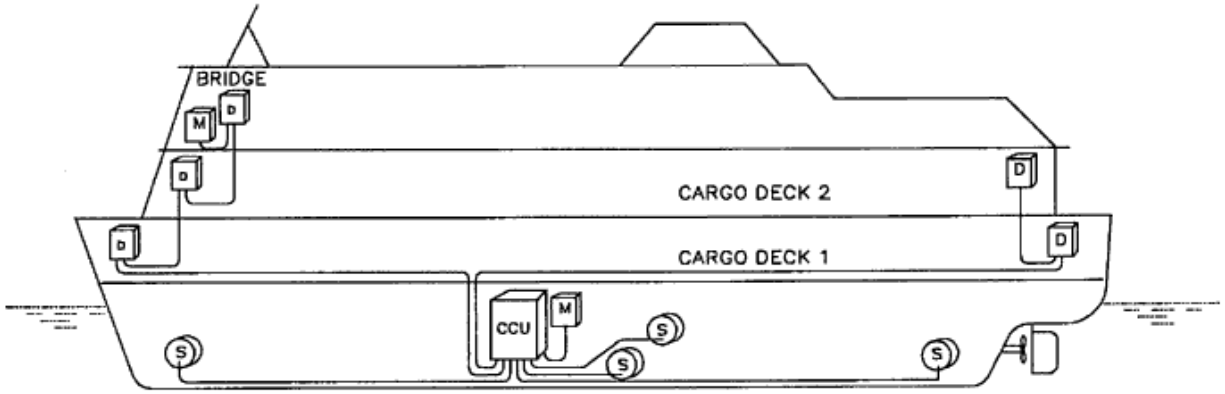
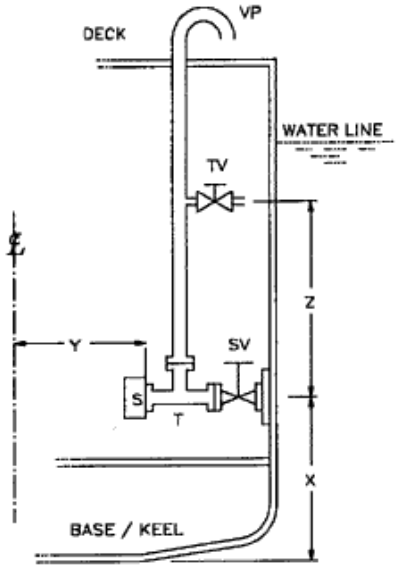
DRAUGHT INDICATOR – SENSOR INSTALLATION
ALTERNATIVE PIPEWORK ARRANGEMENTS

Drawn	Scale	Date
N.E.	N.T.S.	01/01/01

Drawing No. SB1205.01



DIAGRAMMATIC ARRANGEMENT OF DRAUGHT INDICATOR SYSTEM



DIAGRAMMATIC ARRANGEMENT OF PIPEWORK FOR SENSOR

KEY
- CCU CENTRAL CONTROL UNIT
- D DISPLAY UNIT
- S SENSOR ASSEMBLY
- M SINGLE PHASE 220V AC 50/60 Hz MAINS SUPPLY
- — 2 CORE SIGNAL CABLE. EACH PAIR INDIVIDUALLY SCREENED

NOTES.
- REFER TO DRAWING SB1205 FOR ALTERNATIVE PIPEWORK DETAILS
- REFER TO DRAWING SB1209 FOR DETAILS OF FLANGE AND SENSOR
- REFER TO DRAWING AA402 FOR ELECTRICAL DETAILS & CABLING
- SEE INSTALLATION INSTRUCTIONS FOR MORE INFORMATION

PIPEWORK & PIPE SIZES
- SEA VALVE & TEE PIECE
  - NOMINAL 2" (50mm) WITH TABLE 'F' FLANGES
- TEST VALVE & VENT PIPE
  - NOMINAL 1" (25mm)
  - VENT PIPE MUST RISE CONTINUOUSLY FROM TEST VALVE TO DECK LEVEL TO AVOID AIR LOCKS
  - TEST VALVE SHOULD NOT DISCHARGE OVER SENSOR

KEY
- S SENSOR
- T TEE PIECE
- SV SEA VALVE
- TV TEST VALVE
- VP VENT PIPE
- X SENSOR TO BASE/KEEL
- Y SENSOR TO CENTRE LINE
- Z DATUM CHECK HEIGHT

