

1

1.1

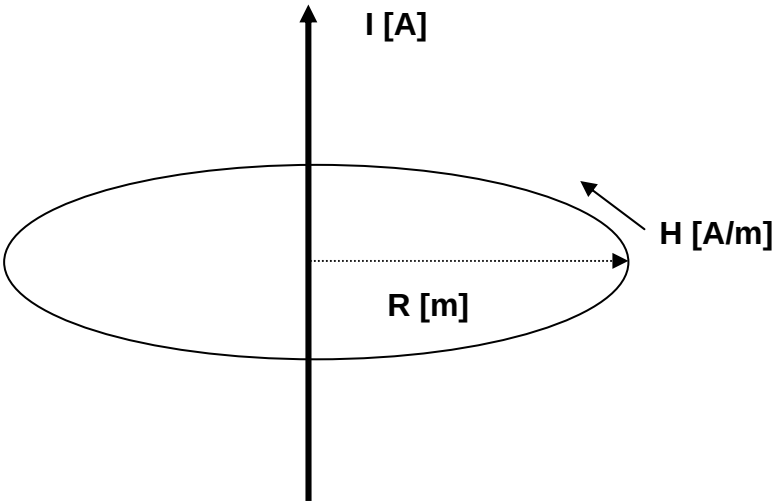
1820 Oersted Volta On / Off
가 가

1830 Ampere

Ampere (Circuital Law) 가

$$\int H \bullet dL = I$$
$$2 \pi R \bullet H = I$$
$$\therefore I = \frac{I}{2 \pi R} [A / m]$$

4 가



[Ampere]

Ampere 가 Faraday 가 가
(Electro-Magnetic Induction) .
가 가 가
가 .
가 .

$$V = \frac{d \Phi}{dt} [V]$$

Φ (: Magnetic Flux Intensity) .

가

.

,

.

가

(Dynamic Electro - motive Force)

(Static Electro - motive Force) .

Lentz (-) Faraday 가

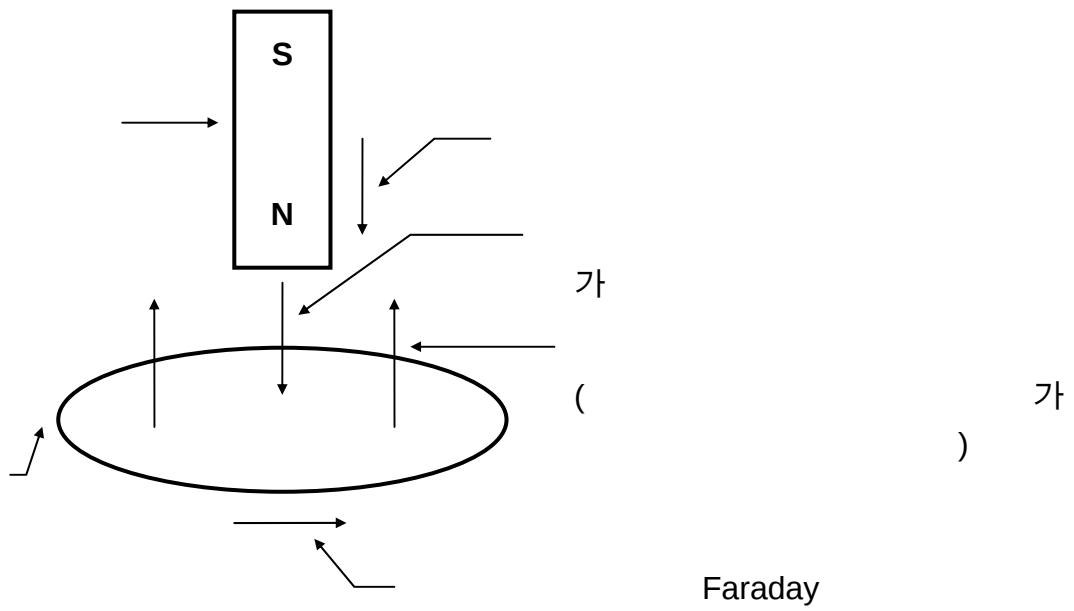
.

$$V = - \frac{d \Phi}{dt} [V]$$

.

.

.



[Faraday & Lentz]

Fleming

Faraday

Motor
(

)

