ISR-MA/KNH/rh

14th June 1971

ISR RUNNING-IN

Run 66 - 7 June 1971 - 17.30 to 21.00 h

Ring 2 - 22 GeV - 4 bunches

Working line studies

1. Bare machine

Sextupole corrections of $\Delta G'L_F = 11.9$ T/m and $\Delta G'L_D = 34.7$ T/m were added in order to reduce to a minimum the variation of the Q values with particle momentum. This exercise simplifies the calculation of the PFW current distribution for the creation of constant Q values, and thus straight working lines. The applied PFW currents and the measured values of Q are shown in Fig. 1. A beam loss of 13 % was observed when the resonance $5 Q_H = 44$ was crossed at 0.3 cm/sec.

2. Line FATA

The measurement was repeated at FATA $\left(\Delta GL_F = -10.69 \text{ T}; \right.$ $\Delta GL_D = -6.89$ T) with the sextupole corrections $\Delta G'L_F = 2.9$ T/m and $\Delta G'L_D = 54.0$ T/m since the PFW currents for straightening the working line are different from those for the bare machine case. The applied PFW currents and the measured values of Q are shown in Fig. 2. A 15 % beam loss was observed when crossing the resonance $5 Q_V = 43$ at 0.3 cm/sec.

K.N. Henrichsen

Distribution:

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RING 2:

22GeV/c ; $\Delta G^2 L_F = 11.9$ T/m ; $\Delta G^2 L_D = 34.9$ T/m

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/XOUT(XLIS,R2,PF)
/ PF
   2PFF1      -7.23      2PFF2      -2.78      2PFF3      -1.10
   2PFF4      -0.88      2PFF5      -0.59      2PFF6      -0.27
   2PFF7      +0.27      2PFF8      +0.76      2PFF9      +1.03
   2PFF10     +0.76      2PFF11     +0.90      2PFF12     +1.81
   2PFD1     -21.92      2PFD2      -8.20      2PFD3      -3.03
   2PFD4      -2.27      2PFD5      -1.59      2PFD6      -0.63
   2PFD7      +0.78      2PFD8      +2.27      2PFD9      +3.00
   2PFD10     +2.15      2PFD11     +2.56      2PFD12     +5.49
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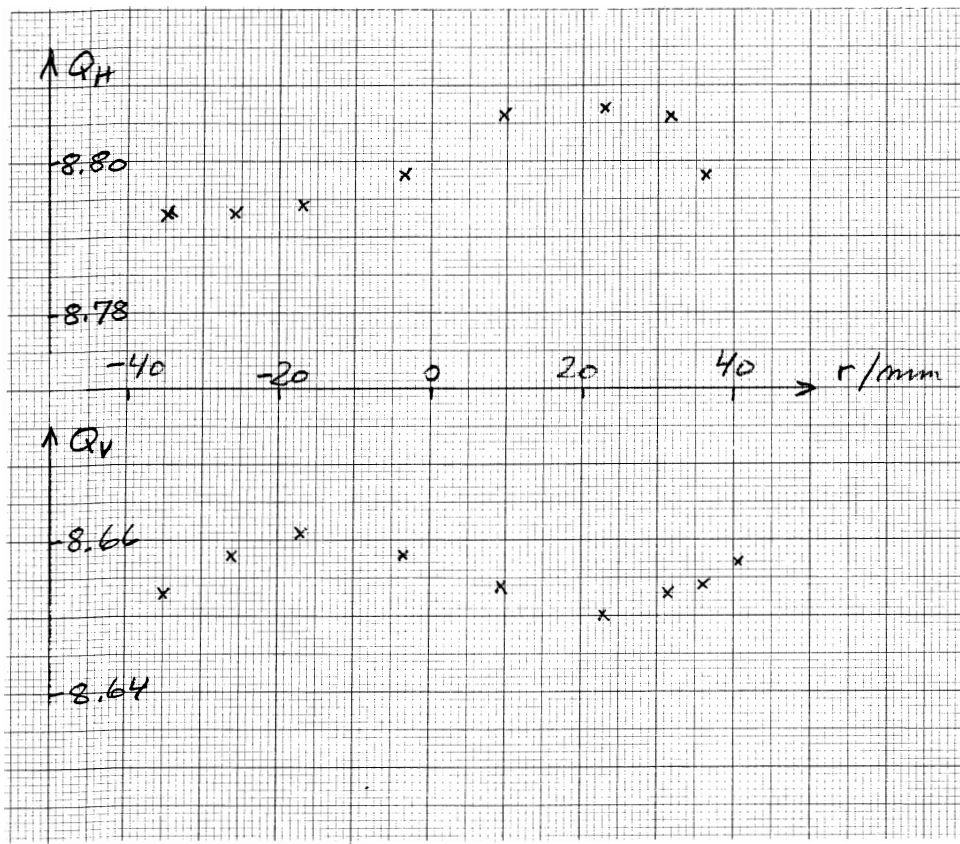

FIG. 1.

