



भारत सरकार
रेल मंत्रालय

**Government Of India
Ministry of Railways**

**Particular Specification for 5500 HP WDG5 Diesel-Electric
Locomotive**

(Applicable for manufacture at DLW, Varanasi)

**Particular Specification
NO. MP.0.0800.97 (Rev- 00)
January - 2011**

**अनुसंधान अभिकल्प और मानक संगठन
लखनऊ-226 011.**

**Research Design & Standards Organisation
Manak Nagar, Lucknow-226 011**

Particular Specification for 5500 HP BG Diesel-Electric WDG5 Locomotive

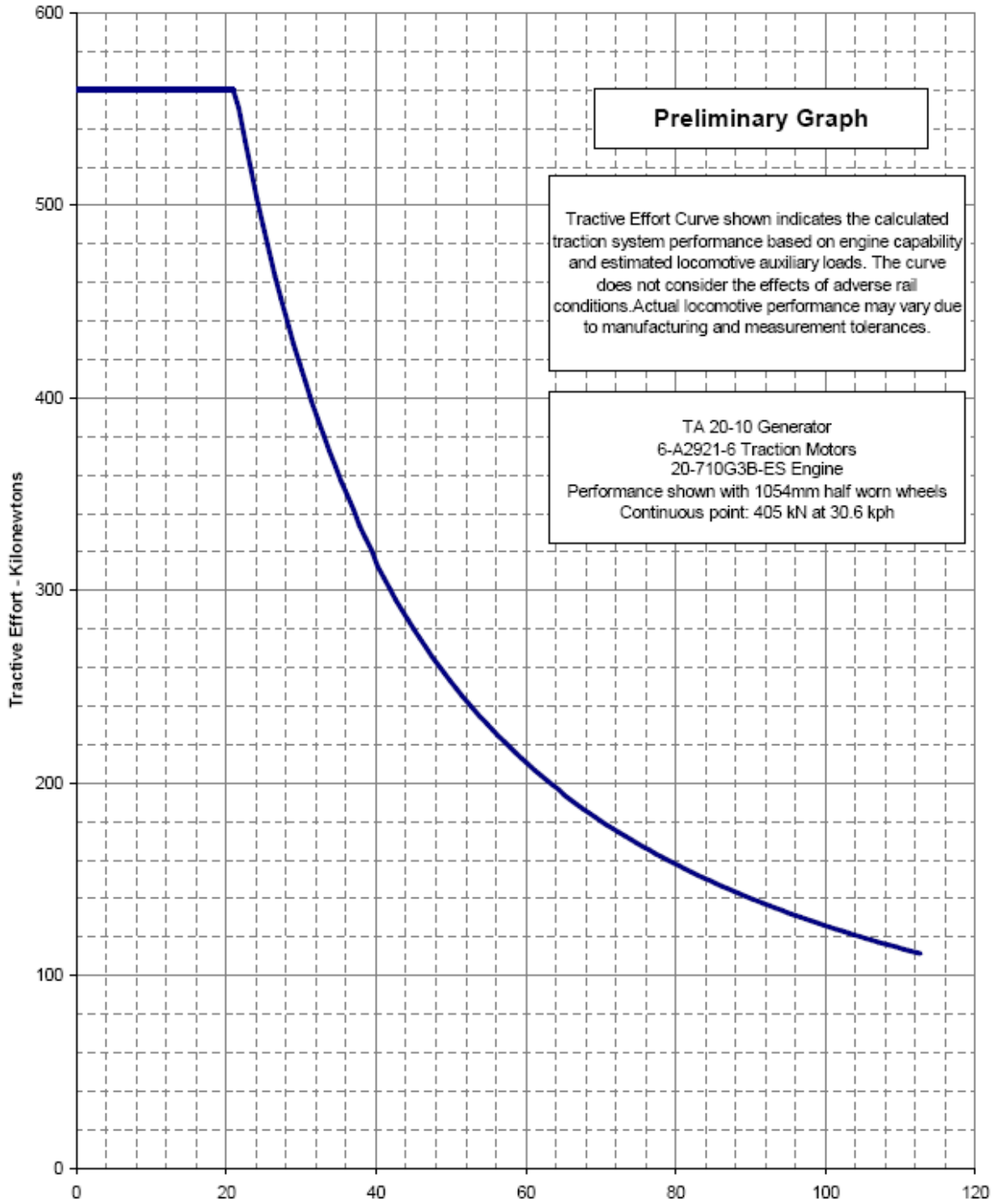
Sl.No.	Item	Specification
1.	General Data as per RDSO general arrangement Drawing no. SKDL-4744	
	Power plant	EMD Drg.No.40170085
	Diesel Engine: Model / Drg. No.	5500 HP DLW/EMD 20 cylinder 710G3B-ES EMD Drg. No. 40170086
	Installed power/ input to traction under site conditions	5500/5332 HP
	Bogies	EMD Drg. No. 40172641.
	Gauge	1676 mm
	Axle-load & arrangement	22.3 T/ Co-Co
	Weight in working order	134 T
	Minimum curve radius	174 M
	Locomotive Speed :Maximum/Continuous	105/30.6 kmph
	Gear ratio	91:20
	Wheel diameter: New/Condemning	1092/1016 mm
	Tractive Effort: Starting/Continuous	560KN / 405KN
2.	Tractive effort Vs speed characteristics	
	As per annexure-I	
3.	Braking effort Vs Speed characteristics	
	As per annexure-II	
4.	Electrical Transmission & Locomotive Control System	
	Main/ Companion Alternator :Model : Drg. No.	EMD Type TA-20/CA-9 EMD Drg. No.40170087
	Traction Motor: Model / Nos. per loco : Drg. No. : Spec No.	EMD type A 2921-6 / six EMD Drg. No.40170048 RDSO Spec No.MP.0.2400.72
	Transmission/Control System & auxiliary Systems	Single unitized electrical cabinet supplied as one unit, pre-wired and tested shall consist of:
		(i) Locomotive Control Computer (LCC) system (hardware and software) along with all control, protection and indication equipment like sensors, relays, breakers, indicators, along with other sub-systems required for proper functioning of the locomotive. The controls for auxiliaries like the air starter motors, fuel pump motors, turbo lube pump motors, TCC blowers, radiators fan motors etc. is provided by LCC.
		(ii) Electronic Fuel Injection system (EMDEC) control modules, Power supply, EMDEC Interface board.
		(iii) Variable speed #1 traction inverter/traction motor blower and #2 traction motor blower, and individual inverters for each of two engine cooling fans shall be used.
		(iv) IGBT based inverters for traction motor control, crowbar resistor and damper resistor.
		(v) Speed & Temperature Sensors shall be supplied as a set i.e. 6 sensors for each unitized electrical cabinet.
	(vi) Auxiliary power converter for battery charging.	