Fleming

$$V = v \bullet B \bullet L[V]$$

$$F = I \bullet B \bullet L[N]$$

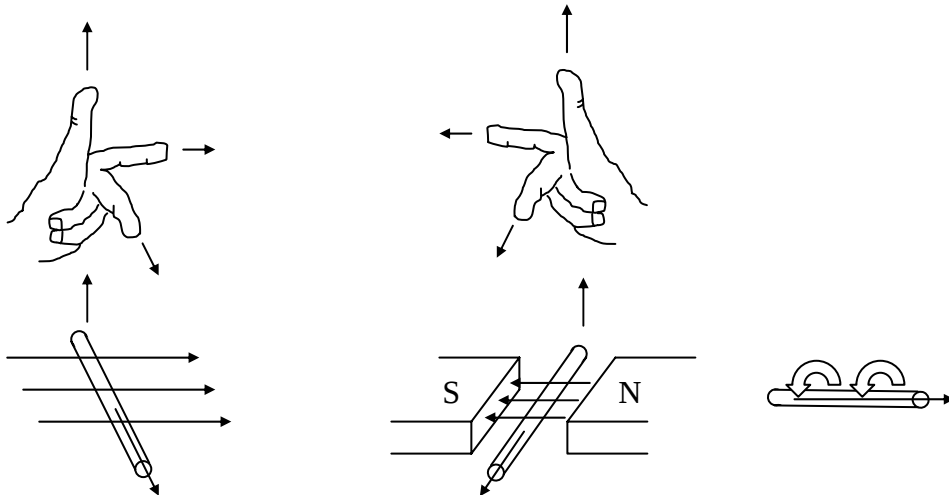
V & F: [M] & [N]

$$I: \quad [A]$$

B : 가 [Wb/m²]

$$L: \quad (\quad , \quad) \text{ [m]}$$

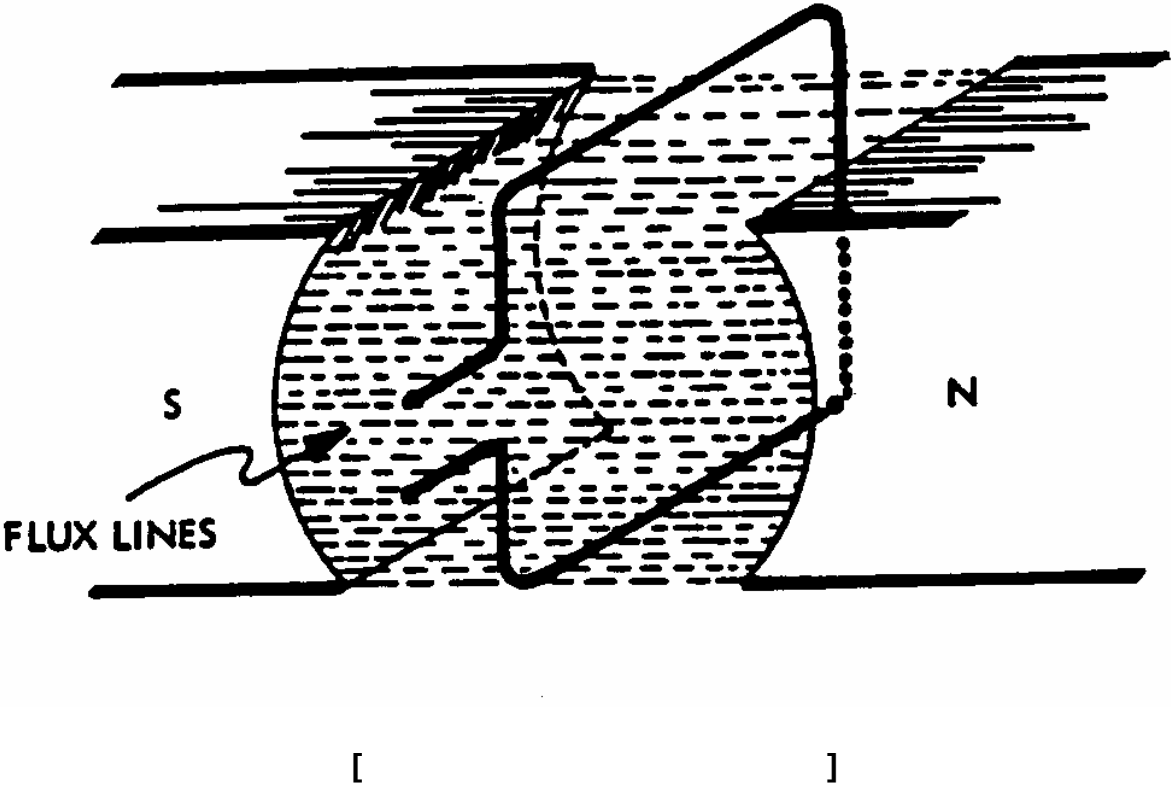
v : [m/s]



[Fleming]

1.2

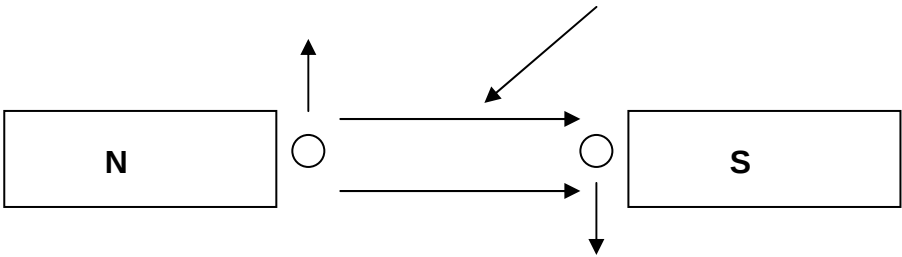
Fleming



가

가

가



가

N 가 , S

가 .

