50X1-HUM

AIRCRAFT
TURBOJET ENGINE
TYPE P.1-95

ALBUM OF DRAWINGS

50X1-HUM

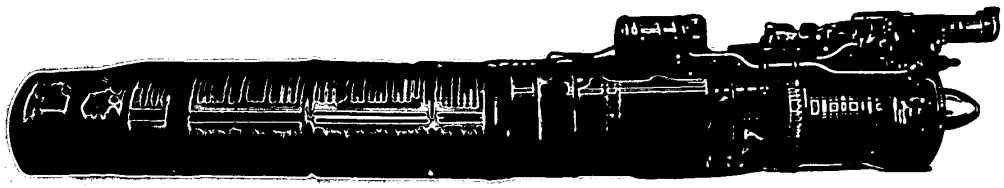

Fig.1. [redacted] Engine with Afterburner. Right-Hand View.

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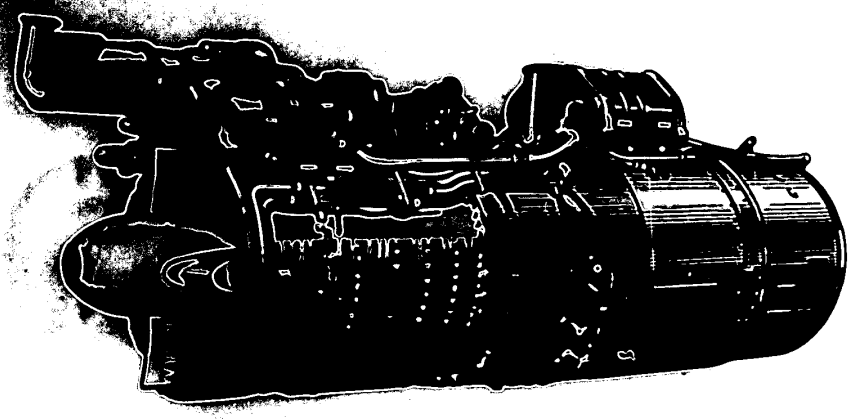

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Fig.2. VK-5B Engine without Afterburner. Left-Hand View.

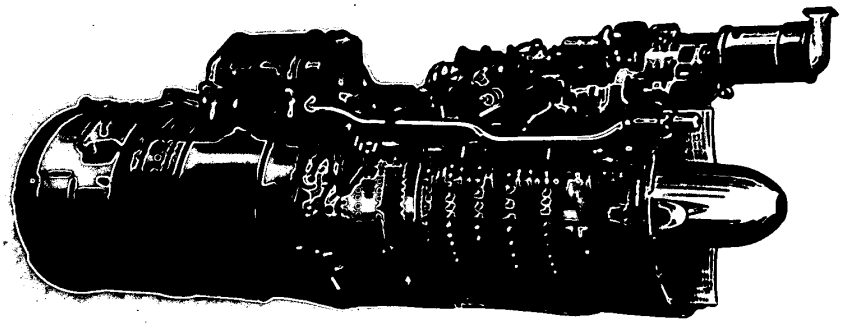
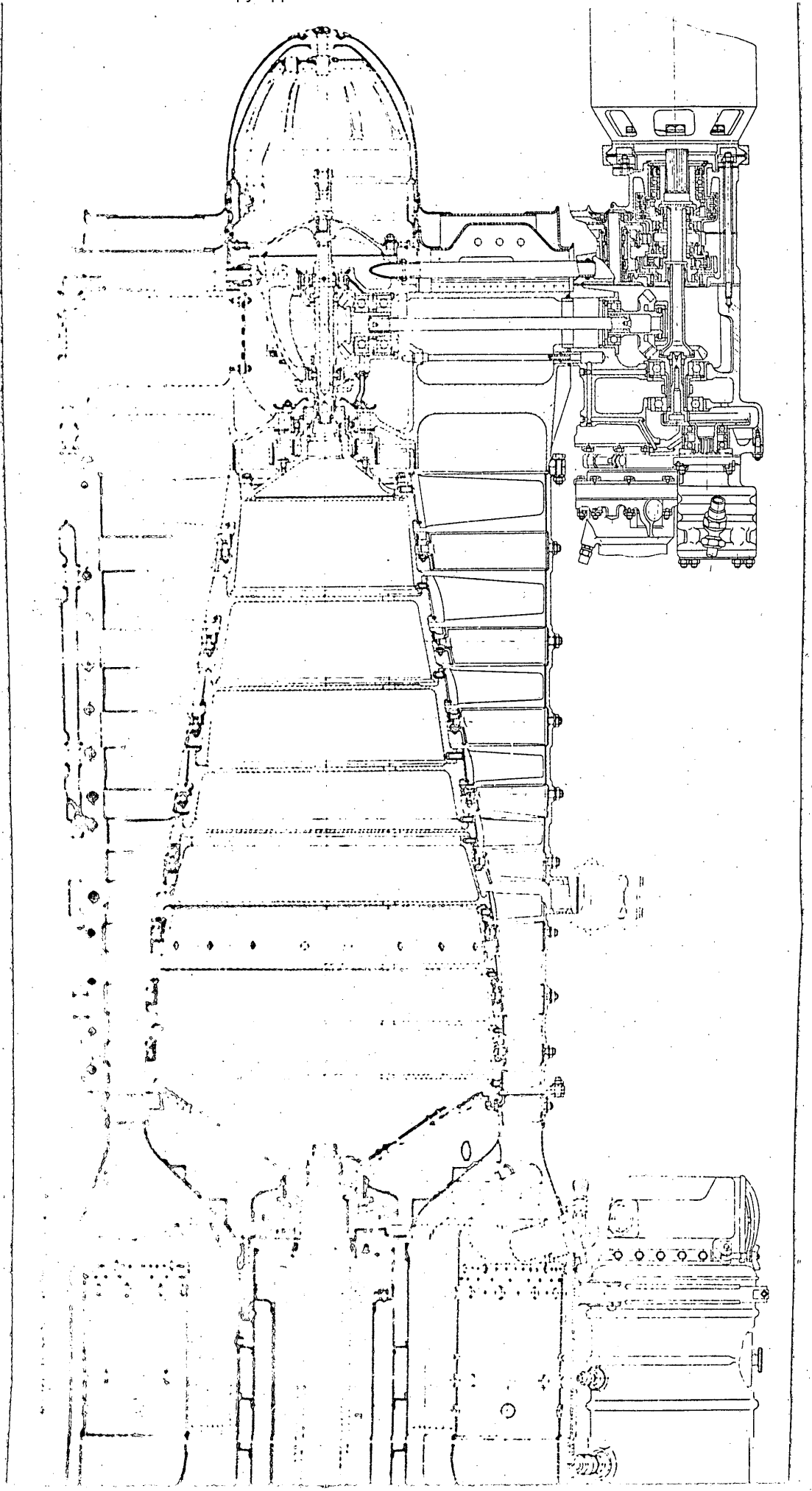
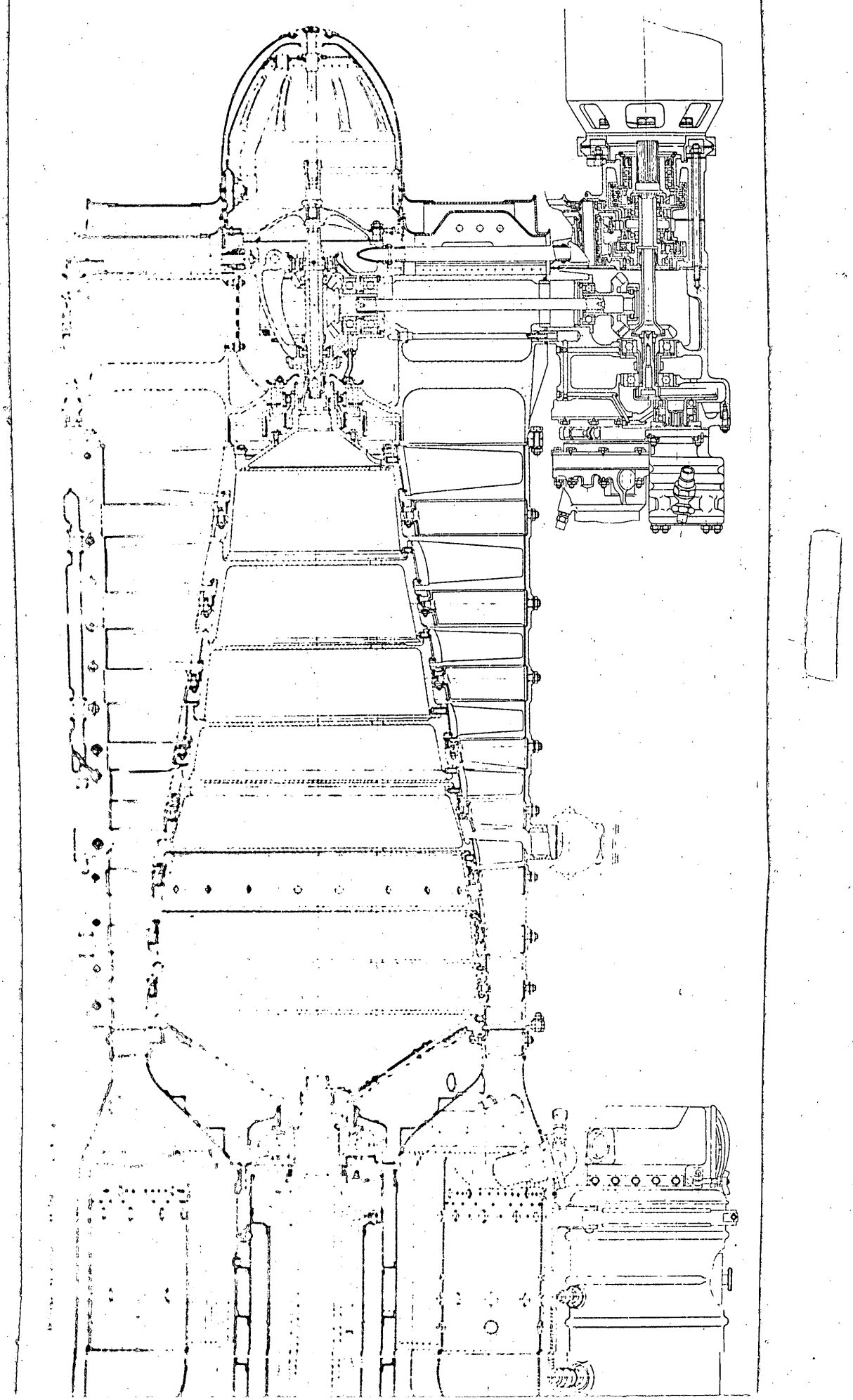
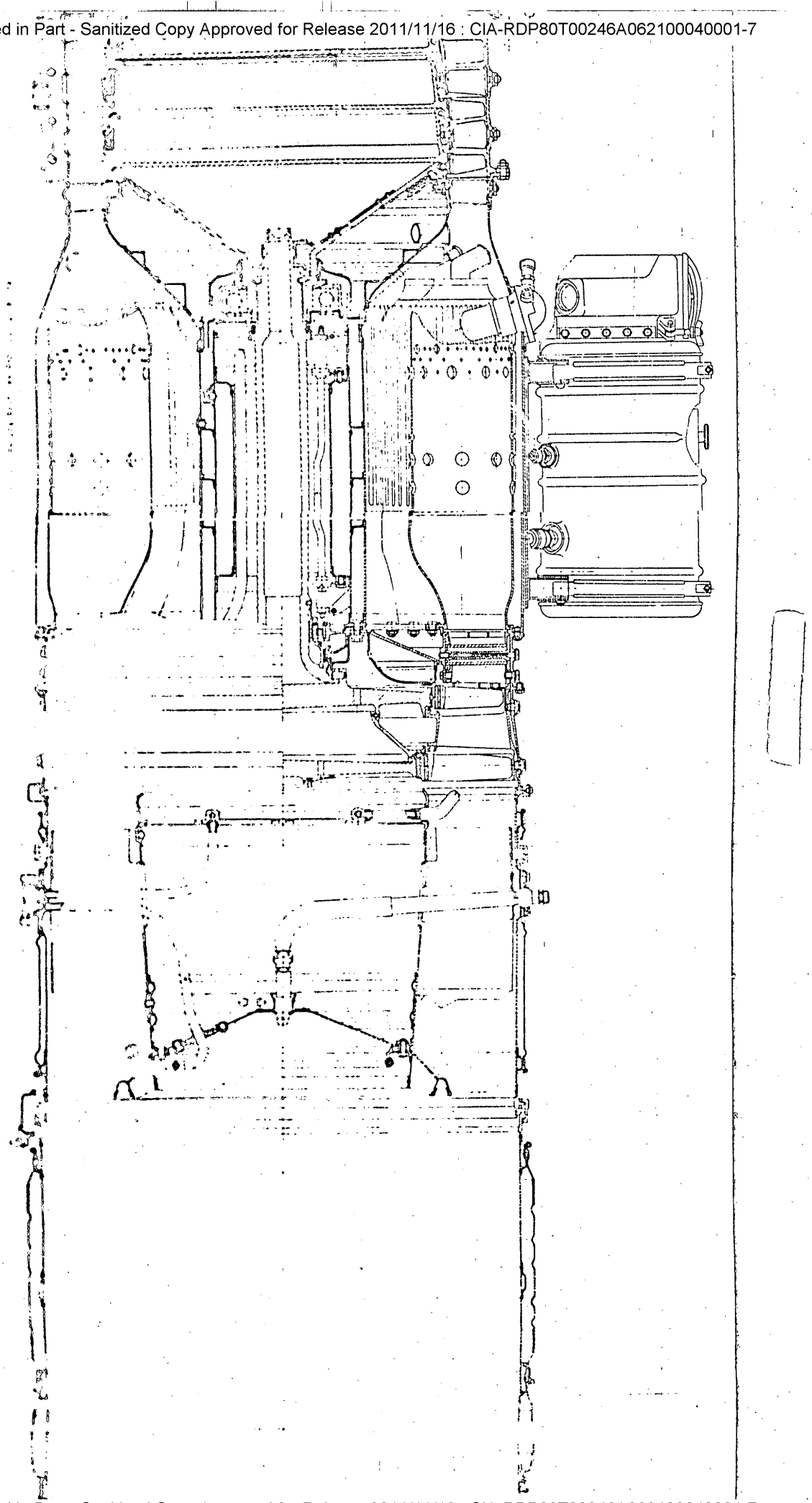


