

# Conventional Changeover System Limitations

## ACB

High withstand & BC

Rating : 800 A min

Speed of Changeover ?

Reliability ?

Life ?

Size ?

## MCCB

Compact

Rating : 1600 A max

Speed of Changeover ?

Reliability ?

Reasonable Life

Withstand Capacity ?

## Contactors

High Life

Rating : 800A max

Speed Of

Withstand

Breaking Capacity

Contact System ?

# *Typical Sequence of Automatic Operation*

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- The Normal source fails.
- The ATS controller detects loss of voltage or frequency and initiates a "P" timer to delay the start of the Engine-Generator.
- Upon end of "P" timer, the engine-start contacts will close (open) and the engine will begin cranking.
- After 3-15 seconds, the engine starts and Emergency voltage is available.
- The ATS logic tells the power section to transfer the load to the emergency source; the solenoids operate the mechanism.
- Transfer is complete, and the ATS logic controller monitors for the return of the Normal source.
- Upon return of Normal source, the "T" timer monitors the source to determine it is stable for retransfer back to Normal.
- If satisfactory, ATS logic initiates Retransfer back to Normal, and timer "U" begins to run the engine generator unloaded for cooldown.
- At the end of the "U" timer, the engine stops and the ATS waits in AUTO mode for next occurrence.



# *Selection of Equipment: Proper Application Within Ratings*

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- One must select a Transfer Switch with a WCR (Withstand Current Rating) greater than or equal to the Available Fault Current (short circuit current)
- The Available Fault Current is generally given by the utility, or it can be calculated for any point in any distribution system



## **WARNING**

Failure to select the properly-rated equipment may lead to equipment damage and physical injury or death!