가

.

가

가 가

가 가

가 .

가

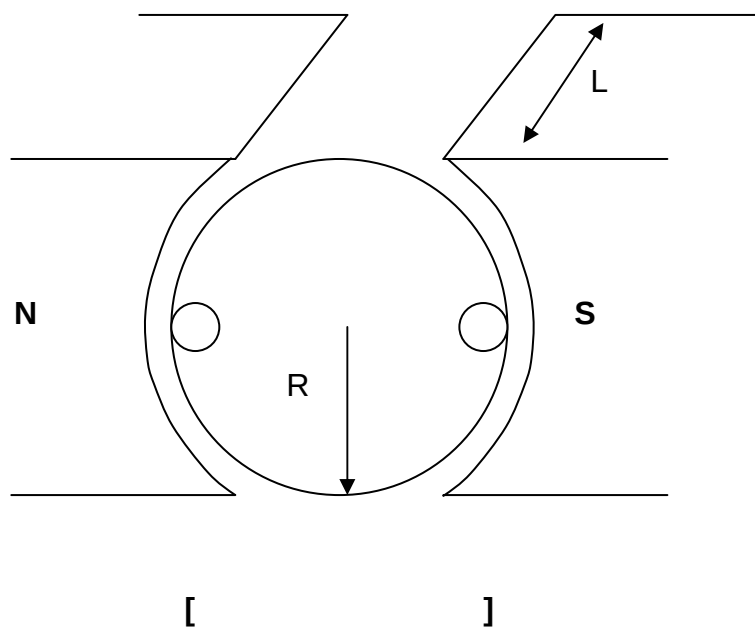
Load Shedding

.

1.4

가

가



$$\begin{aligned}
 V_{Mean} &= v \cdot B_{Mean} \cdot L \\
 &= \omega \cdot R \cdot B_{Mean} \cdot L \\
 &= 2\pi \cdot \frac{N \text{ [rpm]}}{60} \cdot R \cdot \frac{\Phi}{2\pi RL} \cdot L \\
 &= 2\pi \cdot \frac{2f}{P} \cdot R \cdot \frac{\Phi}{2\pi RL} \cdot L \\
 &= \frac{2f \cdot \Phi}{P} = 2f \cdot \Phi_p \text{ [V]}
 \end{aligned}$$

Φ_P

1

.

.

$$V = 4.44 K_w \bullet f \bullet \Phi_P \bullet w[V]$$

.

K_w : ()

W : Turn

.

Turn

Turn 가

.

Turn

Turn 가 가

가 .

.

2

가

2.1

(Stator)

(Armature core) (Armature winding)' (Frame)

(Rotor)

(Pole core), (Field winding), (Rotor yoke), (Shaft)

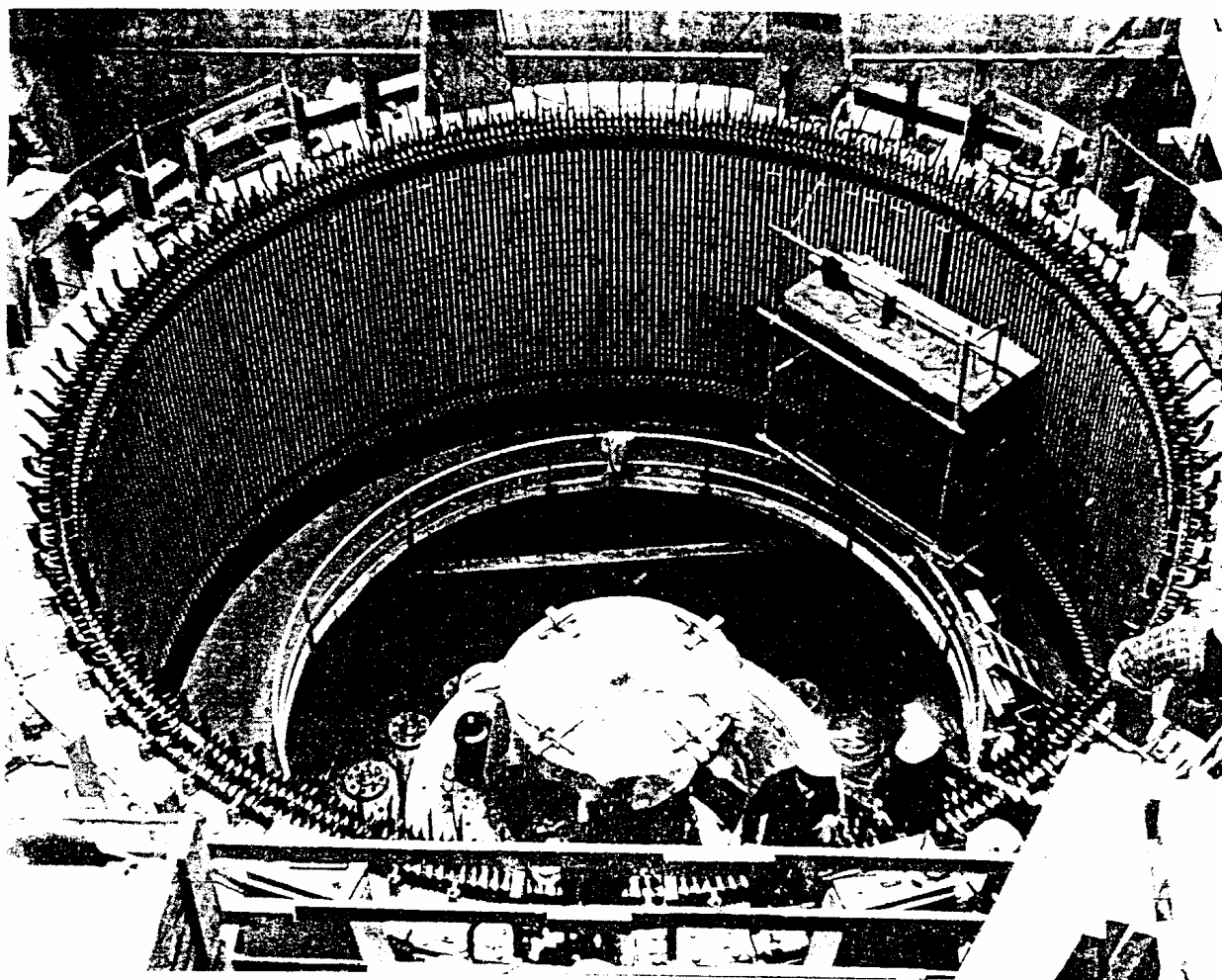
(Exciter)