Fig.3. P3-95 Engine without Afterburner. Right-Hand View.







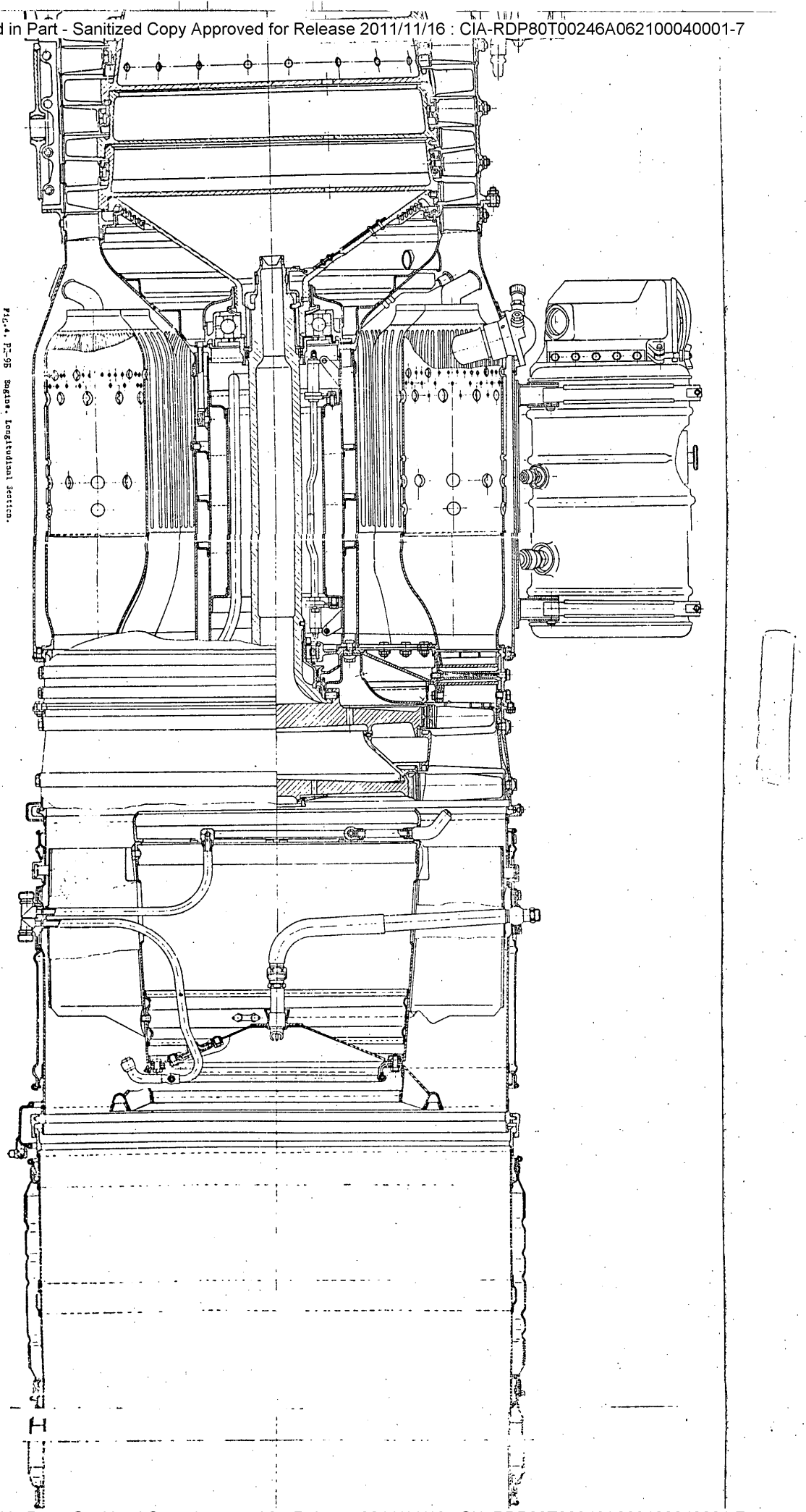
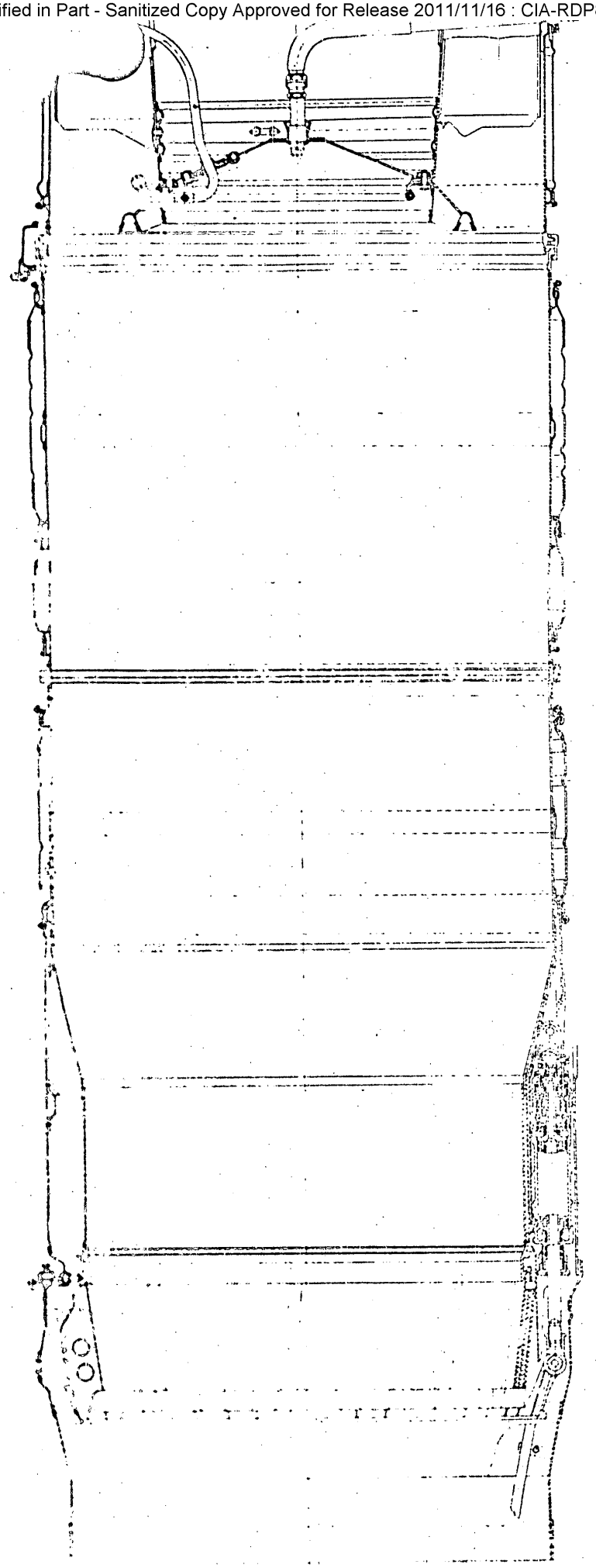
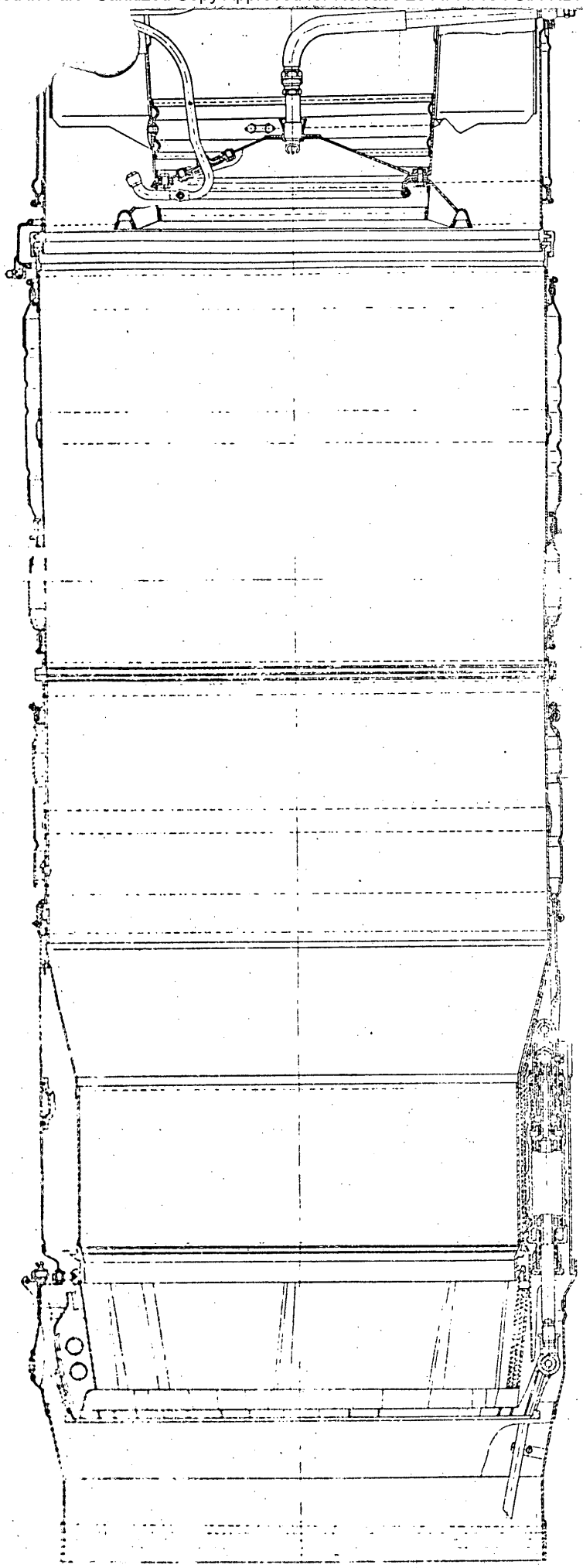