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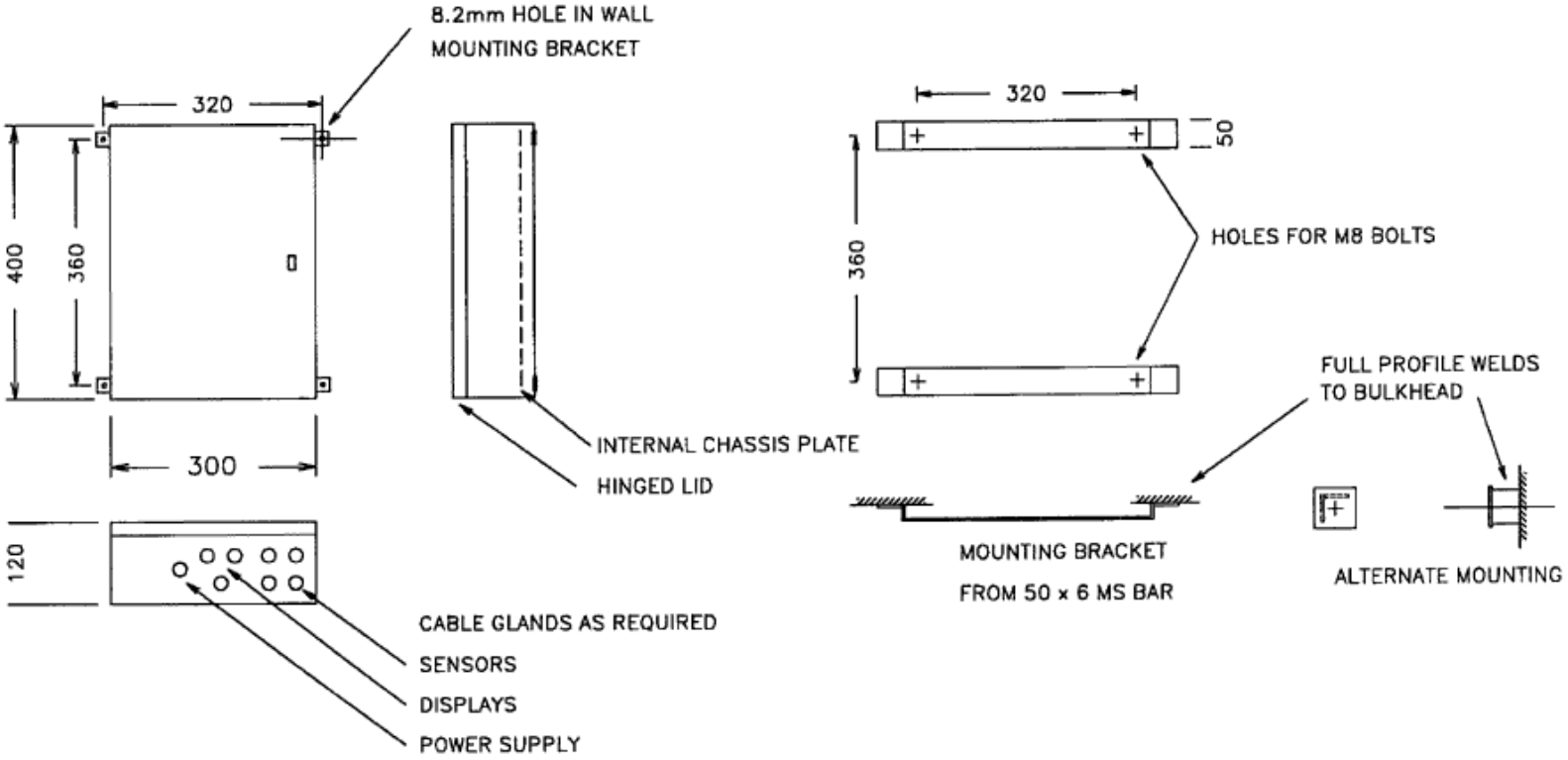
DRAUGHT INDICATOR SYSTEM
GENERAL ARRANGEMENT ON BOARD