	Traction Motor blower: No. / Loco : Drg. No.	2 Nos. EMD Drg. No.40172737
	Main Generator Blower	EMD Drg. No.40170067
	Functionally Integrated Railroad Electronics(FIRE)	EMD Drg. No. 40147830
	Dynamic Brake Fan & Grid Assembly	EMD Drg. No. 40170131
5.	Pneumatic system	
	Braking system	CCBII as per RDSO Spec No. MP- 0.01.00.24(latest revision)
	Air Piping	EMD Schematic Diagram No. WS 65305 Shown in Annexure-IV
	Main Air reservoir: No. / Loco : Drg No.	2 Nos. EMD Drg. No.40054147
	Air start reservoir	EMD Drg. No.40175322
	Air Dryer	As per latest RDSO Spec. no.MP-0.0100.06.
	Air Compressor: Model/Type	As per latest RDSO Spec. no.MP-0.0700.14.
	After Cooler Assembly(Air Compressor)	EMD Drg. No.40106235
	Auxiliary Air compressor(Baby)/Inverter	EMD Drg. No.40137951 / 40151366
6.	Filteration System	
	Electrical Locker/ Dustbin Blower ASM	EMD Drg. No. 40170036
	Inertial Filters: LH & RH / Nos. per loco : Drg. No.	One Each / loco EMD Drg. Nos.40170163(LH),40170018(RH)
7.	Cooling System	
	Radiators: LH & RH / Nos. per loco : Drg. No.	One Each / loco EMD Drg.Nos. 40170153(LH),40170156(RH)
	Radiator Fan (Inverter Driven): Nos. / Loco :Drg. No. :Spec No.	2 Nos. EMD Drg. No. 40147679 RDSO Spec No.MP.0.2400.74
	Cooling System Schematic Diagram	As per annexure-V
8.	Fuel Oil system & Lubricating Oil System	
	Fuel Oil System Schematic Diagram	As per annexure-VI
	Lube Oil System Schematic Diagram	As per annexure-VII
9.	Equipment Rack Equipments	
	Lube Oil Filter	EMD Drg. No. 40170081
	Lube Oil cooler	EMD Drg. No. 40170082
	Fuel Oil Filter	EMD Drg. No. 10645399
	Fuel Pump	EMD Drg. No. 10659917
	Fuel Strainer	EMD Drg. No. 40100139
	TEE-Water Inlet	EMD Drg. No. 40165295
	Check Valve	EMD Drg. No. 10666440
8.	Sanding	Eight Nos. side sill mounted sand boxes shall be provided with 0.4 cubic meter sand capacity.
9.	Horns	EMD Drg.No. 10585230
10.	Storage Battery : Type	150 / 75(optional) Ah Ni-Cd battery shall be used as per RDSO Spec No.MP-0.51.01.02 (latest Revision)
11.	Fire Extinguisher: No. / Loco : Drg. No.	2 Nos. DLW Drg. No.17440026
12.	Underframe,Driver's Cab,& Superstructure	Conforming to RDSO General arrangement Drg. No. SKDL-4744
13.	Coupler & Draft gear assembly/Side Buffers	DLW Part Nos.17030020 / 11531710 (TPL-3450)