Fig. 4. F-95 Engine. Longitudinal Section.





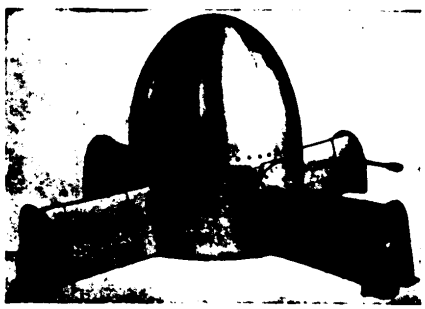


Fig. 5. Nose Bullet

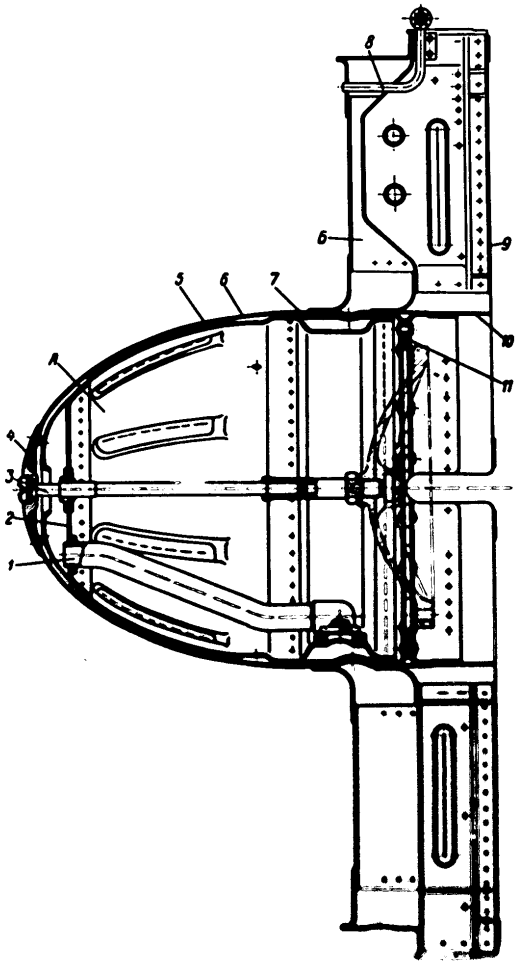


Fig.6. [illegible]

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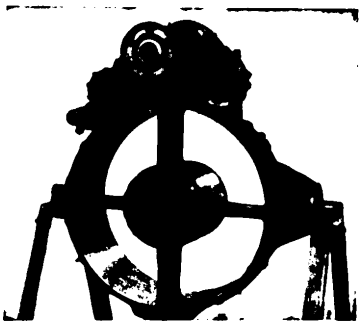
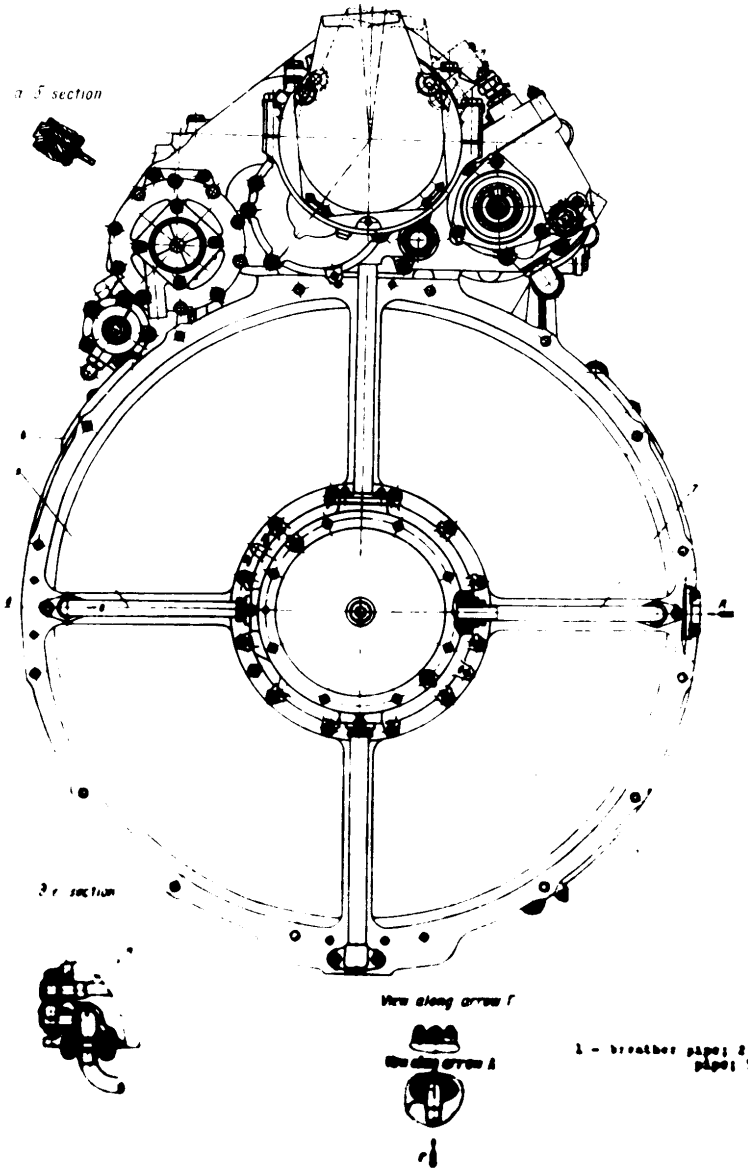


Fig. 7. Inlet Housing, Front View

Fig. 8. Inlet Housing, Rear View



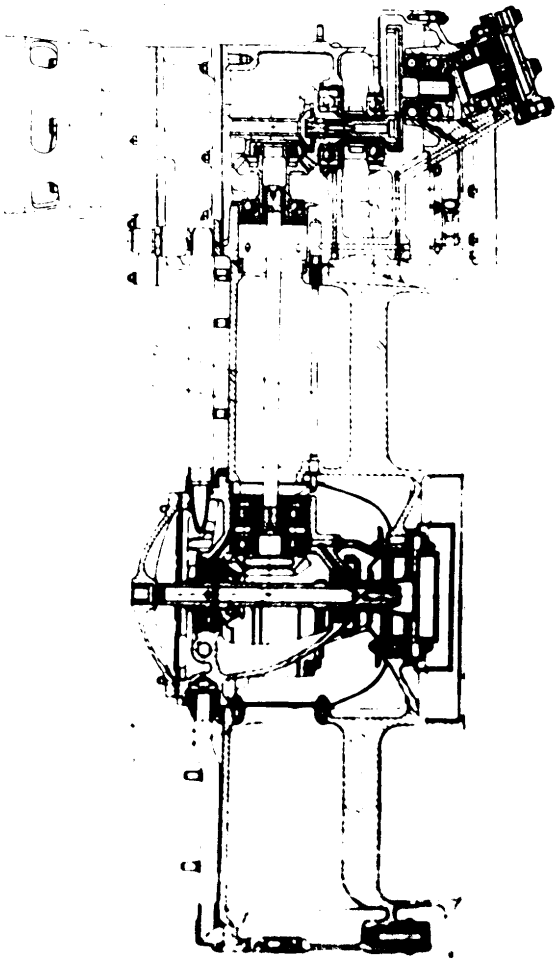


Fig.9. Skirt Bending Diagram

1 - breather pipe; 2 - pipe for delivery of oil to control drive shaft; 3 - shaft; 4 - oil pressure pipe; 5 - gasket; 6 - pipe union; 7, 8, 9, 10, 11 - oil pressure pipes.

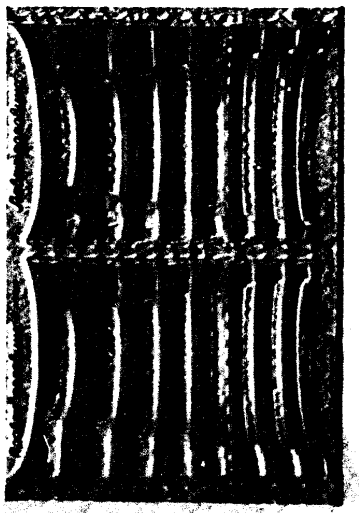


Fig. 18. Middle Housing

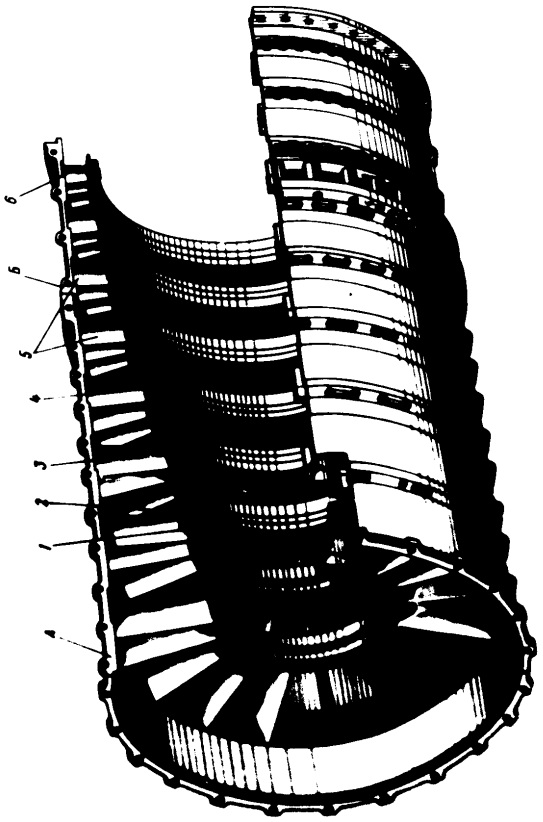


Fig.11. Middle housing

6 - front assembly; 2 - rear assembly; 1 - front half-ring; 2 - rear half-ring; 3 - stud; 4 - nut; 5 - third guide vane; 6 - bolt.

