JROMAG MAGNETOMETER FIELD CANCELLATION SYSTEM

The cancellation circuit has been revised and redesigned, separating it from the conditioning card into a separate board that includes the reference IC, the H and Z range selectors, temperature sensor

Characteristics:

- Allow mounting close to front panel fine-tuning potentiometers
- Use of a high-stability voltage reference IC
- Selection of high thermal stability components, resistors and DIP Switch type selectors of high quality and mechanical reliability.

The parts that are included in the new design are described (Fig.1) .

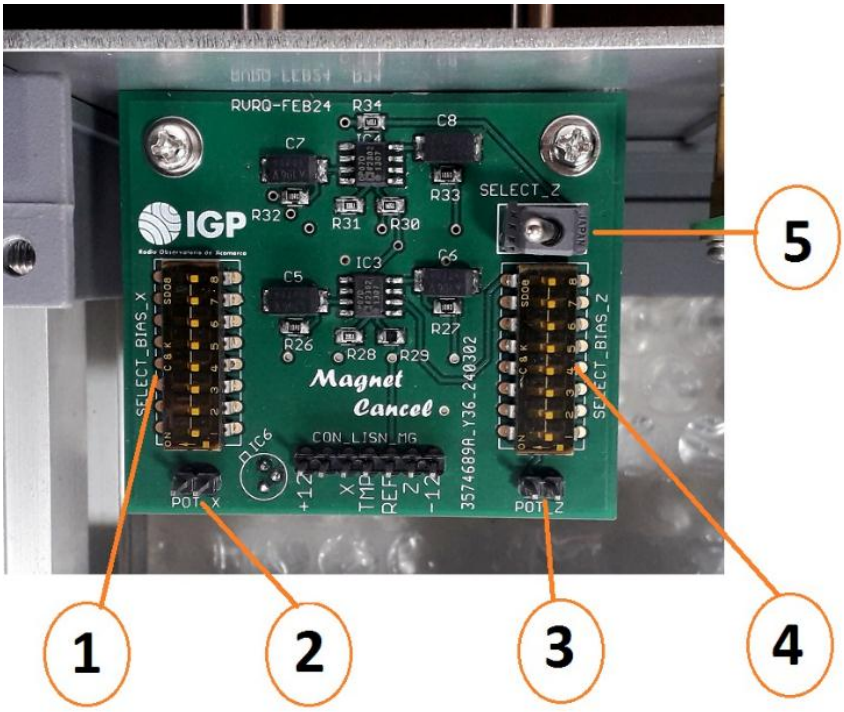

Fig. 1. *Internal view of the cancellation card showing 1). Range selector DIP switch for H, 2). H Potentiometer connector, 3). Z Potentiometer connector, 4). Z range selector DIP switch, 5). Z polarity switch.*

FIELD CANCELLATION SETTINGS FOR BOSTON SITE

IGRF MAGNETIC FIELD ESTIMATED COMPONENTS VALUES

Link:

https://www.ngdc.noaa.gov/geomag/calculators/magcalc.shtml?useFullSite=true#igrfwmm

Site coordinates:

Lat : 40° 20’ 30.64” N

Lon : 71° 11’ 38.66” W

Elevation : 200m seal level

```
#################################################################
#            BOSTON Magnetic Field Components
#################################################################
#
#     (1) Date in decimal years
#     (2) Declination in decimal degrees
#     (3) Inclination in decimal degrees
#     (4) Horintensity in nanoTesla (nT)
#     (5) Totalintensity in nanoTesla (nT)
#     (6) Xcomponent in nanoTesla (nT)
#     (7) Ycomponent in nanoTesla (nT)
#     (8) Zcomponent in nanoTesla (nT)
#
#   Magnetic Model: IGRF2025 (calculator version 1.2.1)
#   Elevation: 0.20000 km Mean Sea Level
#   Latitude: 40.34194 degrees, Longitude: -71.19417 degrees
#################################################################
```

Date : 2025.34795
Declination : -13.61391 Deg
Inclination : 64.71721 Deg
Horizontal Intensity : 21467.0 nT
Total Intensity : 50263.8 nT
X Component : 20863.8 nT
Y Component : -5052.9 nT
Z Component : 45449.0 nT

MAGNETOMETER CANCELLING SETTINGS

X COMPONENT CANCELLING PROCEDURE

1. Open control unit top cover as indicated in the operation manual
2. Select panel display channel selector to X position
3. Fix the DIP switch position 1 to off as shown the Fig 2 red circle
4. Rotate the X panel dial knob until get almost cero reading output as shown in Fig. 4

Fig. 2. *X component DIP switch view for cancelling 21467nT local estimated value.*

Z COMPONENT CANCELLING PROCEDURE

1. Select panel display channel selector to Z position
2. Fix the DIP switch position 1,2,3 to off as shown in the Fig 3 red circle
3. Rotate the Z panel dial knob until get almost cero reading output as shown in Fig 4.

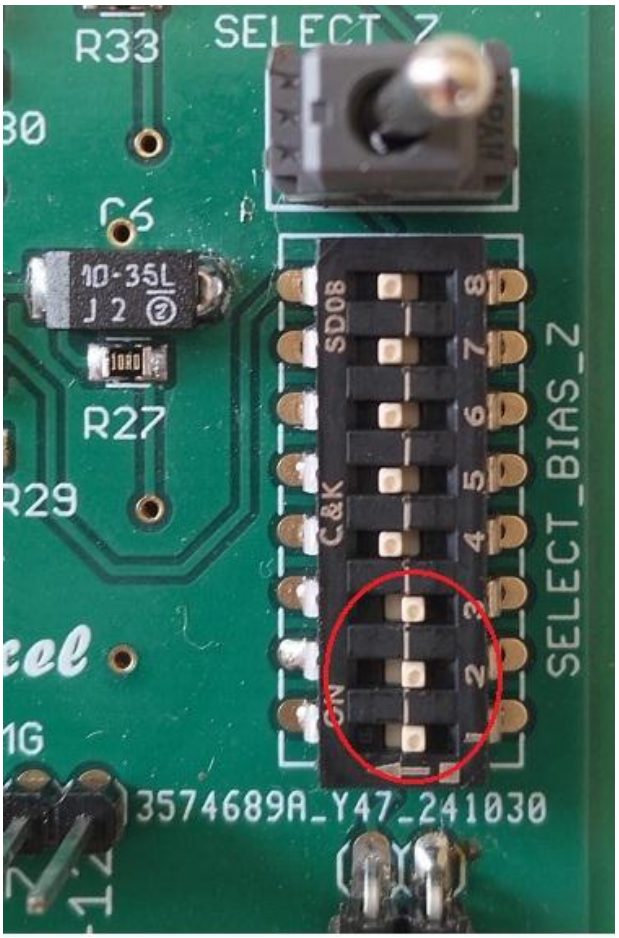

Fig. 3. *Z component DIP switch view for cancelling 45450nT estimated local value.*

PANEL FINE DIAL CERO SETTINGS

Fig. 4. *Approximately dial settings for H and Z components*