Annexure-I

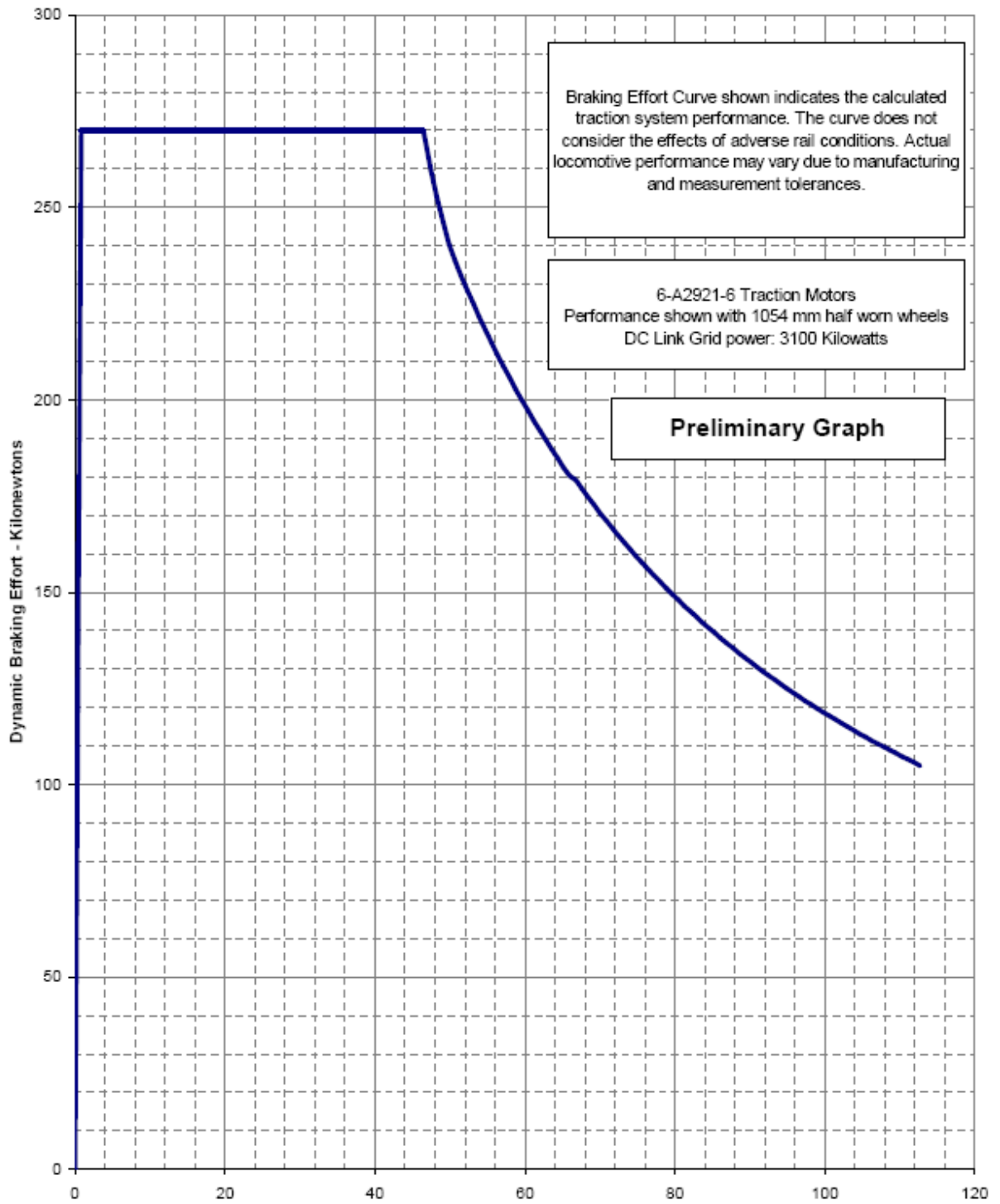
5206 THP GT50AC Locomotive

Tractive Effort - Speed Curve
91:20 Gear Ratio - 1092mm New Wheels
Site Conditions - Altitude 600 m, Temperature 47 C