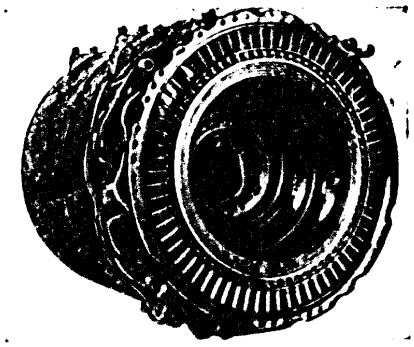


Fig. 14. Rear Housing Front View

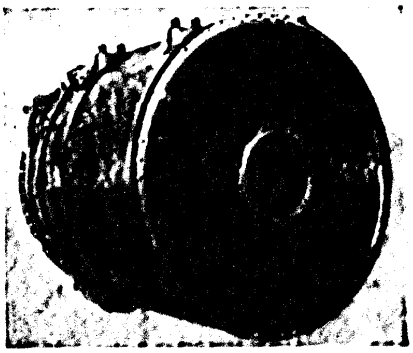


Fig. 15. Rear Housing Rear View

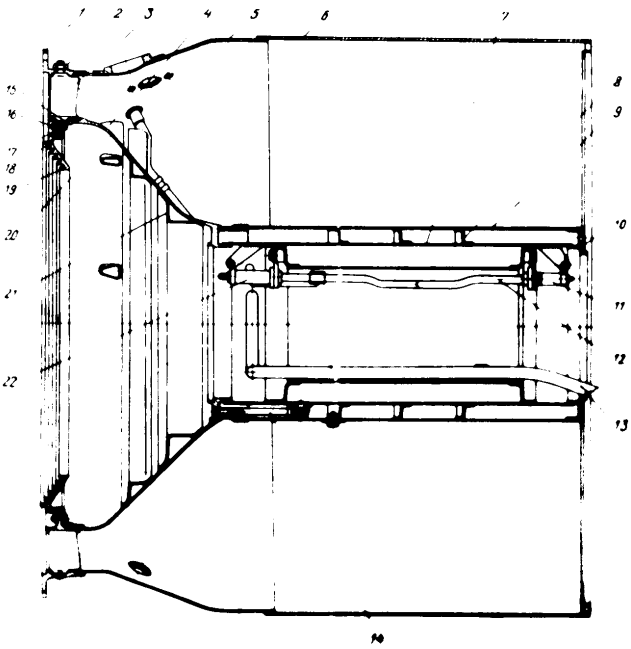


Fig.16. Rear Housing Diagram

- outer load-carrying ring; 2 - vane; 3 - ninth stage guide vane; 4 - pipe con-
ection; 5 - outer wall cone; 6 - outer wall shroud; 7 - bearing housing; 8 - rib;
- shield; 10 - bearing housing flange; 11 - oil nozzle of rear bearing; 12-oil
upply pipe; 13 - pipe for draining oil from rear support cavity; 14 - drainage
ent pipe; 15 - inner ring; 16 - cone; 17- bolt; 18 - dowel; 19 - labyrinth ring;
0 - bearing housing diffuser; 21 - rib; 22 - centre bearing oil nozzle.

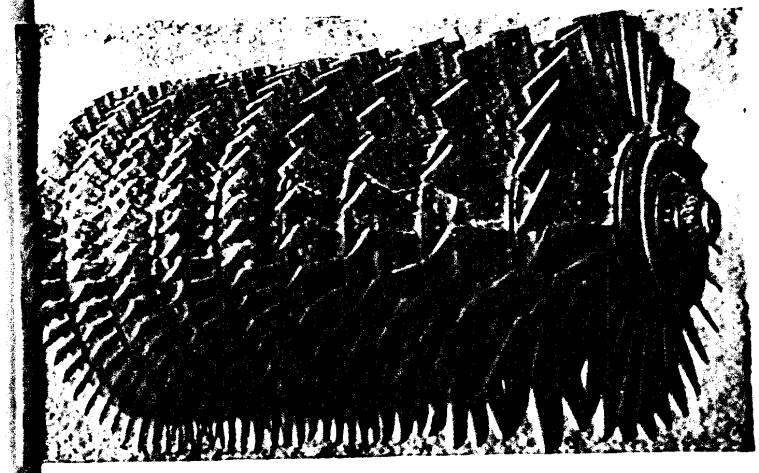


Fig. 17. Compressor Rotor

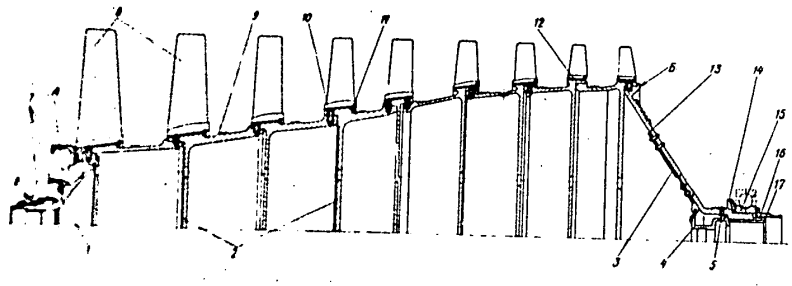


Fig.16. Compressor Rotor Diagram

1 - front trunnion; 2 - discs; 3 - catch; 4 - coupling; 5 - dowel; 6 - roller bearing; 7 - labyrinth sealings; 8 - blades; 9 - circular ridges; 10 - dowel; 11 - locking ring; 12 - retaining lock; 13 - rear trunnion; 14 - oil slinger; 15 - ball bearing; 16 - bearing securing nut; 17 - retaining lock.

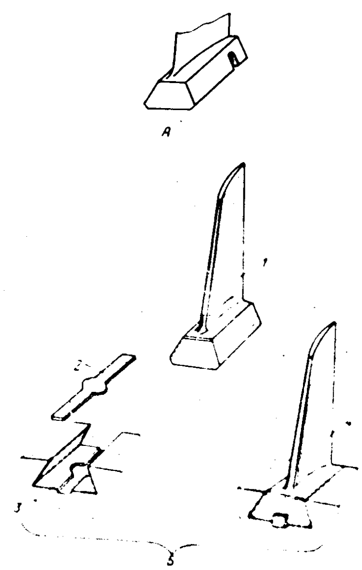


Fig.19. Attachment of Compressor Rotor Blades

A - lock portion of blades of first seven stages (groove for locking ring may be seen); B - attachment of eighth and ninth stage blades, 1 - blade, 2 - retaining lock; 3 - slot recess (milled recess for retaining lock may be seen); 4 - installed and fastened blade.

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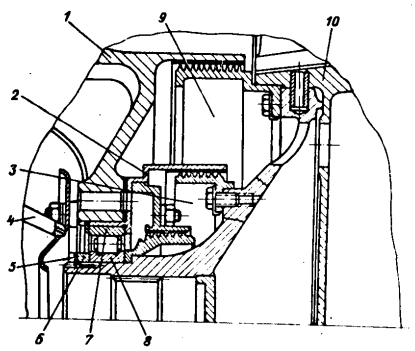


Fig.20. Front Bearing

1 - front case; 2 - front support housing; 3 - cavity into which air is delivered from behind eighth stage of compressor; 4 - oil nozzle; 5 - retaining lock; 6 - nut; 7 - outer ring; 8 - inner ring; 9 - front relief cavity; 10 - compressor rotor.

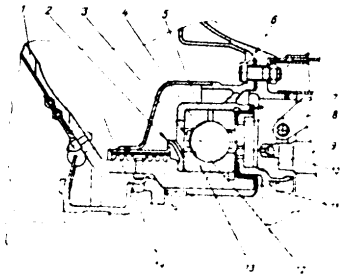


Fig.21. Centre Bearing

1 - rear trunnion of compressor rotor; 2 - oil slinger; 3 - cage; 4 - bearing outer ring; 5 - middle support housing; 6 - bearing housing of compressor rear bearing; 7 and 11 - plate locks; [illegible] - nuts; 10 - oil nozzle; 12 - ball; 13 - inner ring; 14 - rear relief cavity.

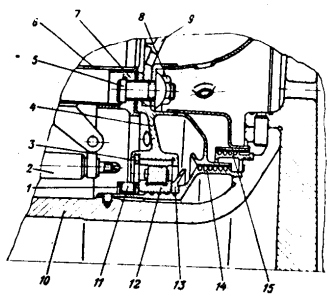


Fig.22. Rear Bearing

1 - plate lock; 2 - oil nozzle; 3 - locking ring; 4 - rear support housing; 5 - bolt; 6 - shield; 7 - bearing housing; 8 - nut; 9 - inner support of nozzle assembly; 10 - turbine rotor; 11 -nut; 12 - inner ring; 13 - oil slinger; 14 - turbine shaft bush; 15 - labyrinth sealing.

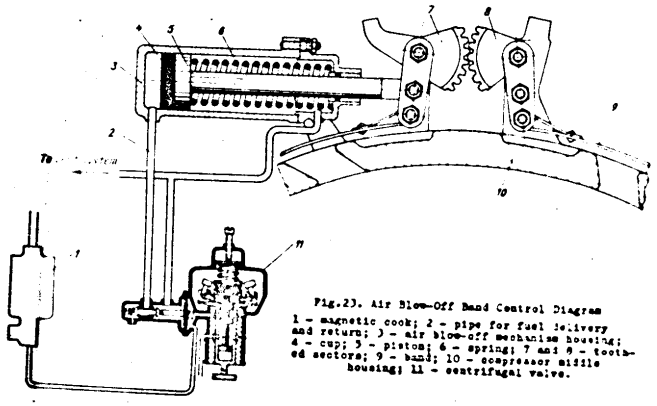
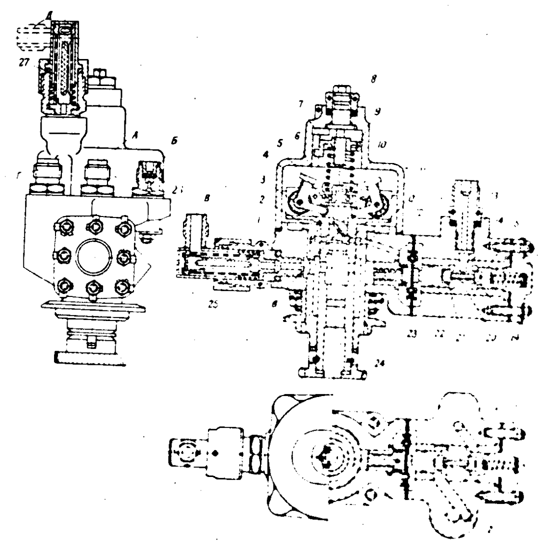


Fig.23. Air Blow-Off Band Control Diagram

1 - magnetic cock; 2 - pipe for fuel delivery and return; 3 - air blow-off mechanism housing; 4 - cap; 5 - piston; 6 - spring; 7 and 8 - toothed sectors; 9 - band; 10 - compressor middle housing; 11 - centrifugal valve.