Drawn	Scale	Date
N.E.	N.T.S.	01/01/01

Drawing No. SB1206—1



NOTE. ALLOW APPROX. 200mm CLEARANCE
BELOW CASE FOR CABLES

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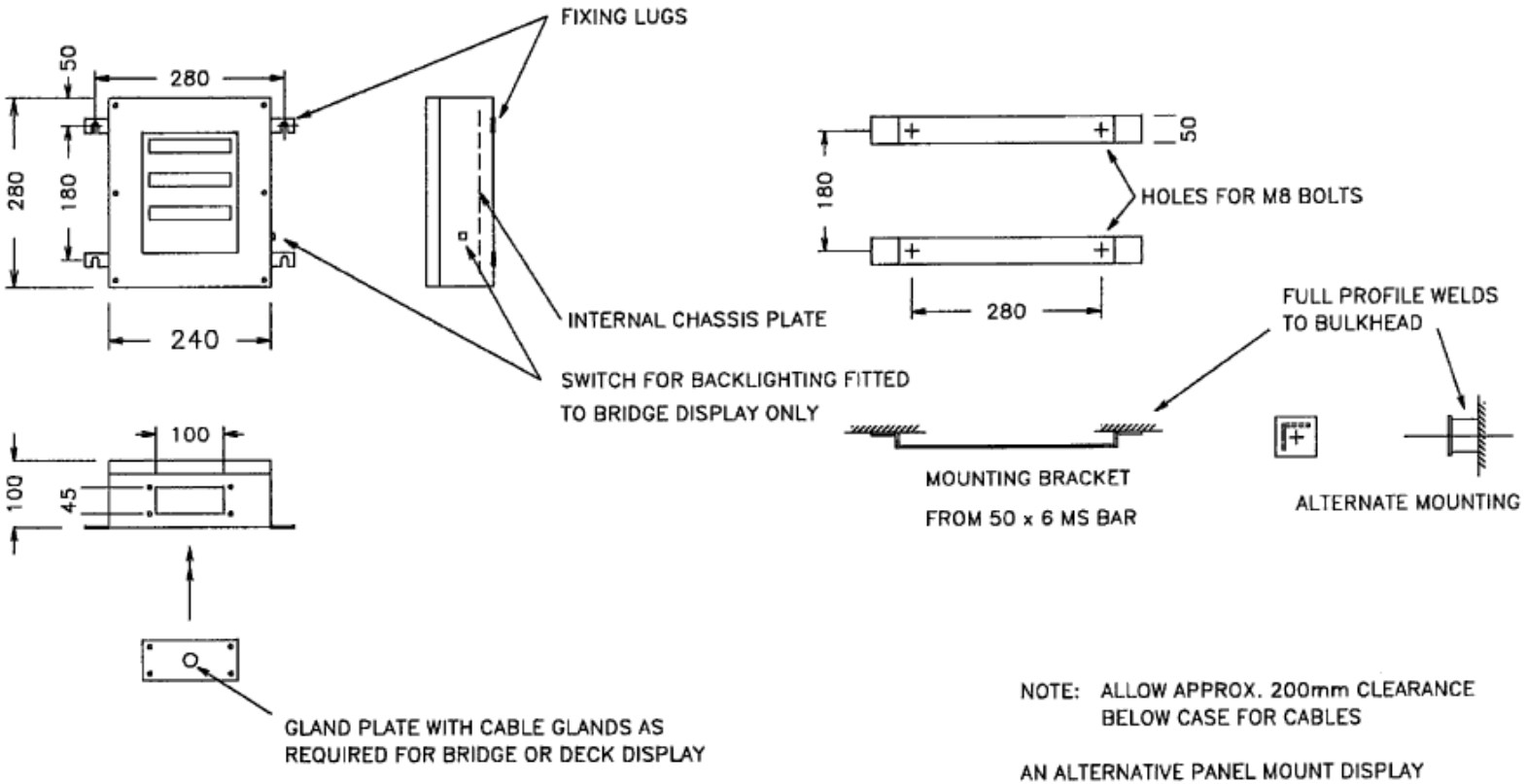
DRAUGHT INDICATOR SYSTEM Mk6