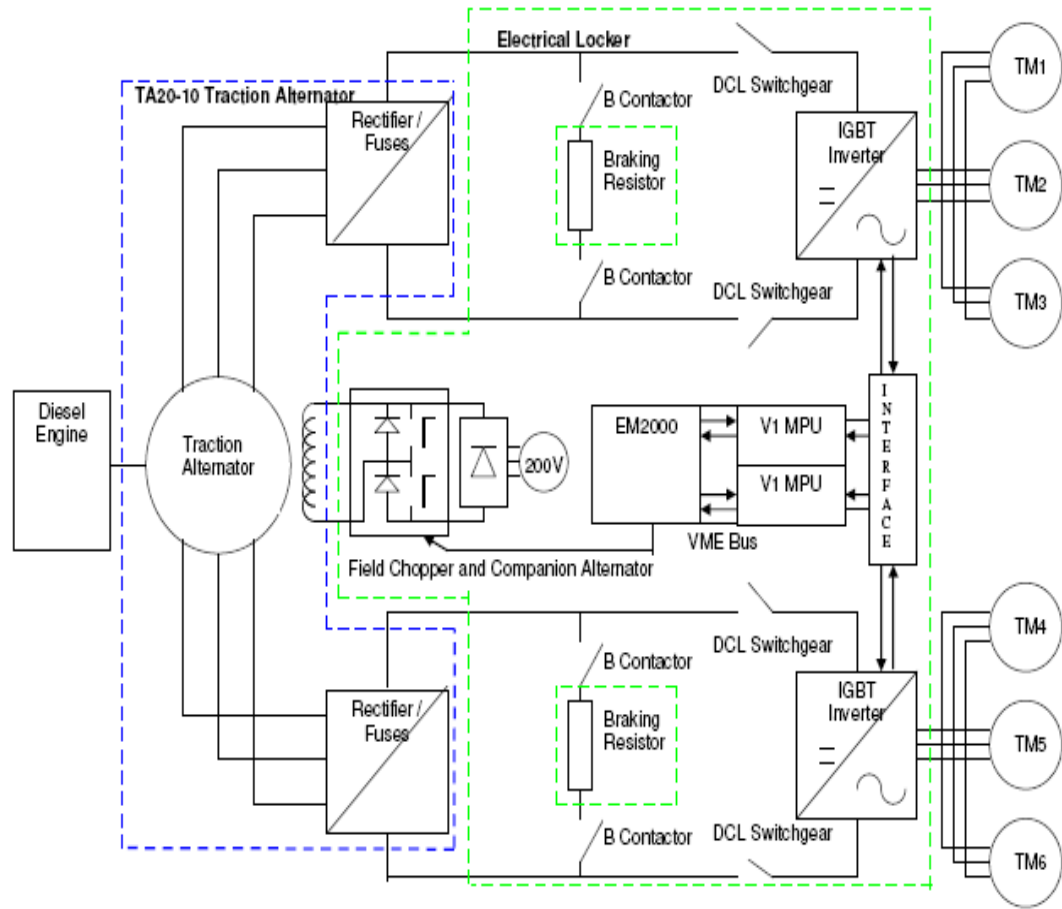
Annexure-II

GT50AC Locomotive Dynamic Braking Effort - Speed Curve 91:20 Gear Ratio - 1092 mm New Wheels