24. Centrifugal Valve

A, Б, В, Г, Д – pipe unions; 1 – bushing; [illegible] bushes; 3 – shaft; 4 – weight; [illegible] bearing holder; [illegible] 7, 10, 17 – spring retainers; 8 – adjusting screw; [illegible] 11 – slide valve; [illegible] – valve housing; [illegible] – valve seats; [illegible] 19, 21 – valves; 20 – rod; 23 – [illegible]; 24 – [illegible] and 27 – filters.

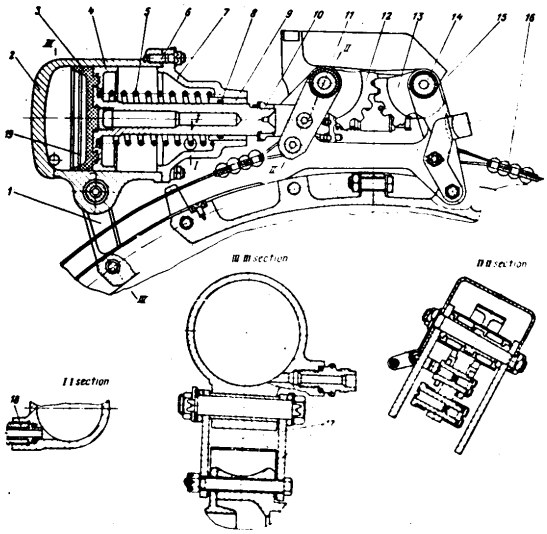


Fig.25. Air Blow-Off Band Control Mechanism

1 - bracket; 2 - cylinder; 3 - cup; 4 - piston; 5 - spring; 6 - stud; 7 - cover; 8 - rubber ring; 9 - bush; 10 - tip; 11 - pin; 12 - driving sector; 13 - driven sector; 14 - distance sleeve; 15 - needle bearing; 16 - band; 17 - bracket; 18 - pipe union; 19 - distance ring.

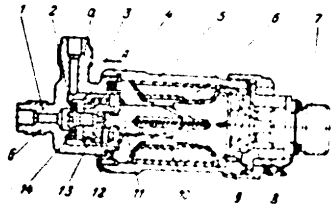


Fig..6. Magnetic Core

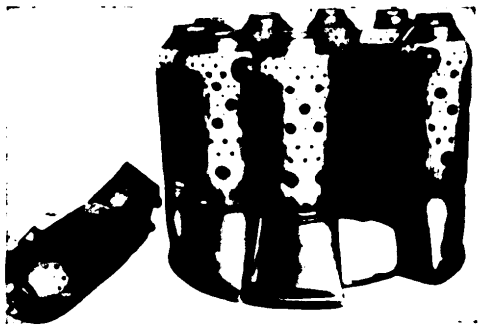


Fig. 27. Combustion Chambers

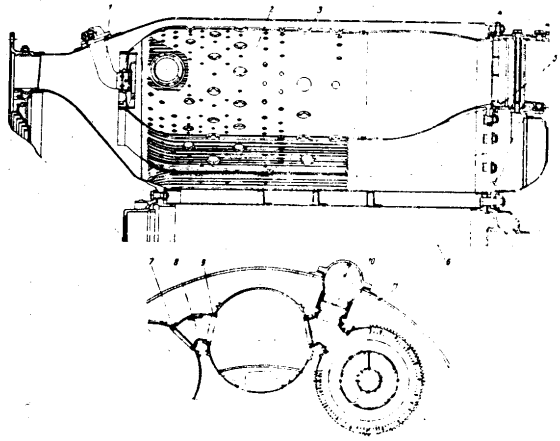


Fig.28. Arrangement of Combustion Chambers inside Shell (Longitudinal Section)
1 - main burner; 2 - combustion chamber; 3 - rear housing; 4 - first stage nozzle assembly; 5 - ring; 6 - shield; 7 - bush; 8 - by-pass connection; 9 - bush; 10 - flame igniter; 11 - by-pass connection.

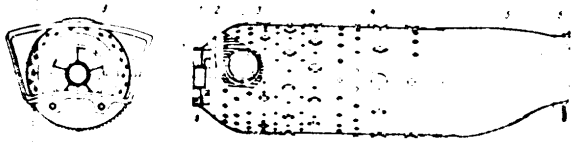


Fig.29. Combustion Chamber (Longitudinal Section)
1 - swirler outer shell; 2 - scoop; 3 - bush; 4 - liner; 5 - flame tube; 6 - flame; 7 - bush; 8 - vane; 9 - swirler.

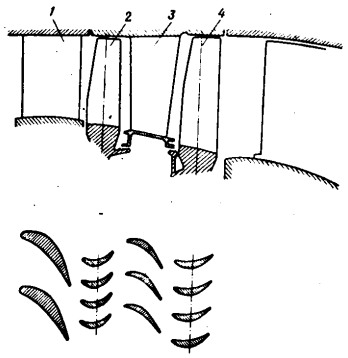


Fig.30. Diagram of Turbine Flow Section
1 - first stage nozzle assembly; 2 - first stage of turbine rotor; 3 - second stage nozzle assembly; 4 - second stage of turbine rotor.

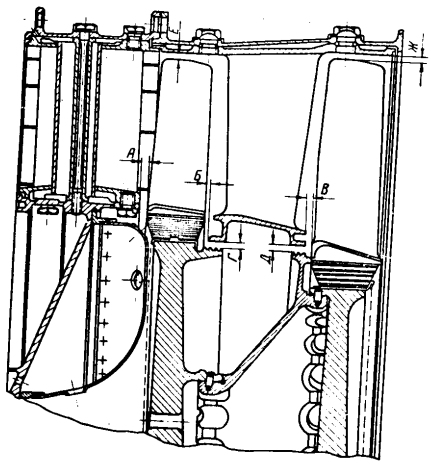


Fig.31. Diagram Showing Turbine Clearances

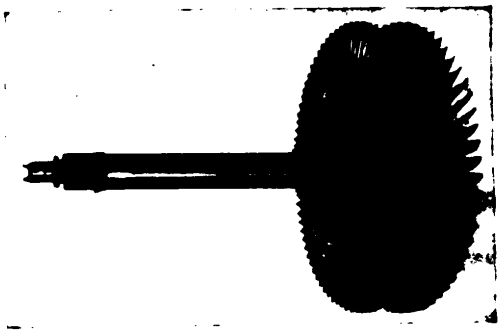


Fig. 32. Turbine Rotor

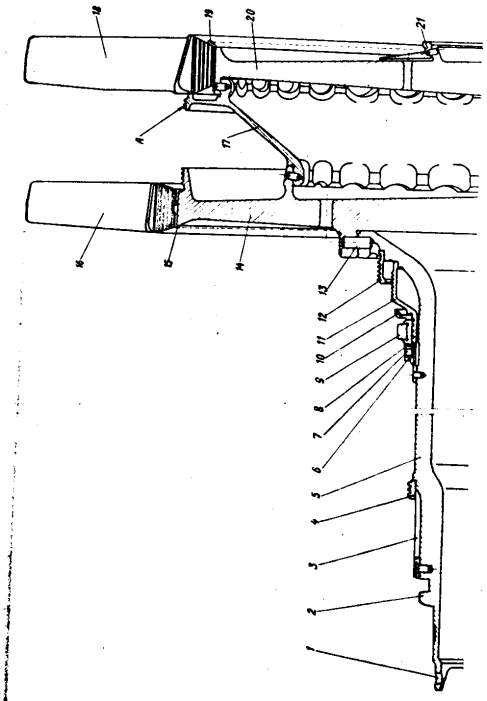


Fig.13. Turbine Rotor Diagram

4 - shield; 1 - hole for guide of mounting wrench; 2 - retaining lug; 3 - involute splines; 4 - ring; 5 - shaft; 6 - plate lock; 7 - nut; 8 - ring; 9 - roller bearing; 10 - oil slinger; 11 - turbine shaft bush; 12 - labyrinth; 13 - dowel; 14 - first stage disc; 15 - lock; 16 - first stage blade; 17 - loading ring; 18 - second stage blade; 19 - plate lock; 20 - second stage disc; 21 - baffle.

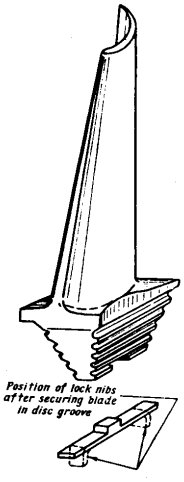


Fig.34. First Stage Blade and Lock for Retaining Blade in Disc Groove

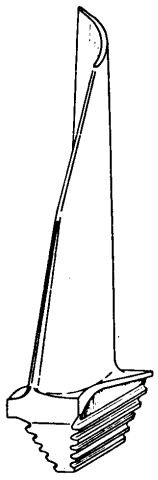


Fig.35. Second Stage Blade and Lock for Retaining Blade in Disc Groove

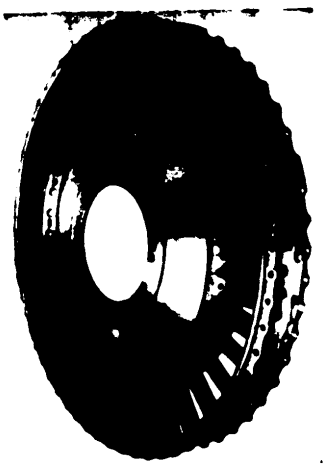


Fig. 37. First Stage Nozzle Assembly

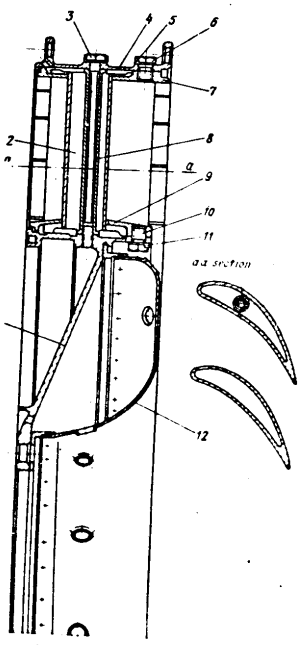


Fig.36. Diagram of First Stage Nozzle Assembly
1 – inner segment; 2 – vane; 3 – supporting bolt; 4 – outer ring; 5 – locking washer; 6 – bolt; 7 – outer shoe; 8 – distance tube; 9 – inner shoe; 10 – bolt; 11 – locking washer; 12 – spigot

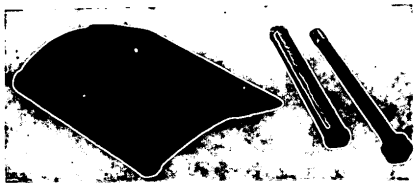


Fig. 39. First Stage Nozzle Assembly Vane, Distance Tube and Coupling Bolt

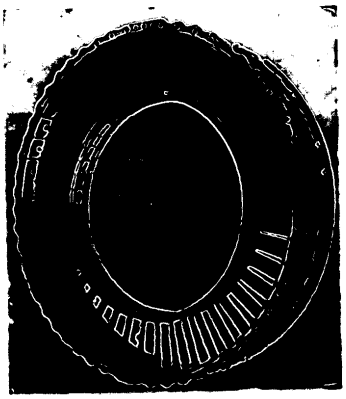


Fig. 40. Second Stage Nozzle Assembly

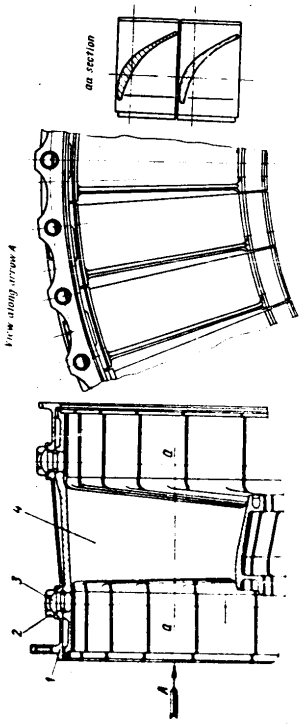


Fig.41. Diagram of Second Type Nozzle Assembly
1 - nozzle assembly shroud; 2 - bolt; 3 - locking washer; 4 - vane.

