

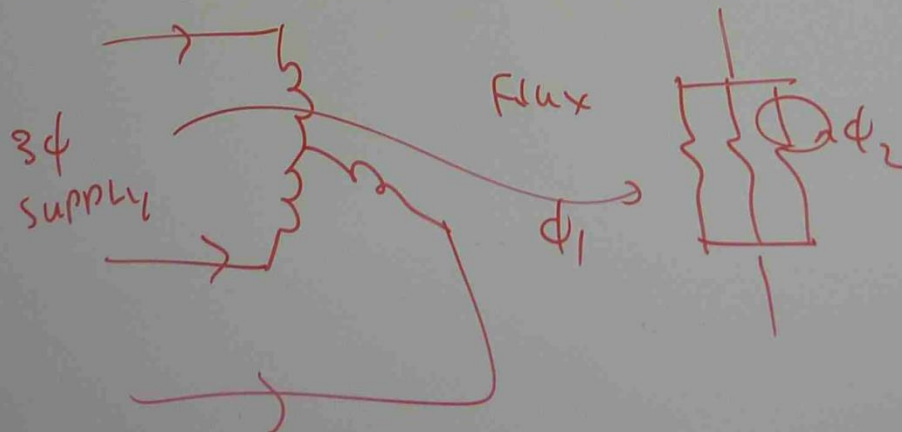
# SYNCHRONOUS MACHINE

## INDUCTION MACHINE

— SQUIRREL CAGE  
ROTOR

— WOUND ROTOR

- 3 $\phi$  SUPPLY TO STATOR
- STATOR PRODUCES MAGNETIC FLUX
- STATOR MAGNETIC FLUX INDUCES VOLTAGE AND CURRENT IN ROTOR
- ROTOR PRODUCES MAGNETIC FLUX
- INTERACTION BETWEEN STATOR AND ROTOR FLUXES
- TORQUE PRODUCED.



# SYNCHRONOUS MACHINE

Two Supplies

AC supply



3φ WINDING



Flux



Flux

INTERACT



Torque produced

DC supply



FIELD WINDING



CONSTRUCTION

CYLINDRICAL  
ROTOR MACHINE

3φ  
supply

SALIENT  
POLE  
MACHINE

# CONSTRUCTION

## SYNCHRONOUS MACHINE

Two Supplies

AC supply

DC supply

3 $\phi$  WINDING

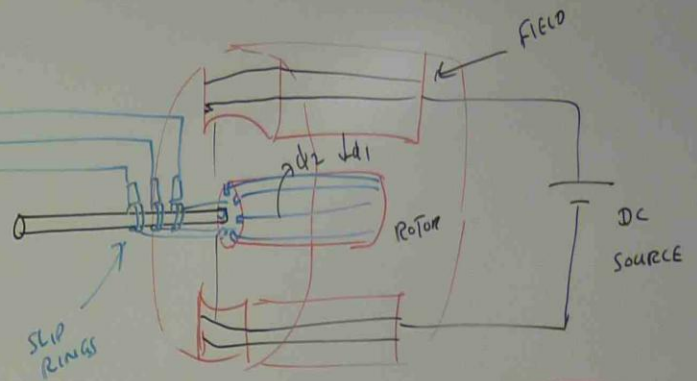
FIELD WINDING

Flux  $\rightarrow$  Flux  
INTERACT

Torque produced.