(Bearing)

2.2

(Stator)

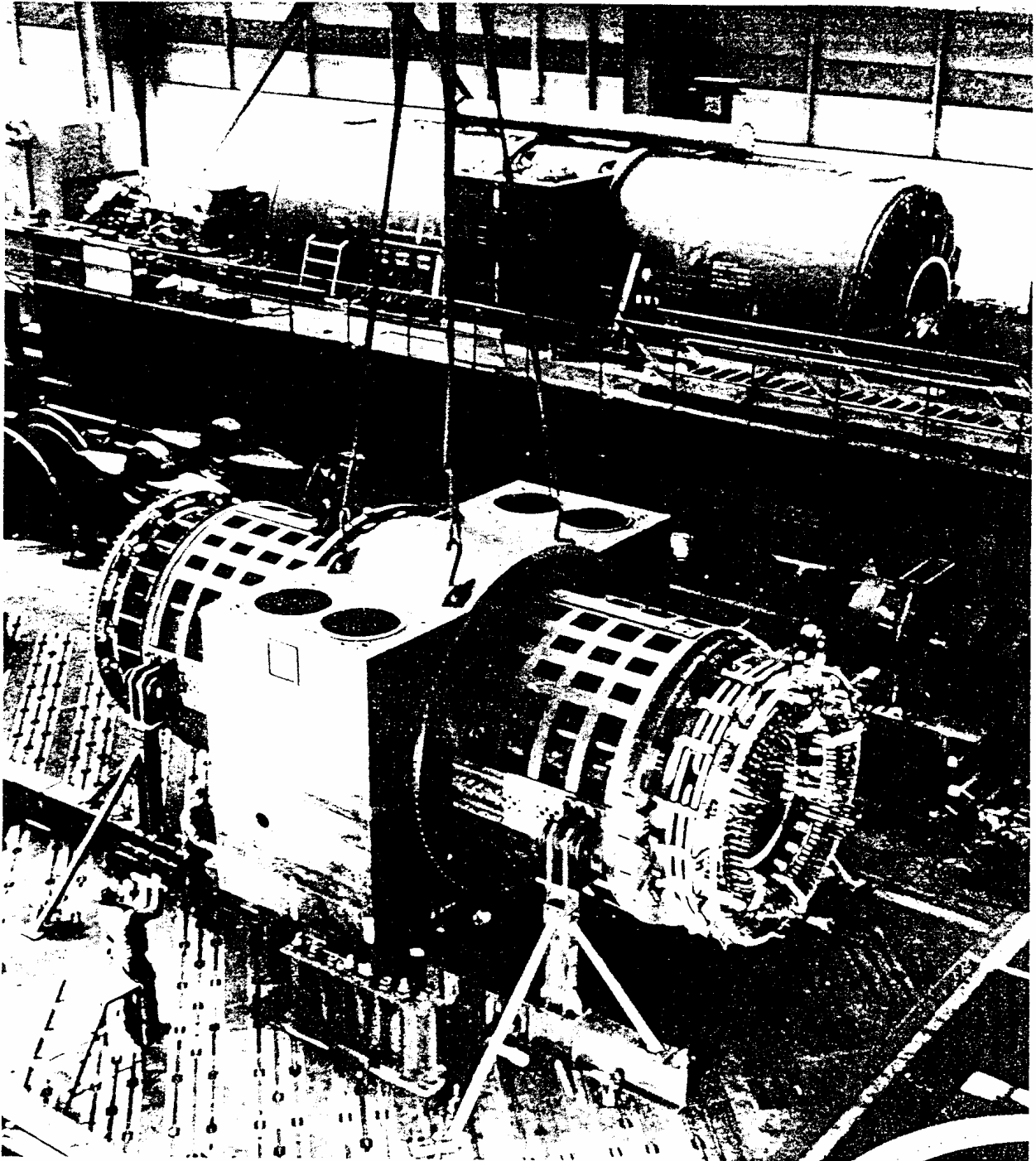
(Frame)