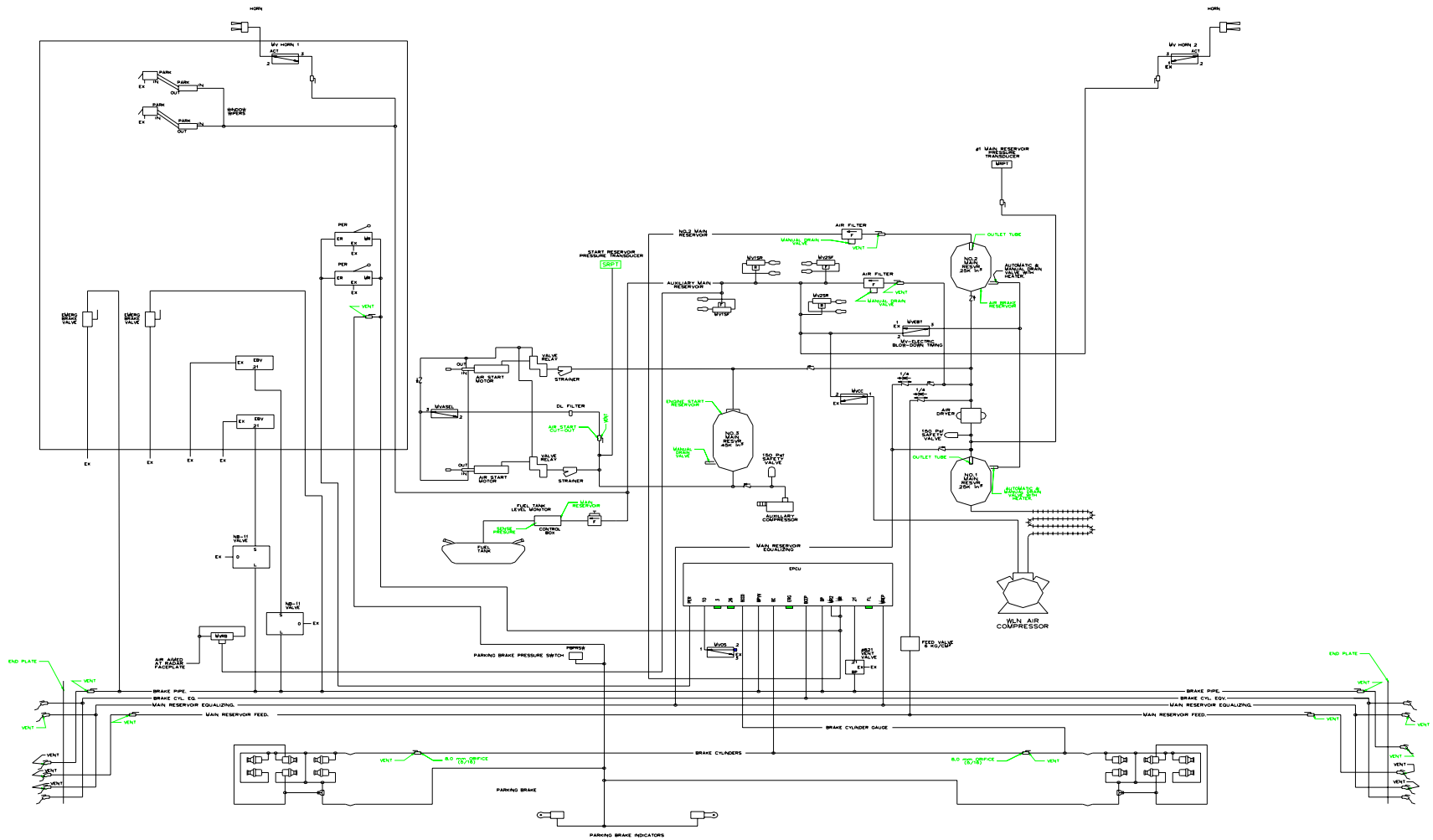
Annexure-III

AC Traction System Power Circuit Diagram