CYLINDRICAL  
ROTOR MACHINE

3 $\phi$  supply

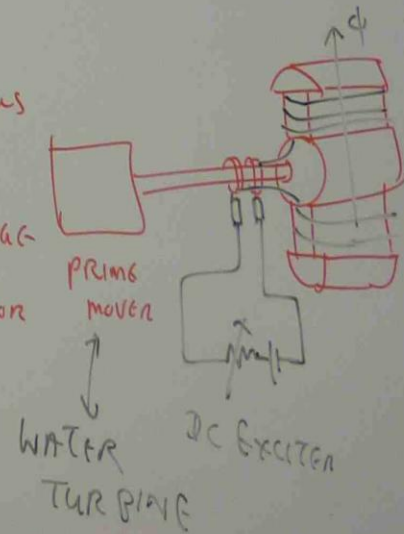


HIGH SPEED MACHINE

SYNCHRONOUS  
MOTOR

SALIENT  
POLE  
MACHINE

SYNCHRONOUS  
LOW SPEED  
HIGH VOLTAGE  
GENERATOR



3 $\phi$  WINDING

# CONSTRUCTION

CYLINDRICAL ROTOR MACHINE

3 $\phi$  SUPPLY

SLIP RINGS

HIGH SPEED MACHINE

FIELD

ROTOR

DC SOURCE

SYNCHRONOUS MOTOR

PRIME MOVER  
STEAM

TURBINE

SYNCHRONOUS GENERATOR

AC 3 $\phi$   
GENERATOR  
AC V

SALIENT POLE MACHINE

SYNCHRONOUS  
LOW SPEED  
HIGH VOLTAGE  
GENERATOR

PRIME MOVER

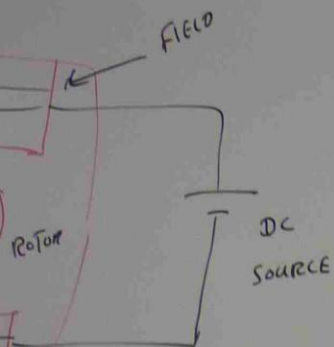
WATER  
TURBINE

DC EXCITER