[

]

가



[

]

$$P = K \bullet D^2 \bullet L \bullet N [KVA]$$

K :

D : [m]

L : [m]

N : RPM

가

가

가

가

가

2.3

(Rotor)

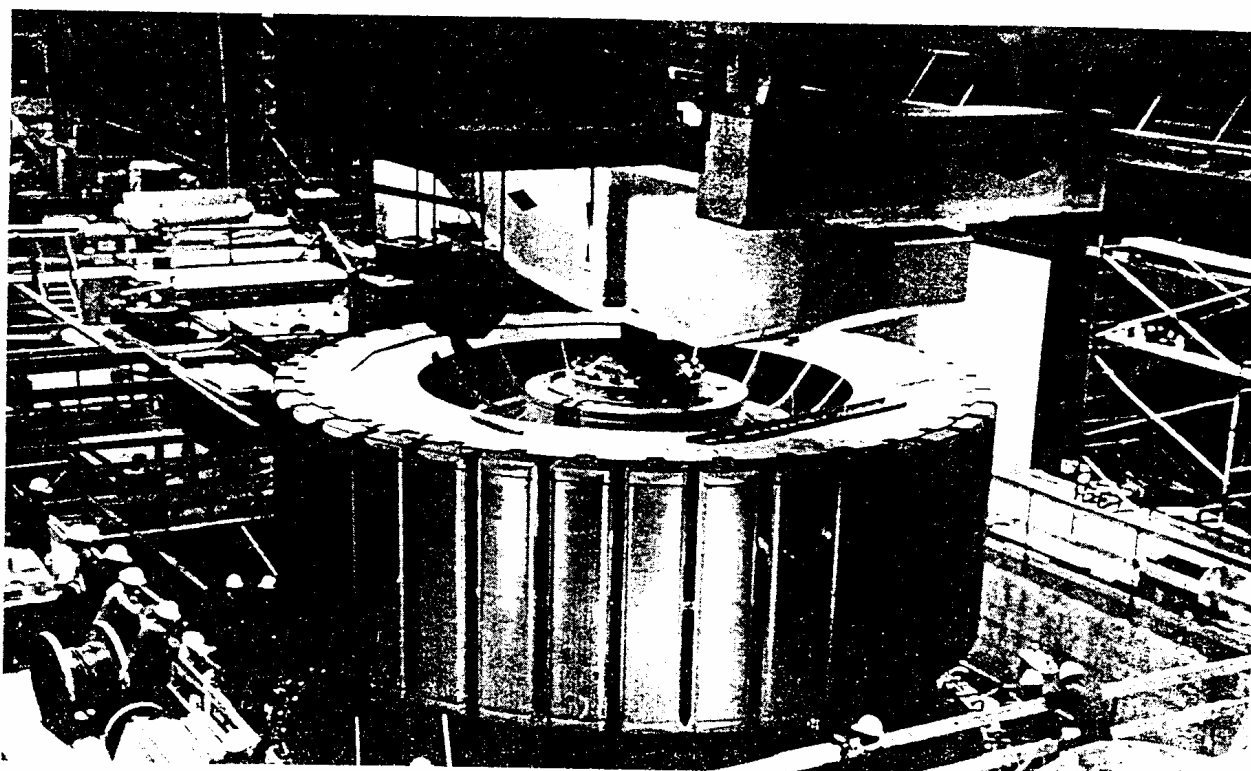


Figure 16-4

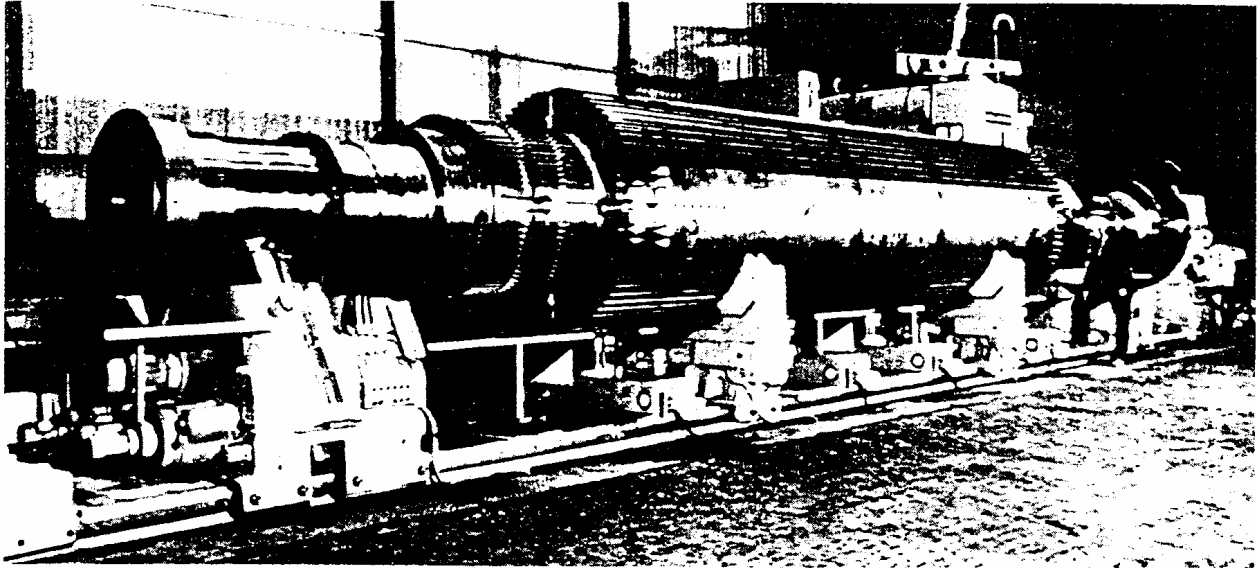
[]

가

가

가

300 ~ 400 [RPM]



[]

NEP Gas Turbine

Turbine 3600 [RPM] 가
1800 [RPM]

2.4 (Exciter)