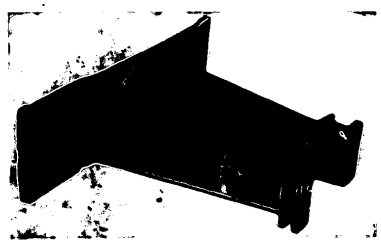


Fig. 42. Second Stage Nozzle Assembly Vane

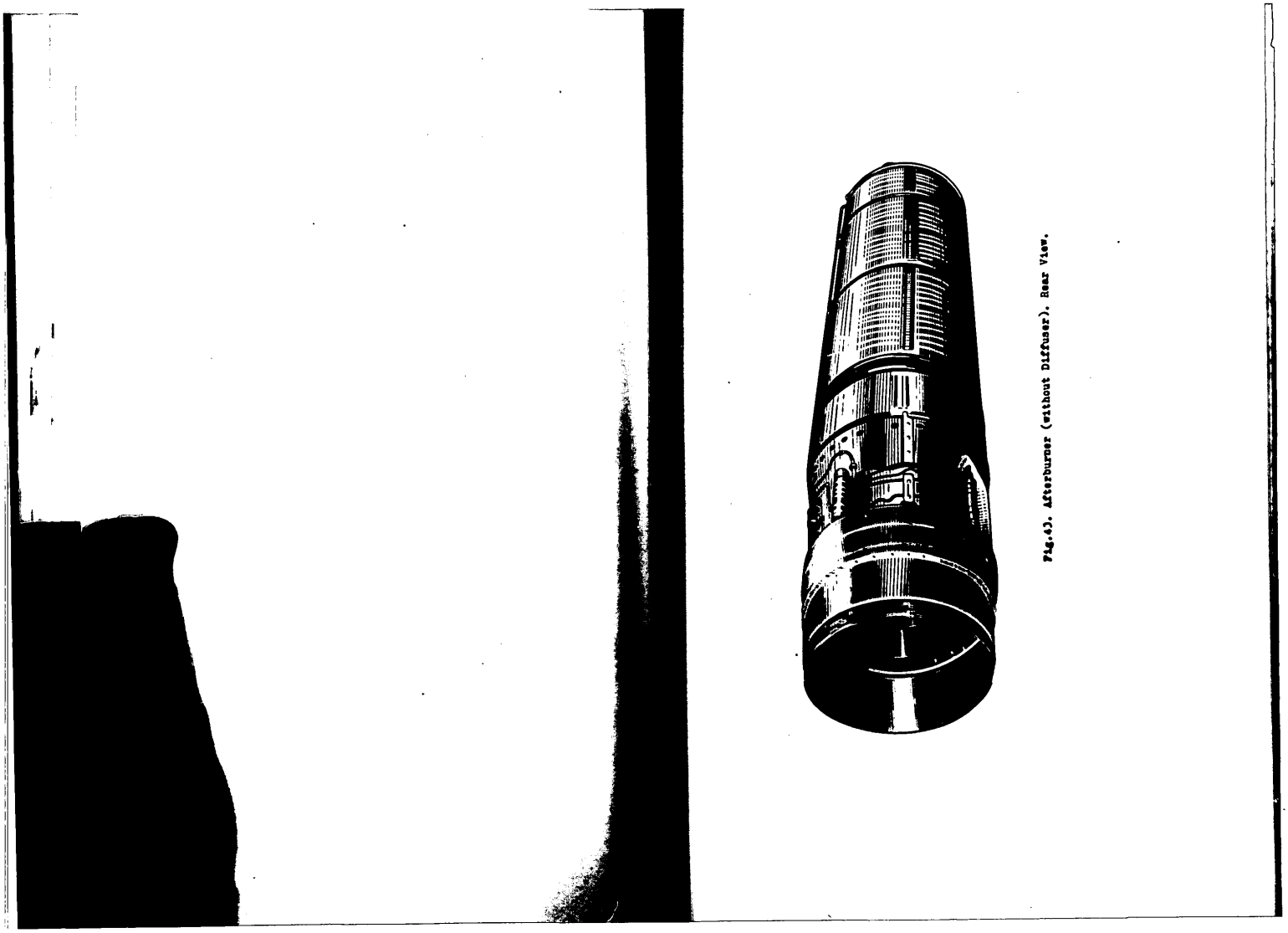
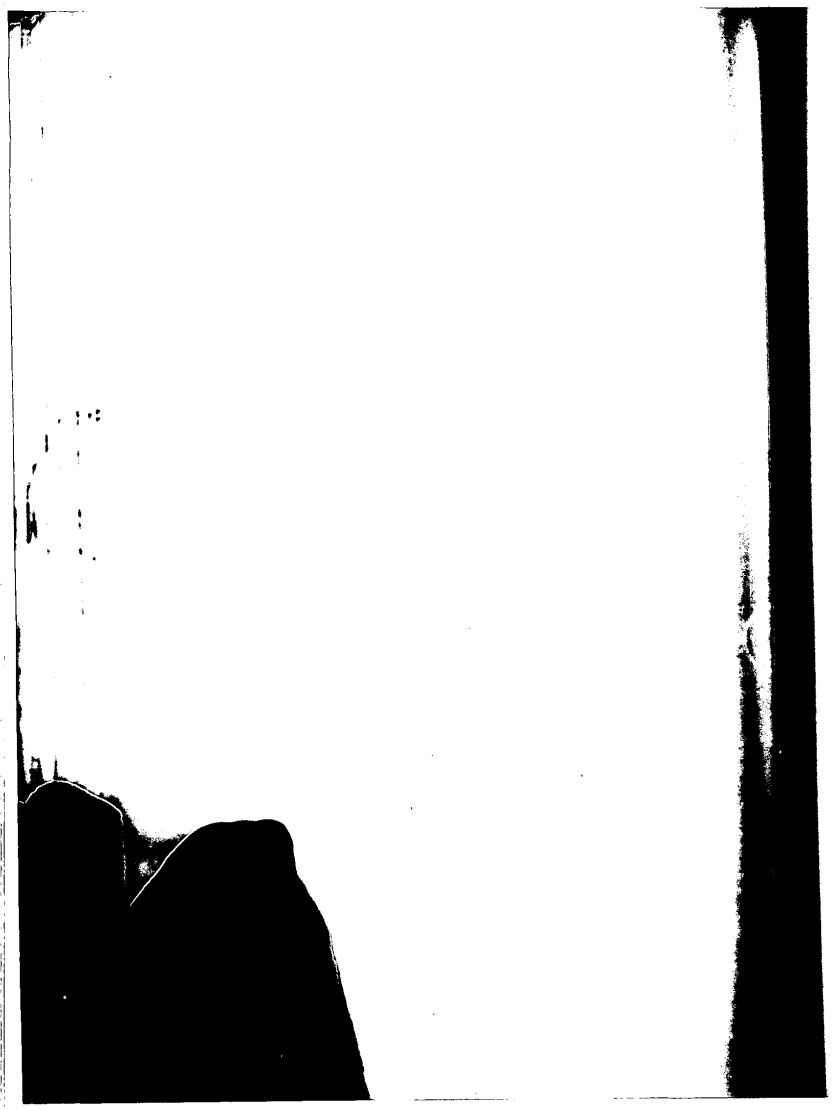


Fig.43. Afterburner (without Diffuser). Rear View.



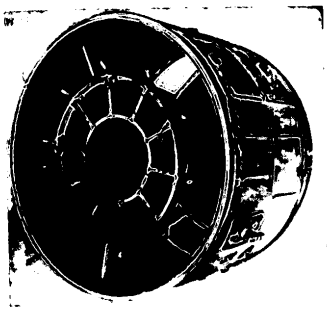


Fig. 44. Afterburner Diffuser. Front View

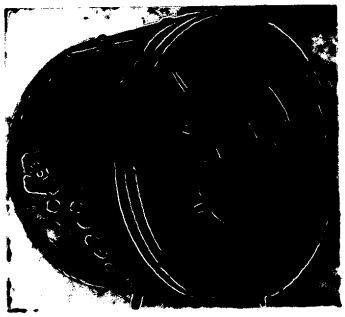


Fig. 45. Afterburner Diffuser. Rear View

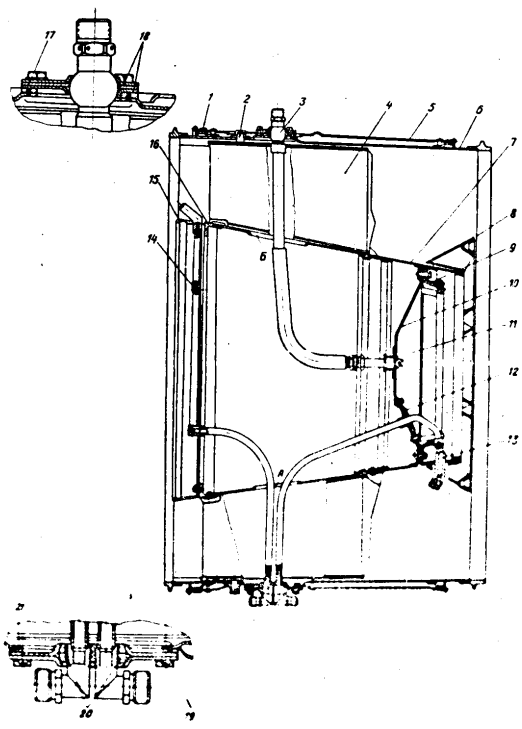
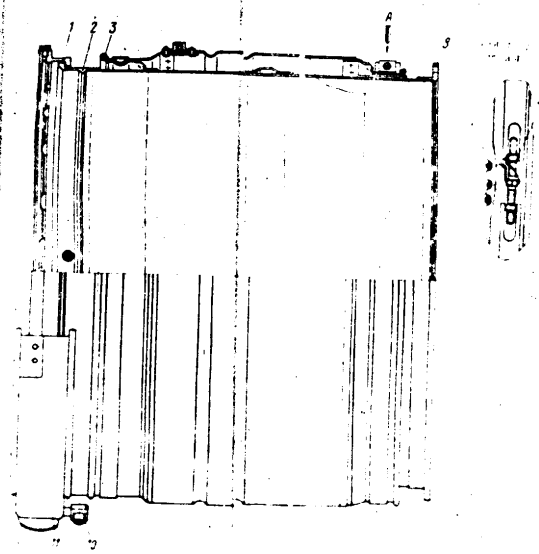


Fig.46. Diagram of afterburner diffuser (longitudinal section)

1 - ... ports; 2 - clamp; 3 - pin; 4 - after-chamber wire pins; 5 - fairing; 6 - outer wall; 7 - inner wall; 8 - flame arrester; 9 - clamp; ... plate; 11 - bush; 12 - clamp; 13 - rear fuel manifold; 14 - ... 15 - ... manifold; 16 - diffuser flange; 17 - clamp; 18 - ... 19 - ... semicylindrical covers for attachment of pins; 20 - hemispherical covers for attachment of fuel manifolds; 21 - hemispheres; 22 - strip.