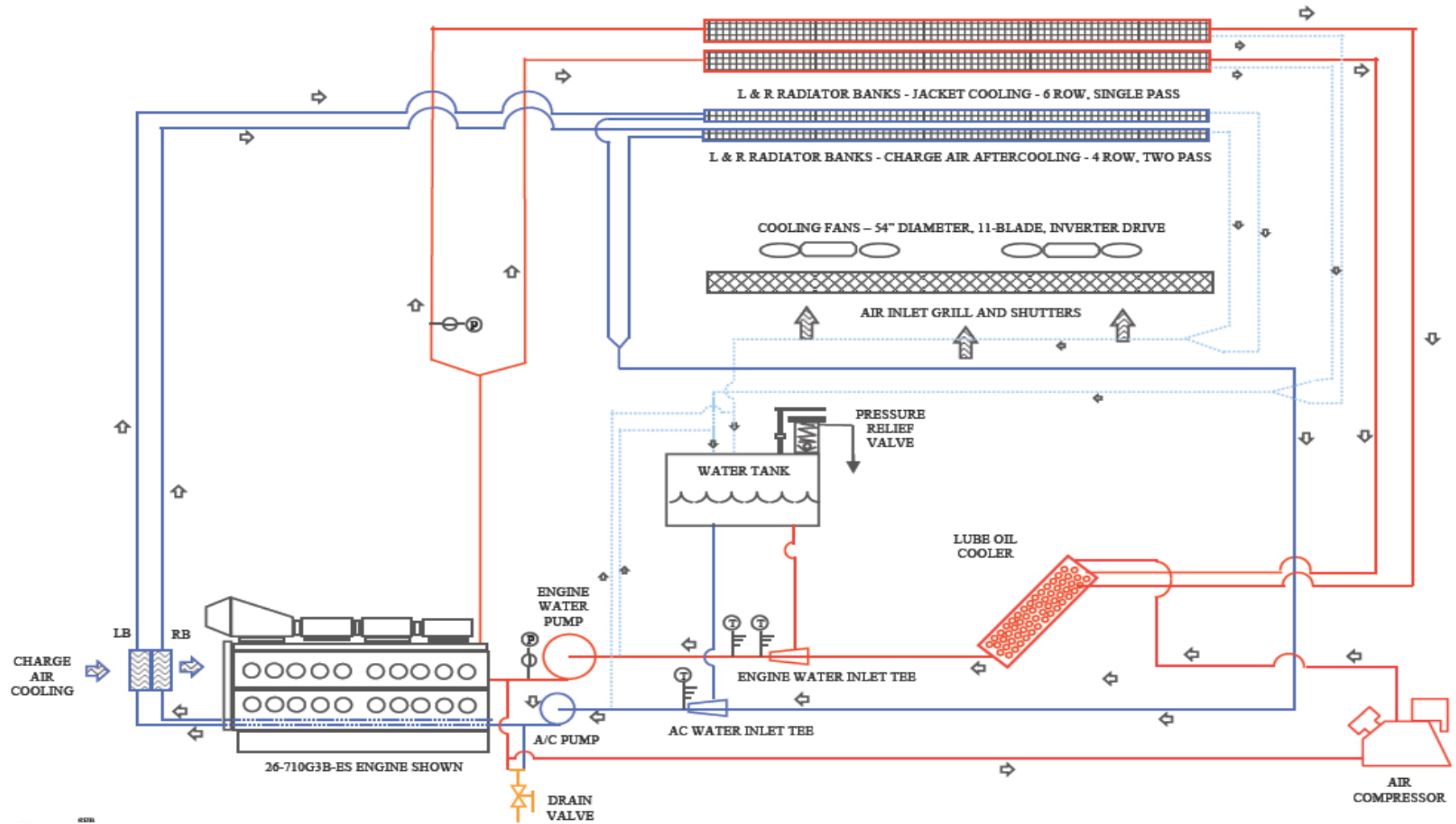
Annexure-IV

Air Piping Schematic Diagram

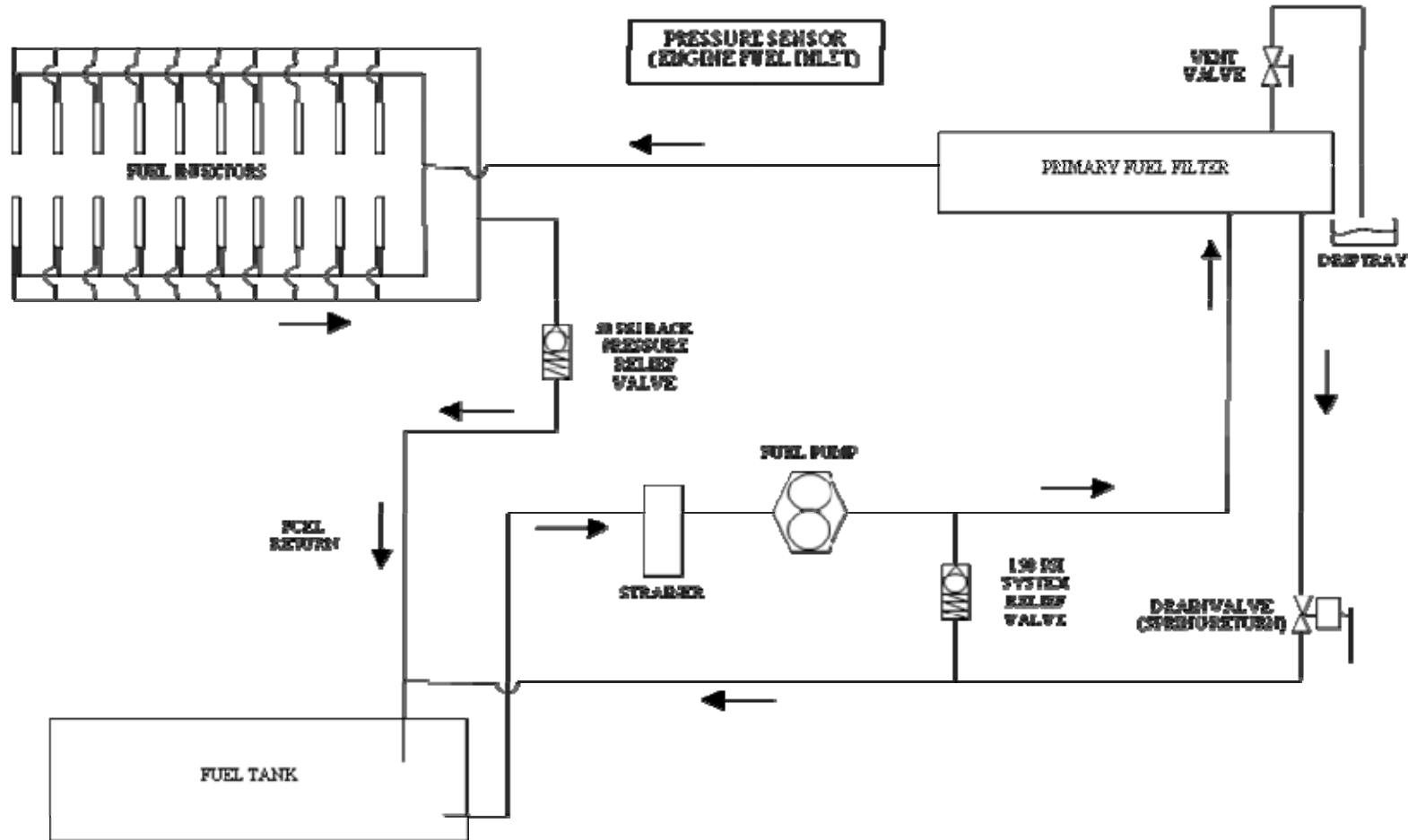


Annexure-V

Cooling System Schematic



20 Cylinder Fuel System Schematic



Annexure-VII

Engine Lube Oil System Schematic

