

FIELD AND DEPOT MAINTENANCE MANUAL

GENERATOR SET, DIESEL ENGINE

PRECISE POWER; 100 KW, AC, 120/208 V,

240/416 V, 3 PHASE, 60 CYCLE

AT 1800 RPM, 83.3 KW, 120/208 V

240/416 V, 3 PHASE, 50 CYCLE

AT 1500 RPM; SKID MOUNTED

(DETROIT DIESEL DIVN. GENERAL MOTORS

CORP. MODEL 6910A) FSN 6115-798-3444

TECHNICAL MANUAL
No. 5-6115-293-35
TECHNICAL ORDER
No. 35C2-3-329-22

DEPARTMENTS OF THE ARMY
AND THE AIR FORCE

WASHINGTON 25, D.C., 15 July 1961

Field and Depot Maintenance Manual

**GENERATOR SET, DIESEL ENGINE: PRECISE POWER; 100 KW, AC, 120/208 V,
240/416 V, 3 PHASE, 60 CYCLE, AT 1800 RPM, 83.3 KW, 120/208 V, 240/416 V,
3 PHASE, 50 CYCLE AT 1500 RPM; SKID MOUNTED (DETROIT DIESEL DIVN.
GENERAL MOTORS CORP. MODEL 6910A) FSN 6115-798-3444**

		Paragraph	Page
CHAPTER 1.	INTRODUCTION		
Section I.	General	1, 2	8
Section II.	Description and data	3,4	3
CHAPTER 2.	GENERAL MAINTENANCE INSTRUCTIONS		
Section I.	Special tools and equipment	5-7	12
Section II.	Troubleshooting	8-31	12
Section III.	Radio interference suppression	32-34	14
Section IV.	Removal and installation of major components	35-37	15
CHAPTER 3.	HOUSING, LIFTING FRAME, AND SKID BASE REPAIR INSTRUCTIONS		
Section I.	Housing.....	38-42	18
Section II.	Lifting frame.....	43, 44	28
Section III.	Skid base and skid base end support	45, 46	24
CHAPTER 4.	ENGINE REPAIR INSTRUCTIONS		
Section I.	Radiator and shutter thermostat, shutter, and fan groove pulley and bracket	47-50	27
Section II.	Battery-charging generator	51-53	30
Section III.	Generator regulator	54-57	32
Section IV.	Starter	58, 59	39
Section V.	Water pump	60, 61	42
Section VI.	Air inlet housing, blower, and accessory drive	62-65	48
Section VII.	Fuel injector pump	66, 67	47
Section VIII.	Fuel transfer pump	68, 69	48
Section IX.	Fuel reservoir	70, 71	50
Section X.	Fuel injectors	72, 73	51
Section XI.	Cylinder head, rocker arm, and valves	74-77	55
Section XII.	Engine overspeed governor	78, 79	58
Section XIII.	Governor and governor drive	80-82	60
Section XIV.	Crankcase oil pan	83, 84	70
Section XV.	Engine oil pump and pressure regulator	85, 86	72
Section XVI.	Oil separator	87, 88	75
Section XVII.	Crankshaft pulley, vibration dampers, upper engine support, and front crankshaft cover	89-93	77
Section XVIII.	Flywheel and flywheel housing	94-96	79
Section XIX.	Gear train.....	97, 98	81
Section XX.	Balancer weight cover, balancer weights, camshaft, and balancer shaft.....	99-102	82
Section XXI.	Engine connecting rods and pistons	103,104	86
Section XXII.	Crankshaft and main bearings	105, 106	86
Section XXIII.	Cylinder block and liners	107, 108	88
Section XXIV.	Engine lower front support.....	109, 110	89
Section XXV.	Fuel tank	111, 112	90

		Paragraph	Page
CHAPTER 5.	CONTROL BOX, CIRCUIT BREAKER, LOAD CONNECTORS, AND TERMINAL BLOCK REPAIR INSTRUCTIONS		
Section	I. Control box	113-124	91
	II. Circuit breaker	125, 126	96
	III. Load connectors.....	127, 128	96
	IV. Terminal block	129, 130	96
CHAPTER 6.	MAIN ELECTRICAL GENERATING SYSTEM		
Section	I. Voltage regulator	131, 132	98
	II. Static exciter	133, 134	101
	III. Governor load computer	135, 136	104
	IV. Main generator	137, 138	105
	V. Governor load sensing resistor	139, 140	108
CHAPTER 7.	WINTERIZATION EQUIPMENT REPAIR INSTRUCTIONS		
Section	I. Coolant heater and fuel tank	141-143	110
	II. Coolant heater exhaust tube	144, 145	114
	III. Circulating pumps and tubes	146, 147	115
	IV. Electric coolant heaters	148, 149	117
	V. Heater relay and heater transformer	150-152	120
APPENDIX.	REFERENCES		121
INDEX.....			123

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

a. This manual covers the General Motors Detroit Diesel Engine Division Generator Sets, Models 6910 and 6910A. It provides information on the maintenance of the equipment which is beyond the scope of the tools, equipment, personnel, or supplies normally available to using organizations.

b. The appendix contains a list of all publications referenced in the text. Appendix II of TM 5-6115-293-12 contains the Maintenance Allocation Chart. The list of repair parts and special tools required by field and depot maintenance facilities for support of this equipment is contained in TM 5-6115-293-35P.

c. The numbers in parentheses on illustrations

indicate quantity. Numbers preceding nomenclature callouts on illustrations indicate the preferred maintenance sequence.

d. Report all deficiencies in this manual on DA Form 2028. Submit recommendations for changes, additions, or deletions to the Commanding General, Military Construction Supply Agency/U. S. Army Engineer Maintenance Center, Corps of Engineers, P. O. Box 119, Columbus 16, Ohio, ATTN: EMCDM. Direct communication is authorized.

2. Record and Report Forms

For record and report forms applicable to third, fourth, and fifth echelons of maintenance, refer to TM 5505, Maintenance of Engineer Equipment.

Section II. DESCRIPTION AND DATA

3. Description

For a complete description of the generator set, refer to TM 5-6115-293-12.

4. Tabulated Data

a. Generator Classification and Rating.

Voltage rating	120/208/240/416 ac (alternating current)
Phase 3	3
Kw (kilowatt) rating at 60 cycle	100
Kw rating at 50 cycle	83.3
Kva (kilovolt-ampere) rating at	
60 cycles	125
Kva rating at 50 cycles	104
Rpm (revolutions per minute) at	
60 cycles	1,800
Rpm at 60 cycles	1,500
Amperes at 120/208 volts and 60	
cycles	347
Amperes at 240/416 volts and 60	
cycles	173.5
Amperes at 120/208 volts and 50	
cycles	289

Amperes at 240/416 volts 50	
cycles	144.5
Exciter volts, dc (direct current) 45	
Excitation amperes	27
Duty classification	Continuous
Degree of enclosure	Full
Cooling	Fan
Drive	Direct
Type lubrication	Sealed bearing
Power factor	80 percent

b. Engine.

Manufacturer	Detroit Diesel Division of General Motors Corp.
Type	Diesel
Model	6910 and 6910A
Series	6-71
Cooling	Liquid
Number of cylinders 6	6
Cycle	2
Bore	4.25 in. (inch)
Stroke	5 in.
Piston displacement	425 cu in. (cubic inch)
Compression ratio	17 to 1
Firing order	1-5-3-6-2-4