Brush Type

Brushless Type

Brushless Type

Brushless Type

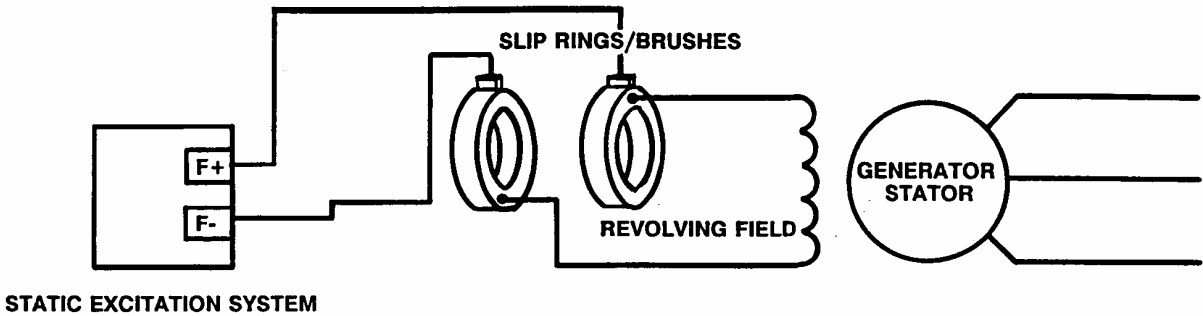


Figure 9: Slip Ring Generator

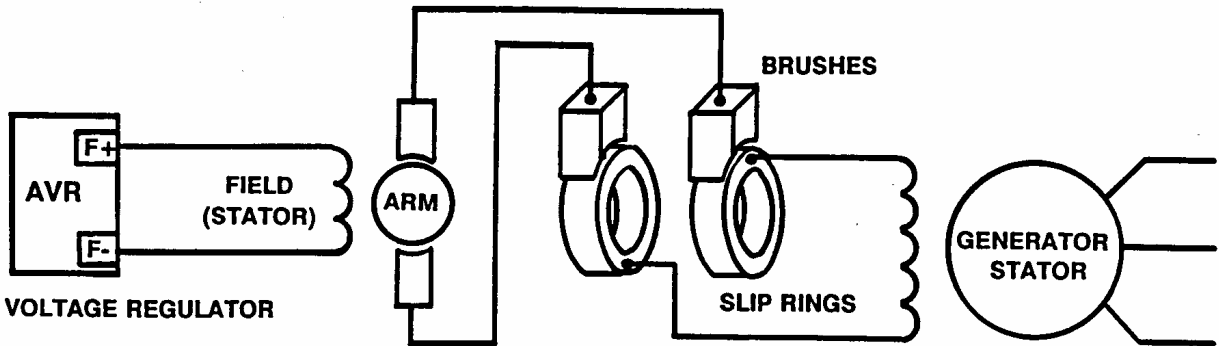