CENTRAL CONTROL UNIT

Drawn	Scale	Date
N.E.	N.T.S.	01/01/01

Drawing No. SB1207–5



NOTE: ALLOW APPROX. 200mm CLEARANCE BELOW CASE FOR CABLES

AN ALTERNATIVE PANEL MOUNT DISPLAY IS AVAILABLE – SEE DRG. No. SB1286

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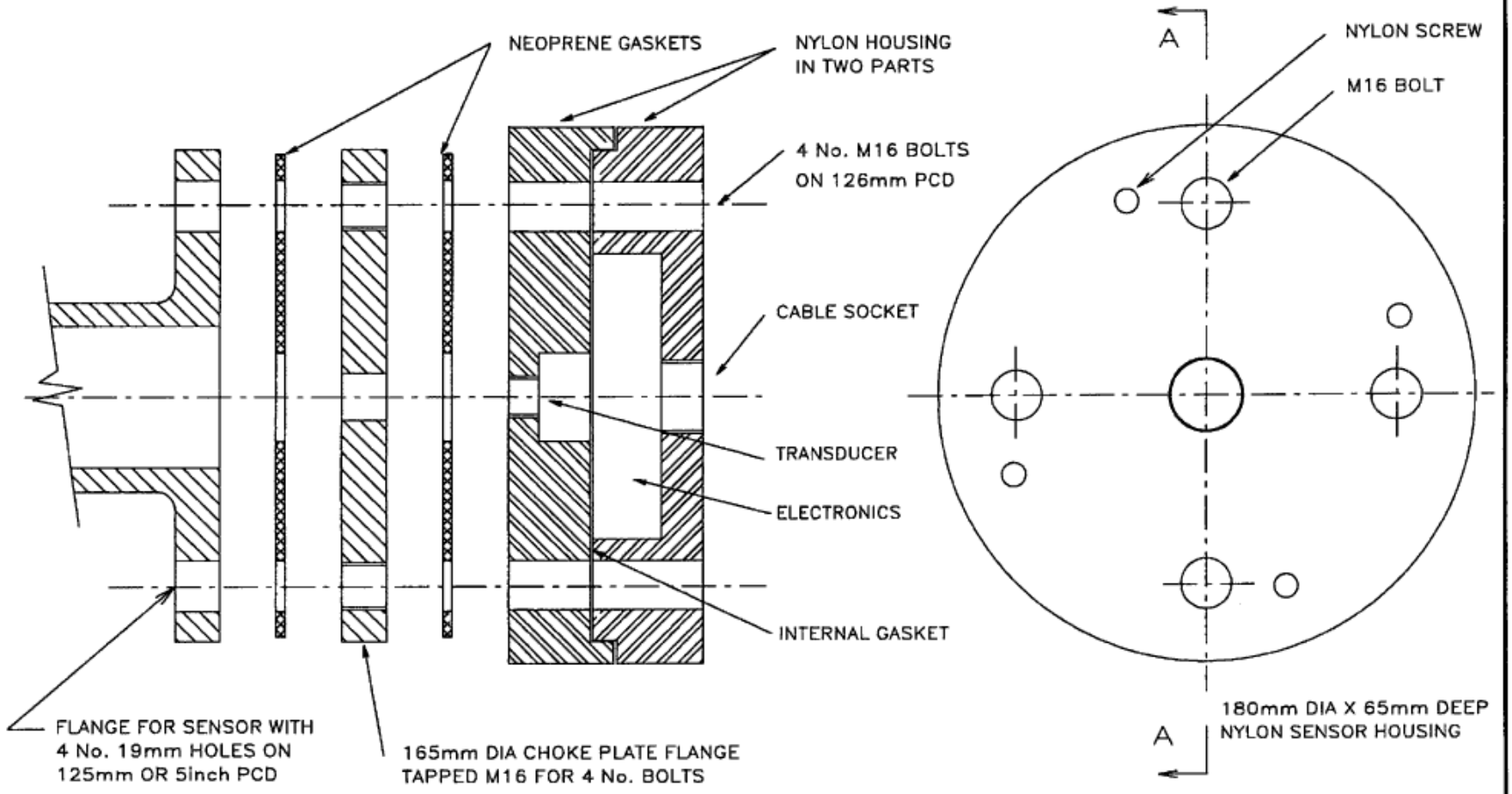
DRAUGHT INDICATOR SYSTEM

