

LV CIRCUIT & RADIATOR FAN DRIVE

CRANKING PROCEDURE

Conventional Loco

- Ensure
 - Water level is full
 - Lube oil level and fuel oil level is normal
 - Both MU switches are in RUN position.
 - Both Master Handles / Throttles are in IDLE position.
 - Both GF switches are in OFF position.
 - ECS in IDLE position
- Other safety devices:
 - LLOB – Normal position with Woodward governor
 - LWS – Normal position
 - GR2 – Normal Position
 - Mechanical OSTA in normal position

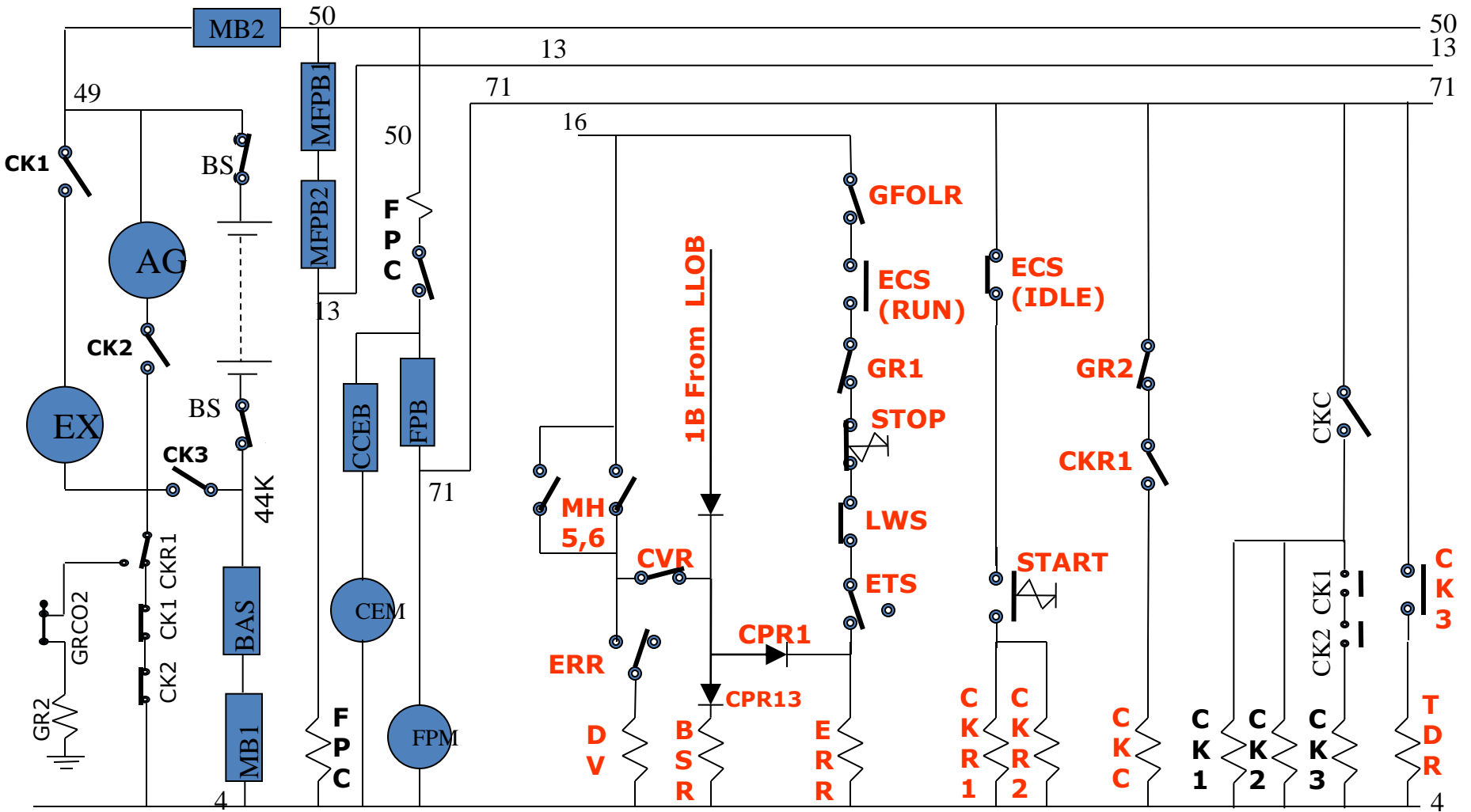
CRANKING PROCEDURE

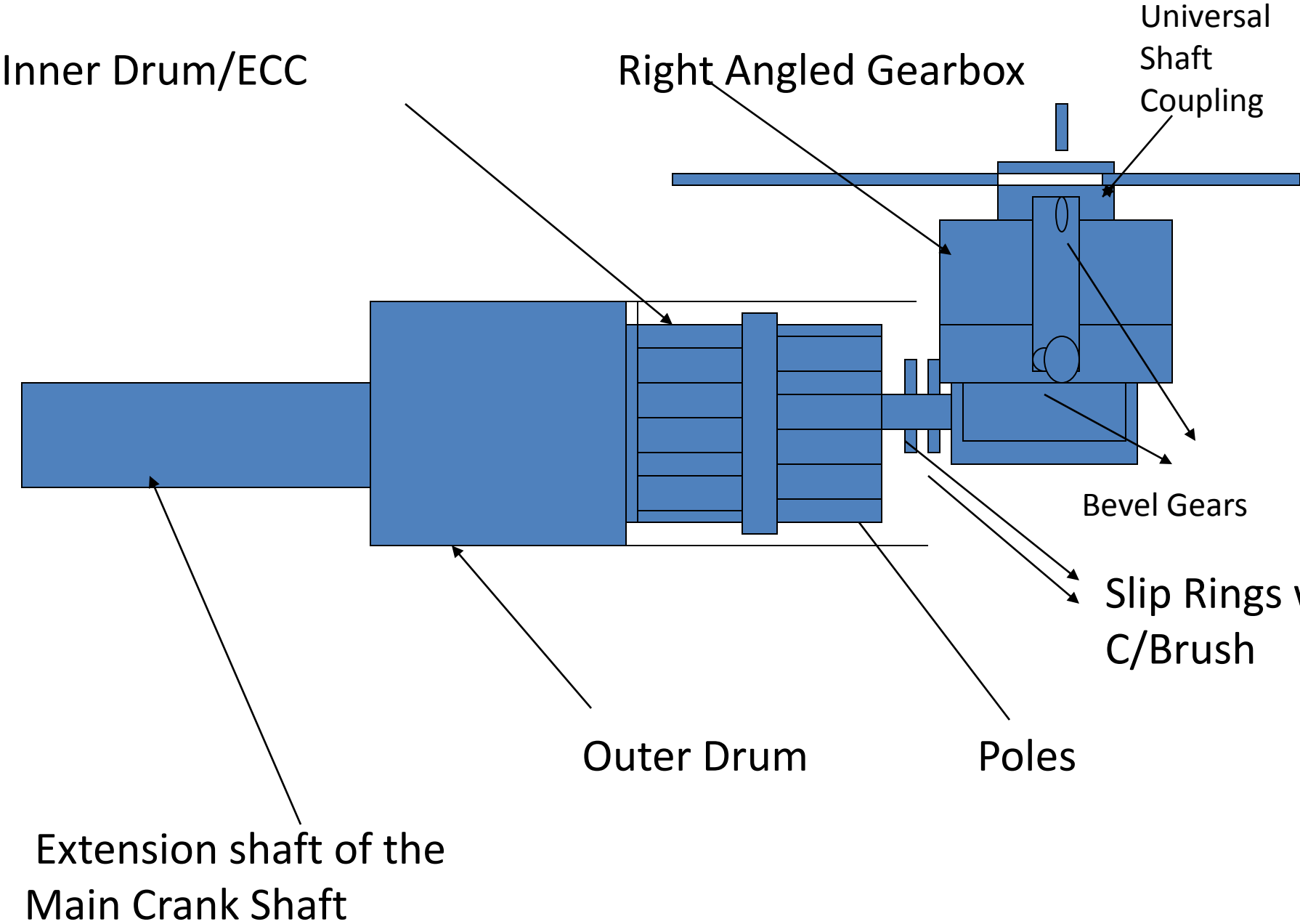
- Switch ON the following switches & Circuit breakers
 - Battery knife switch
 - Main Breaker MB1
 - Main Breaker MB2
 - Master fuel pump breaker 1
 - Master fuel pump breaker 2
 - Fuel pump breaker FPB
 - Crankcase Exhauster Breaker CEB
 - Dust Exhauster Breaker(Eng.)
 - Dust Exhauster Breaker (Carb)
 - Rectifier Blower Breaker (RBB) if available.

CRANKING PROCEDURE

- Press START button.
 - CKR1 & CKR2 picks up.
 - CKC picks up through GR2 and CKR1 interlocks
 - CK1, CK2 picks up through CKC contacts
 - CK3 picks up through CK1, CK2 interlocks
 - TDR picks up through CK3 interlock.
- Engine rotate, firing starts in the cylinders and engine runs at idle speed