RING 2:
22 GeV/c ; ΔGL_F = -10.69 T ; ΔGL_D = -6.89 T

```
/XOUT(XLIS,R2,PF)
/ PF
   2PFF1    -67.72        2PFF2    -32.18        2PFF3    -18.70
   2PFF4    -23.24        2PFF5    -22.85        2PFF6    -21.92
   2PFF7    -19.09        2PFF8    -15.92        2PFF9    -13.87
   2PFF10    -9.30        2PFF11    -9.35        2PFF12    -5.13
   2PFD1    -47.31        2PFD2    -21.63        2PFD3    -12.23
   2PFD4    -15.04        2PFD5    -14.92        2PFD6    -14.23
   2PFD7    -12.43        2PFD8    -10.33        2PFD9     -9.11
   2PFD10    -6.40        2PFD11    -6.47        2PFD12    -3.15
/ END OF DATA
```

+ ΔG'L_F = 2.9 T/m ; ΔG'L_D = 54.0 T/m

```
/XOUT(XLIS,R2,PF)
/ PF
   2PFF1    -69.51        2PFF2    -32.86        2PFF3    -18.99
   2PFF4    -23.44        2PFF5    -23.00        2PFF6    -21.97
   2PFF7    -19.04        2PFF8    -15.77        2PFF9    -13.60
   2PFF10    -9.11        2PFF11    -9.16        2PFF12    -4.69
   2PFD1    -81.37        2PFD2    -34.45        2PFD3    -16.87
   2PFD4    -18.53        2PFD5    -17.33        2PFD6    -15.33
   2PFD7    -11.23        2PFD8     -6.88        2PFD9     -4.35
   2PFD10    -3.10        2PFD11    -2.47        2PFD12    +5.35
/ END OF DATA
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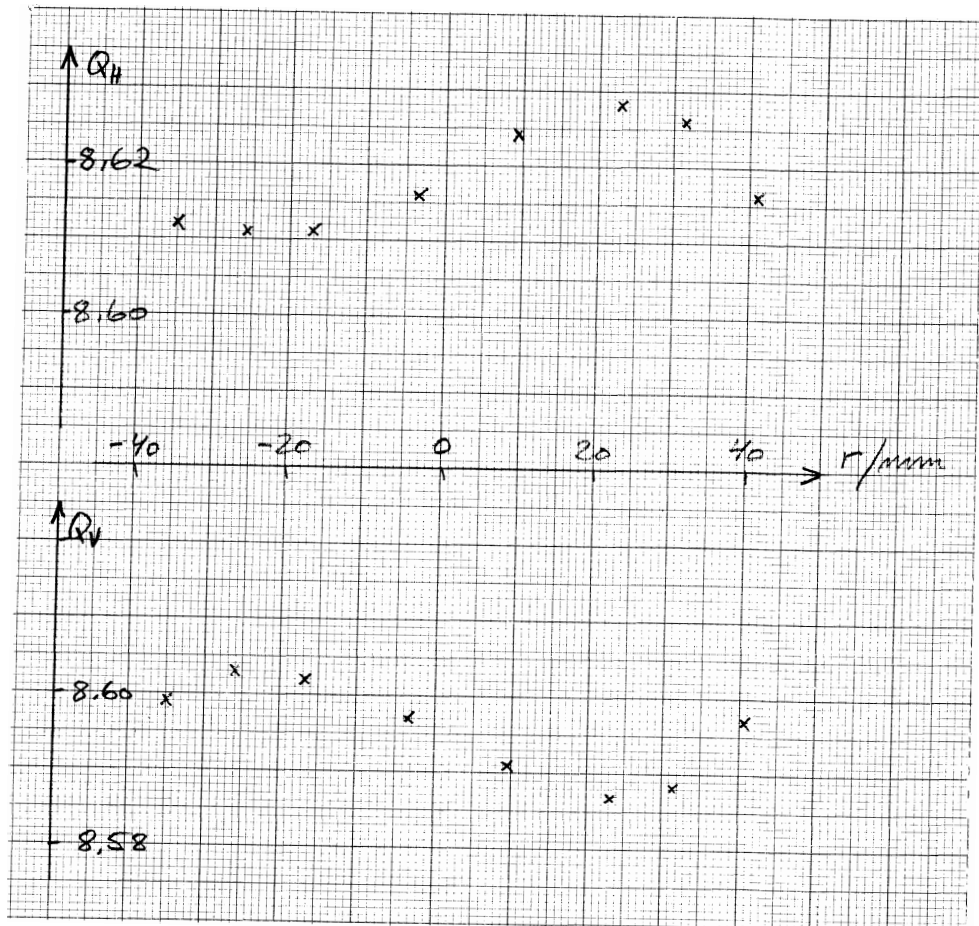

FIG. 2.