Figure 10: Rotary Excited, Brush-Type Generator

Brushless Type

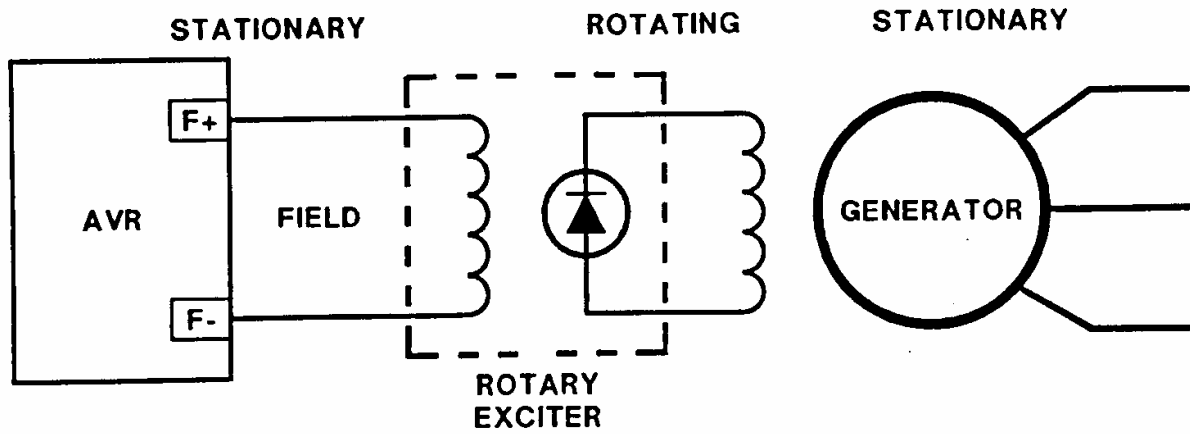
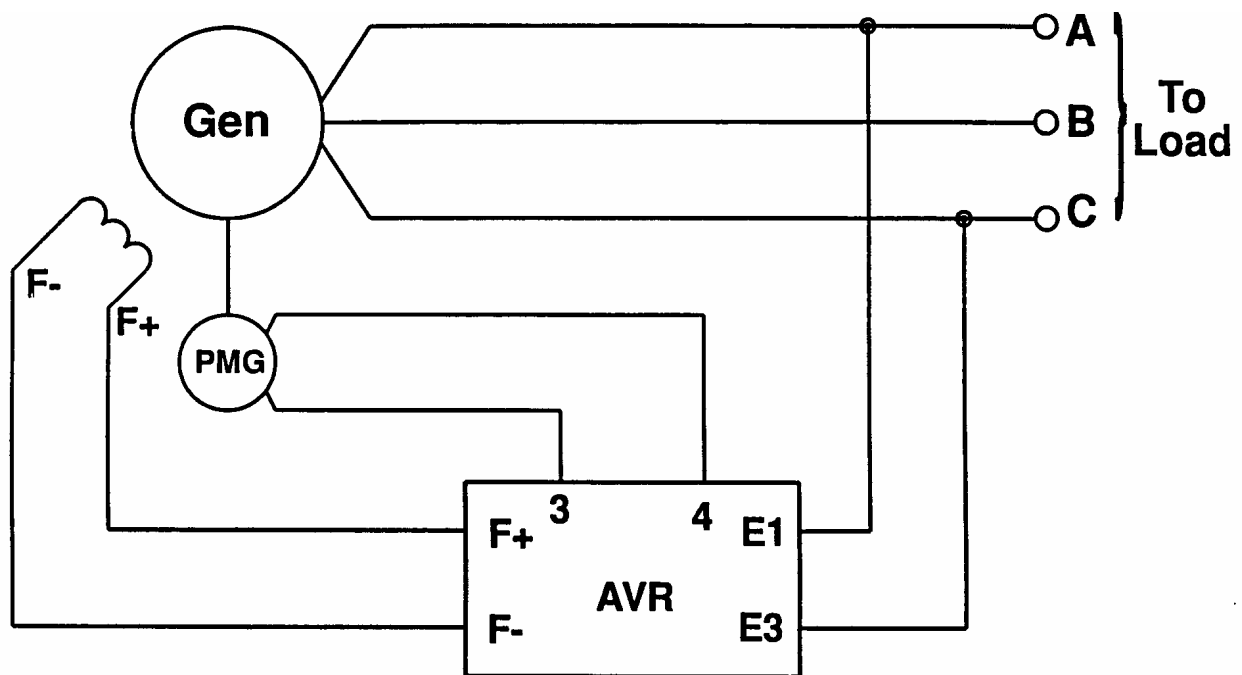
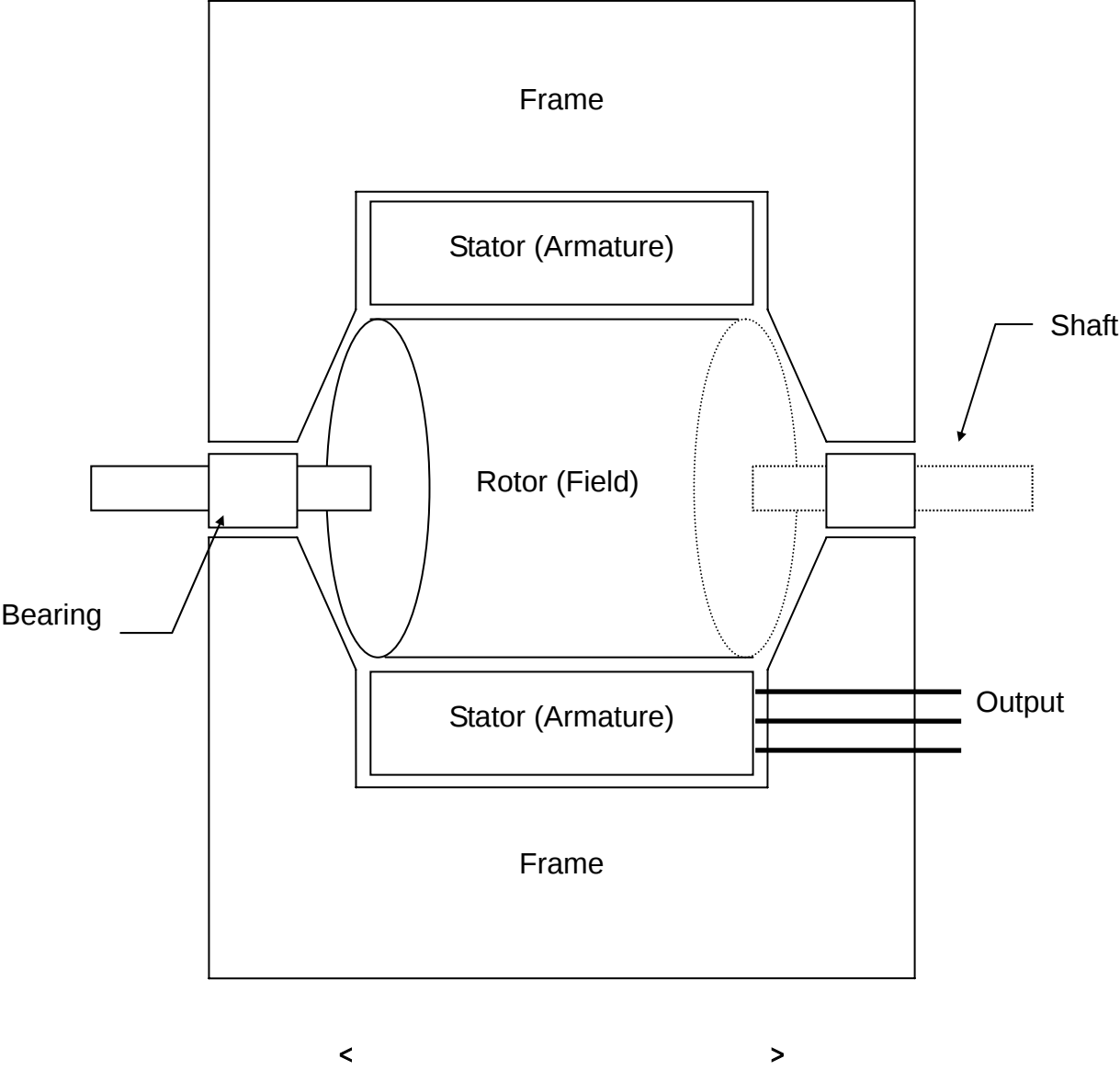