- Release start button when firing starts in the cylinders.
 - CKR1 and CKR2 drop out.
 - CKC drop out.
 - CK1, CK2 and CK3 drop out
 - TDR drop out after 1.5 second from CK3 dropped.

Cranking circuit Conventional Loco





Schematic Diagramme

RADIATOR FAN (HOW IT WORKS...)

ACTUALLY THE POWER OF CRANKSHAFT TRANSMITS TO THE RADIATOR FAN AS FOLLOW:

CRANK SHAFT → EXTENSION SHAFT NO.2 → **OUTER DRUM** → **INNER DRUM(ECC)** →
(WITH SOME SLIP) (GR=1:1.312)

HORIZONTAL BEVEL GEAR → **VERTICAL BEVEL GEAR** → **RADIATOR FAN**

- **WHEN ECC ENERGIZES AN ELECTRO MAGNETIC TORQUE IS PRODUCED WHICH RESISTS THE RELATIVE SPEED BETWEEN THE INNER DRUM AND OUTER DRUM . THIS TORQUE (ALSO CALLED CLUTCHING TORQUE) IS CAUSED BY THE INTERACTION BETWEEN THE MAGNETIC FIELD PRODUCED BY THE ECC WITH EDDY CURRENT PRODUCED ON THE INNER SURFACE OF THE OUTER DRUM.**

Thermisters	Pick up temperature in deg.C	Drop temperature in deg.C
ETS1/T1 (Speed=840 rpm)	68	65
ETS2/T2 (Speed=1200 RPM)	74	71
ETS3/T3 (For Safety Purpose)	90	87

9. Radiator compartment

- it consists of-
 - 02 Nos Radiator core located above the cooling fans.
 - Two Radiator cooling fans (AC motor driven)
 - Get power from Companion Alternator.
 - Main reservoir air cooling coils.