DECK & BRIDGE DISPLAY UNITS

Drawn	Scale	Date
N.E.	N.T.S.	01/01/01

Drawing No. SB1208–3



EXPANDED SECTION A–A

FACE OF SENSOR

NOTE. SENSOR MUST BE FIXED TO A VERTICAL FLANGE. VALVES MUST NOT COMPRESS WATER BETWEEN VALVE & SENSOR

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DRAUGHT INDICATOR SYSTEM

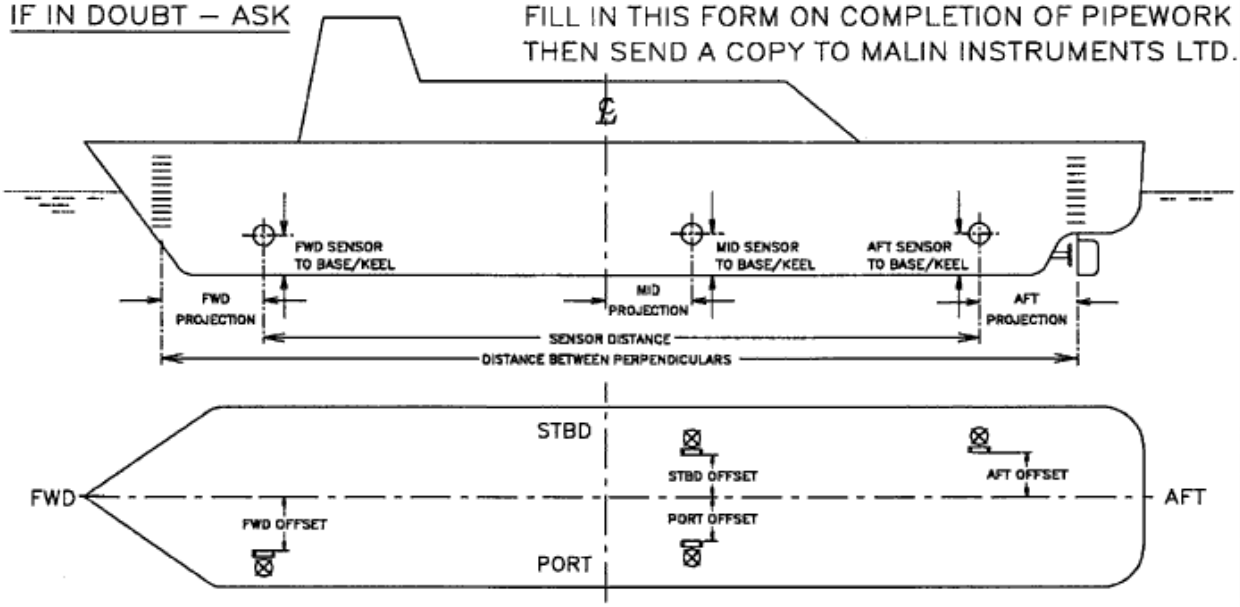
NYLON SENSOR ASSEMBLY

Drawn	Scale	Date
N.E.	N.T.S.	01/01/01

Drawing No. SB1209.02

IF IN DOUBT – ASK

FILL IN THIS FORM ON COMPLETION OF PIPEWORK
THEN SEND A COPY TO MALIN INSTRUMENTS LTD.



SENSOR LOCATION MEASURED IN METRES & CENTIMETRES

(* Delete as appropriate)

Forward and Aft sensors should be within ¼ of the ship's length longitudinally from the marks.

Port and Starboard sensors should be within 1/8 of the ship's length longitudinally from the centre line and mid ship marks. They may be either forward or aft of the centre line and need not be at the same frame.

Forward and Aft sensors should preferably be close to the centre line, Port and Starboard sensors should preferably be close to the sides of the ship.

It is the position of the flanged sensor, not the hull penetration that determines the reading.

Tolerances

Sensor to keel	± 0.01m #
Projections & Offsets	± 0.10m
Sensor distance	± 0.50m

This determines the initial accuracy.

If the sensors are not mounted according to the standard details, please supply an orientation drawing and dimensioned details.

The standard readout is in Metres compensated for sea water and calibrated to show the draught at the marks and at the centre line.

MEASURE TO CENTRE OF FLANGE

Sensor to Base/Keel

Mid	Fwd	----------	m.
	Port	----------	m.
	Stbd	----------	m.
	Aft	----------	m.

Projections

Mid	Fwd	----------	m.	* Fwd/Aft of Marks
	Port	----------	m.	* Fwd/Aft of ℄ Mark
	Stbd	----------	m.	* Fwd/Aft of ℄ Mark
	Aft	----------	m.	* Fwd/Aft of Marks

MEASURE TO FACE OF FLANGE

Offsets

Mid	Fwd	----------	m.	* Port/Stbd of Long. ℄
	Port	----------	m.	Port of Longitudinal ℄
	Stbd	----------	m.	Stbd of Longitudinal ℄
	Aft	----------	m.	* Port/Stbd of Long. ℄

Maximum Midship Draught

Loading Condition C1	----------	m.
Loading Condition C2	----------	m.
Light Ship Draught	----------	m.
Midships Breadth Moulded	----------	m.
Distance between Perpendiculars	----------	m.
Distance from Fwd to Aft Sensor	----------	m.
Tonnes per cm. at Max Draught	----------	

MALIN INSTRUMENTS LTD 9E SWAINS MILL, CRANE MEAD WARE, HERTFORDSHIRE SG12 9PY PHONE 01920 469269 FAX 01920 469600	DRAUGHT INDICATOR SENSOR LOCATION AND SHIP'S DATA	SHIP CLIENT	
Drawn N.E.	Scale N.T.S.	Date 01/01/01	Drawing No. SB1204.02