Figure 11



Typical PMG Generator Connection

AVR



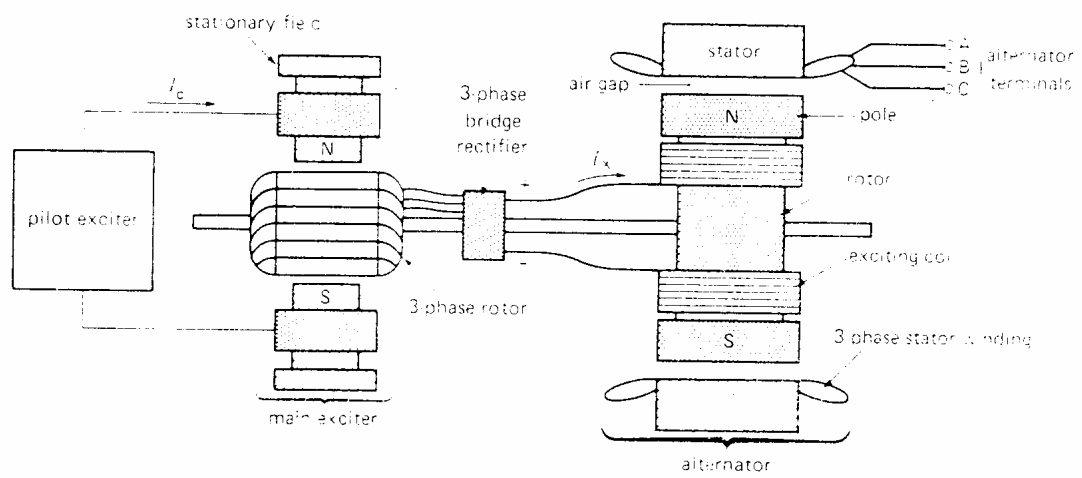


Figure 16-8
Typical brushless exciter system.