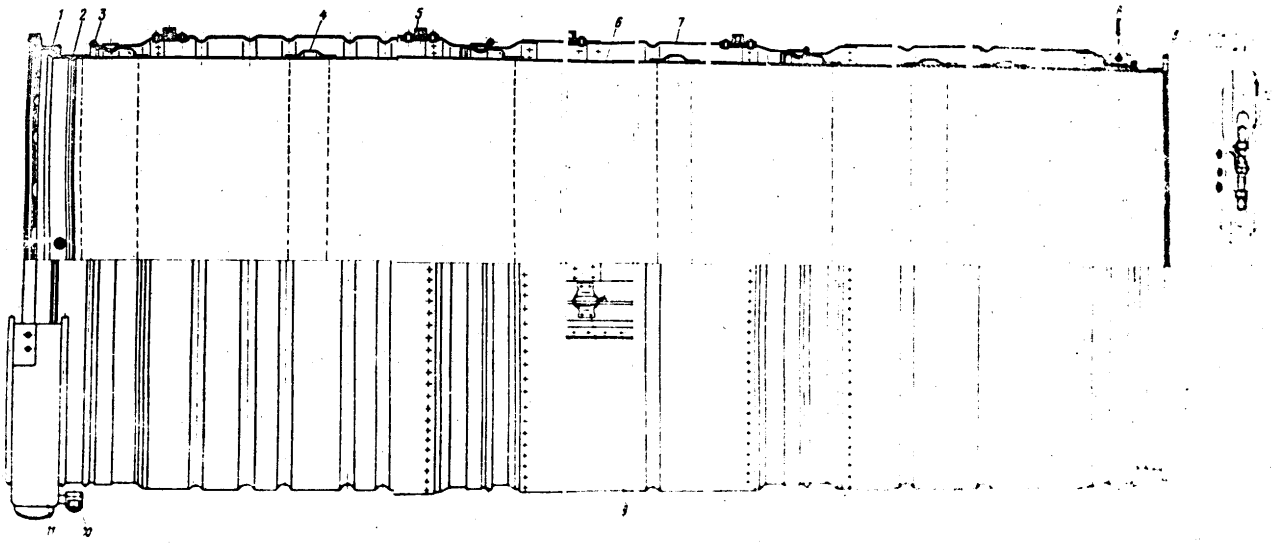


Fig.47. Waffle pipe

1 - quick-change ring; 2 - front flange; 3 - wire; 4 - band; 5 - brass [illegible]; 6 - [illegible]; 7 - rivet; 8 - rear flange; 9 - lug; 10 - pipe [illegible]; 11 - fuel trap; [illegible]

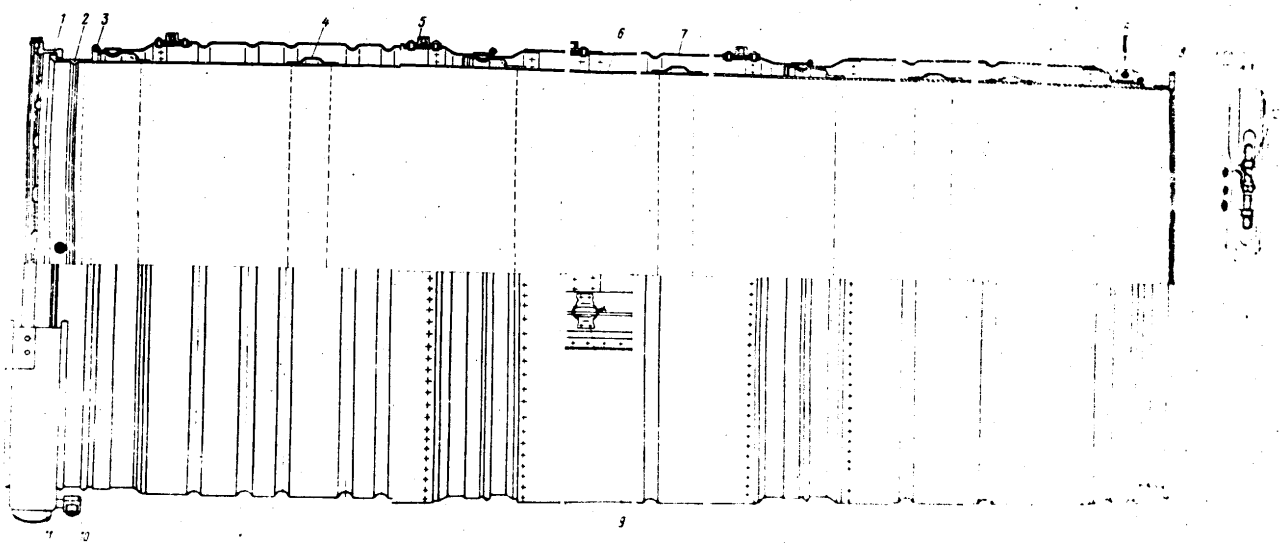


Fig.47. Middle Pipe

1 - quick-change ring; 2 - front flange; 3 - wire; 4 - band; 5 - bush; [illegible]; 8 - rear flange; 9 - lug; 10 - pipe union; 11 - fuel tr[illegible]

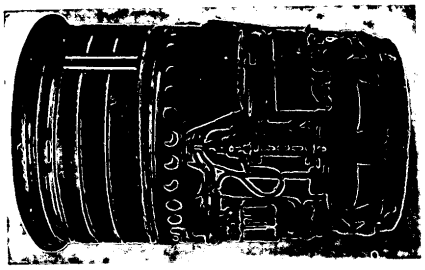


Fig. 48. Adjustable Jet Nozzle

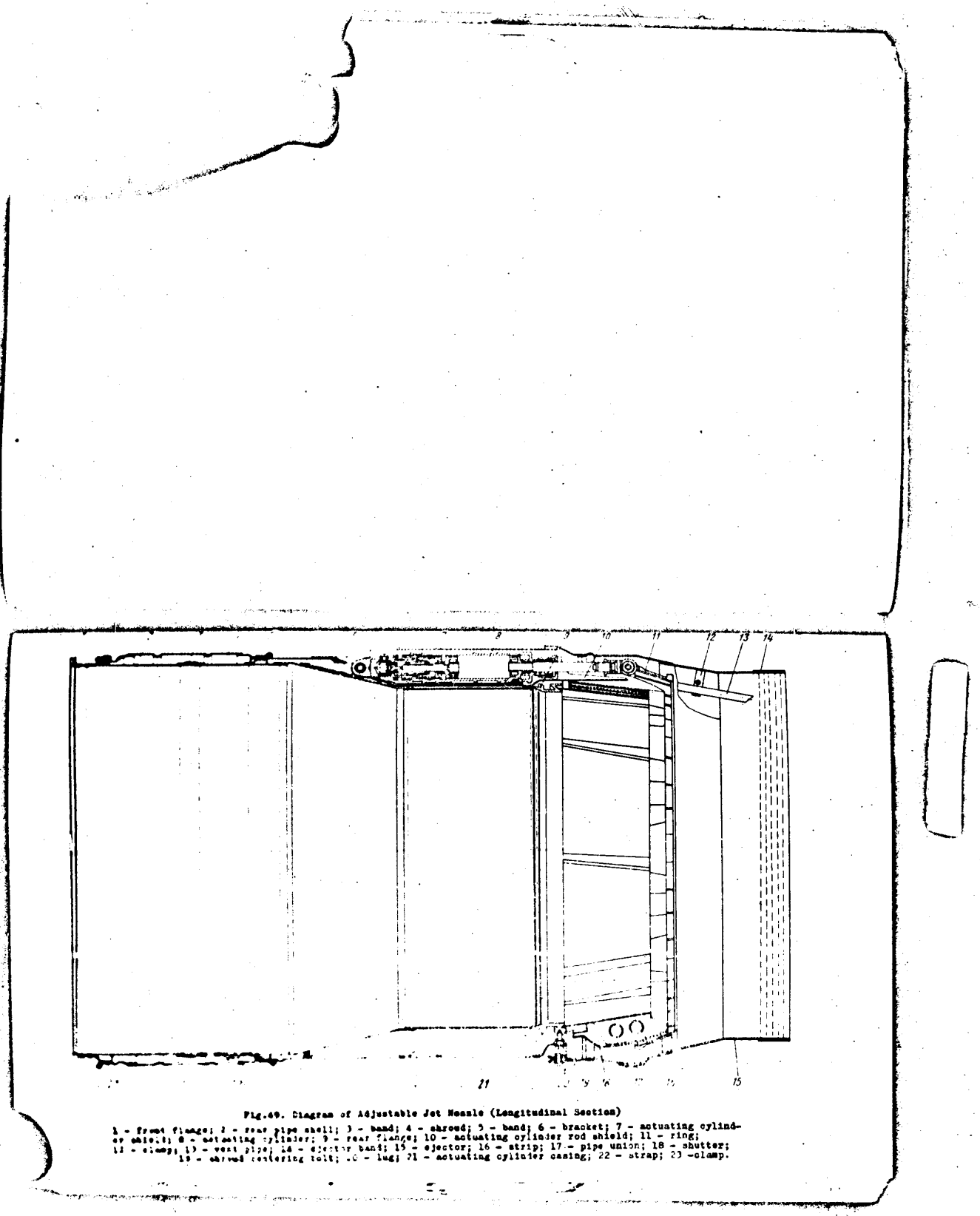


Fig.69. Diagram of Adjustable Jet Nozzle (Longitudinal Section)

1 - front flange; 2 - rear pipe shell; 3 - band; 4 - shroud; 5 - band; 6 - bracket; 7 - actuating cylinder shield; 8 - actuating cylinder; 9 - rear flange; 10 - actuating cylinder rod shield; 11 - ring; 12 - clamp; 13 - vent pipe; 14 - ejector band; 15 - ejector; 16 - strip; 17 - pipe union; 18 - shutter; 19 - shroud centering bolt; 20 - lug; 21 - actuating cylinder casing; 22 - strap; 23 - clamp.