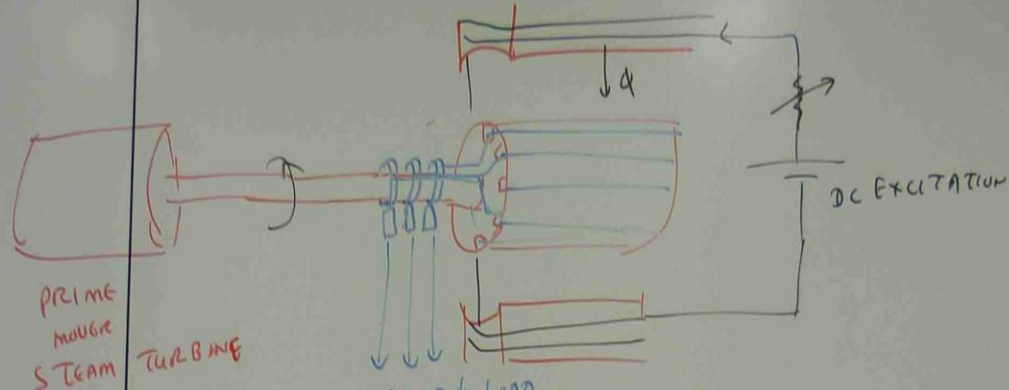
3 $\phi$  WINDING

3 $\phi$  GEN  
VOLTAGE



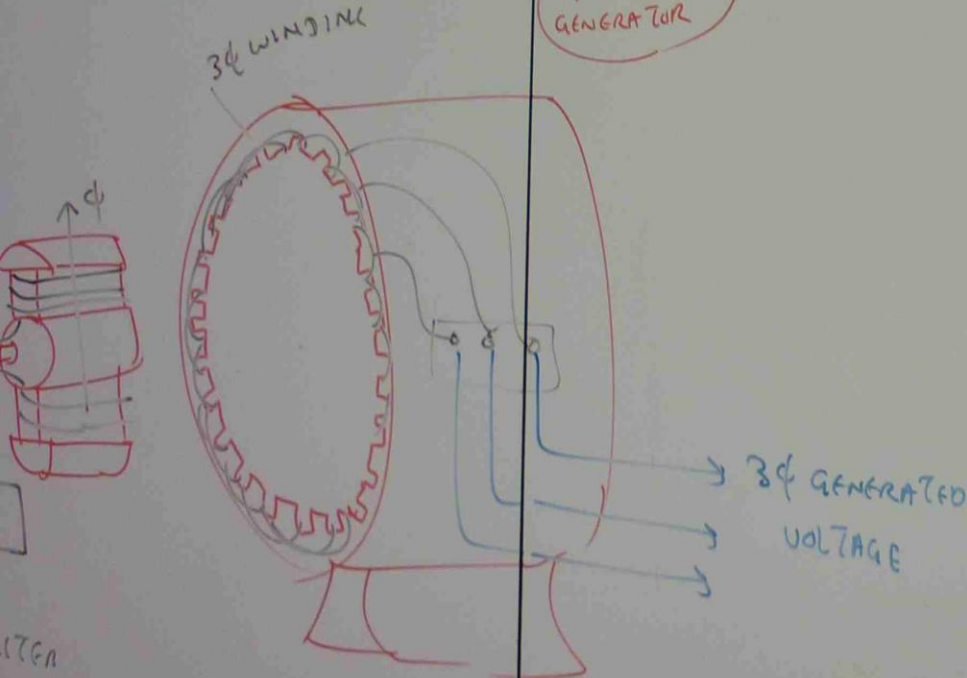


SYNCHRONOUS MOTOR

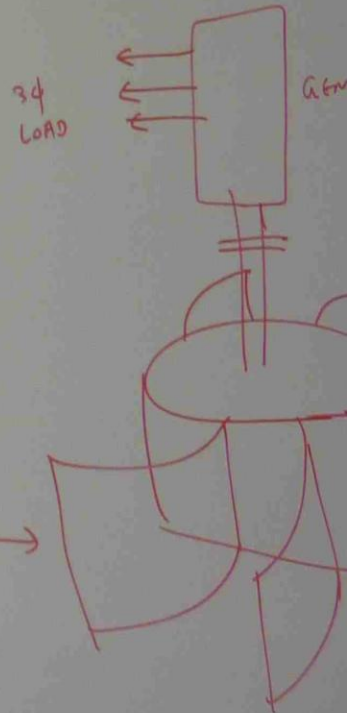


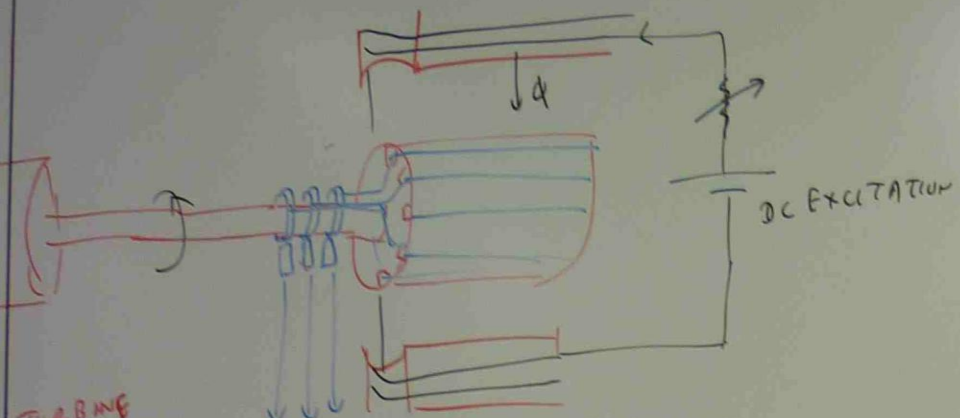
SYNCHRONOUS GENERATOR

STATIONARY FIELD  
REVOLVING VOLTAGE COIL  
HORIZONTAL TYPE



REVOLVING FIELD  
STATIONARY VOLTAGE COIL  
VERTICAL TYPE



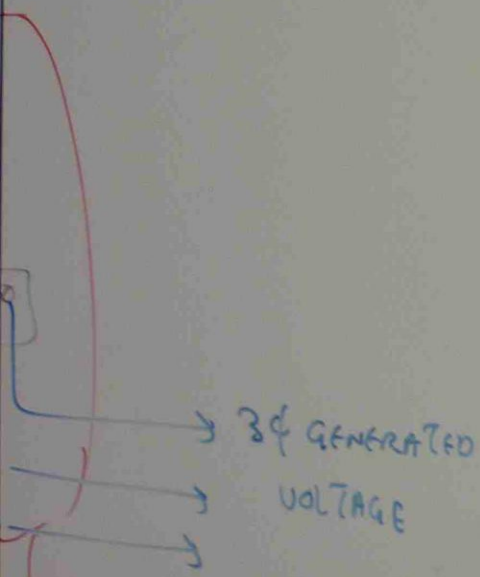


TURBINE

SYNCHRONOUS GENERATOR

AC 3 $\phi$  LOAD  
GENERATED  
AC VOLTAGE

STATIONARY FIELD  
REVOLVING VOLTAGE  
COIL  
HORIZONTAL TYPE



REVOLVING FIELD  
STATIONARY VOLTAGE COIL  
VERTICAL TYPE