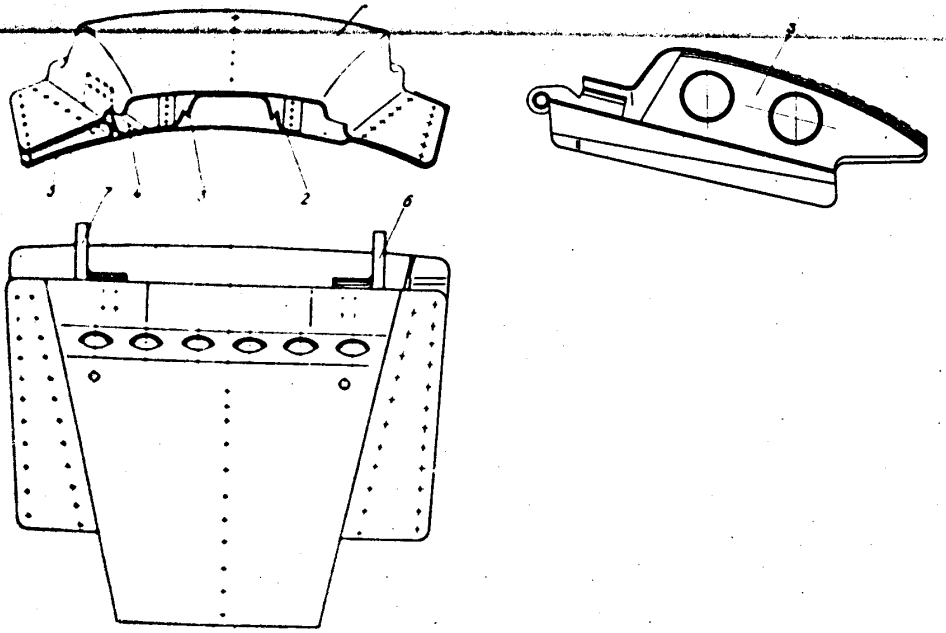


Fig.90. Adjustable Jet Nozzle Shutter
1 - outer wall; 2 - inner wall; 3 - rib; 4 - angle; 5 - recess wall; 6 - right-hand hinge; 7 - left-hand hinge.

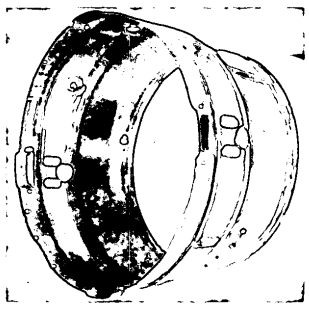


Fig. 51. Ejector

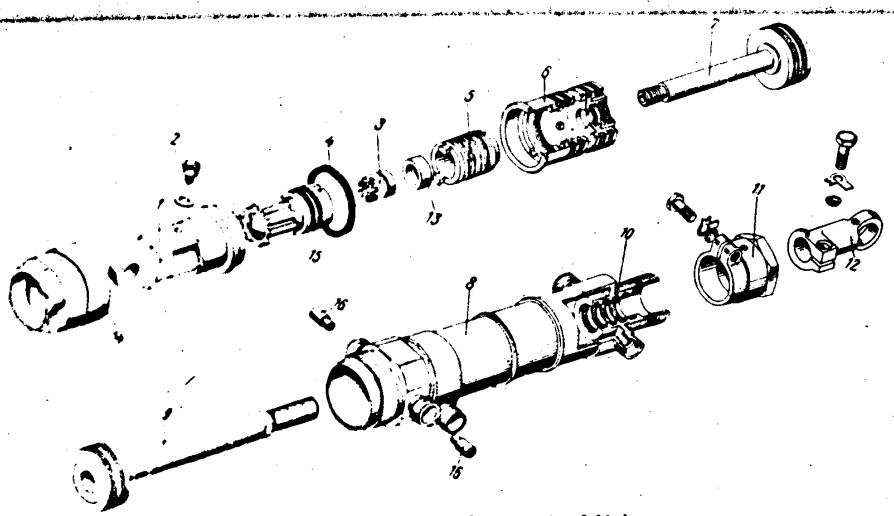


Fig.92. Actuating Cylinder

1 - sleeve; 2 - screw; 3 - nut; 4 - packing gasket; 5 - thrust nut; 6 - packing bush; 7 - front piston; 8 - cylinder; 9 - rear piston; 10 - rubber cups; 11 - adjusting nut; 12 - shank; 13 - bush; 14 - union nut; 15 - adjusting bush; 16 - retainer-jet.

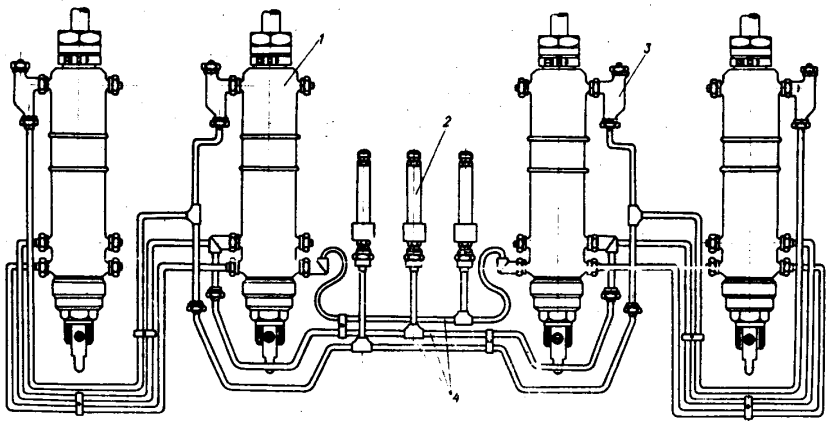


Fig.53. Diagram Showing Connection of Actuating Cylinders by Hydraulic System Pipes
1 - actuating cylinder; 2 - adapter; 3 - return valve; 4 - pipes.

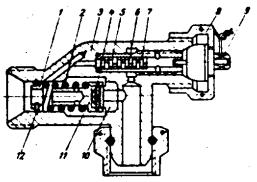
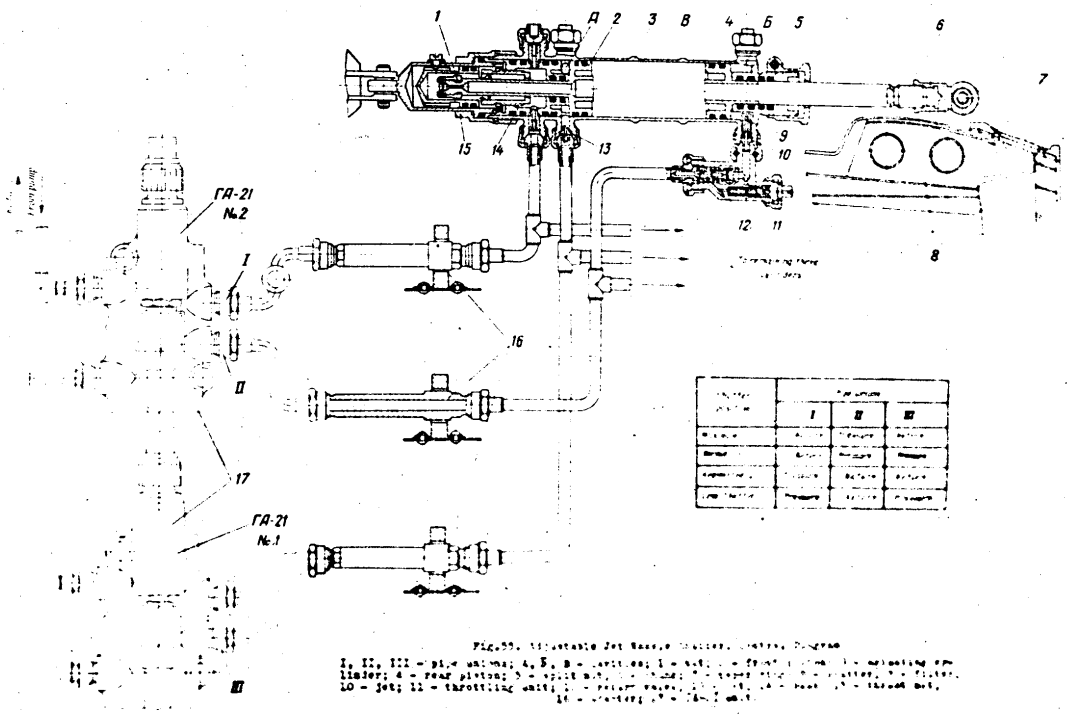
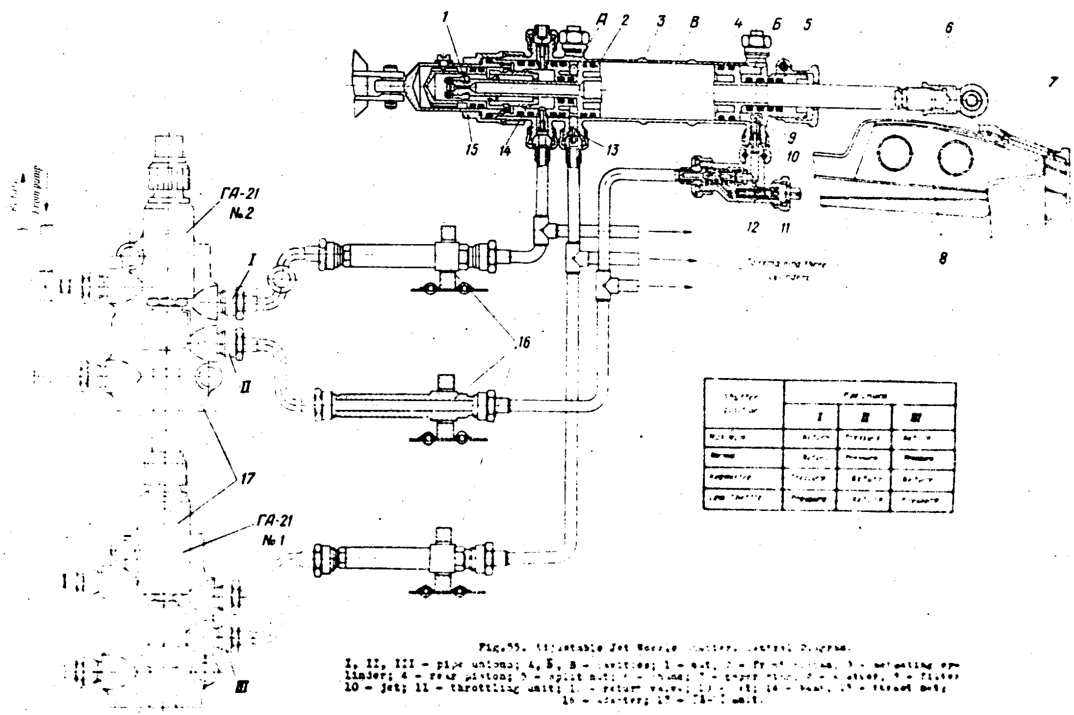


Fig.54. Actuating Cylinder Return Valve

1 - thrust ring; 2 - spring; 3 - body; 4 - valve; 5 - throttling unit case; 6 - eccentric washer; 7 - distance washer; 8 - union nut; 9 - plug; 10 - seat; 11 - socket; 12 - locking ring.





[illegible]	[illegible]		
	I	II	III
[illegible]	Return	Pressure	Return
[illegible]	Return	Pressure	Pressure
[illegible]	Pressure	Return	Return
[illegible]	Pressure	Return	Pressure

Fig.55. [illegible] Jet Nozzle [illegible] Diagram.

I, II, III - pipe unions; A, Б, B - cavities; 1 - nut, 2 - [illegible]; 3 - [illegible] cylinder; 4 - rear piston; 5 - split nut; [illegible]; 10 - jet; 11 - throttling unit; [illegible] - return valve; [illegible]; 16 - [illegible]; 17 - [illegible] unit.

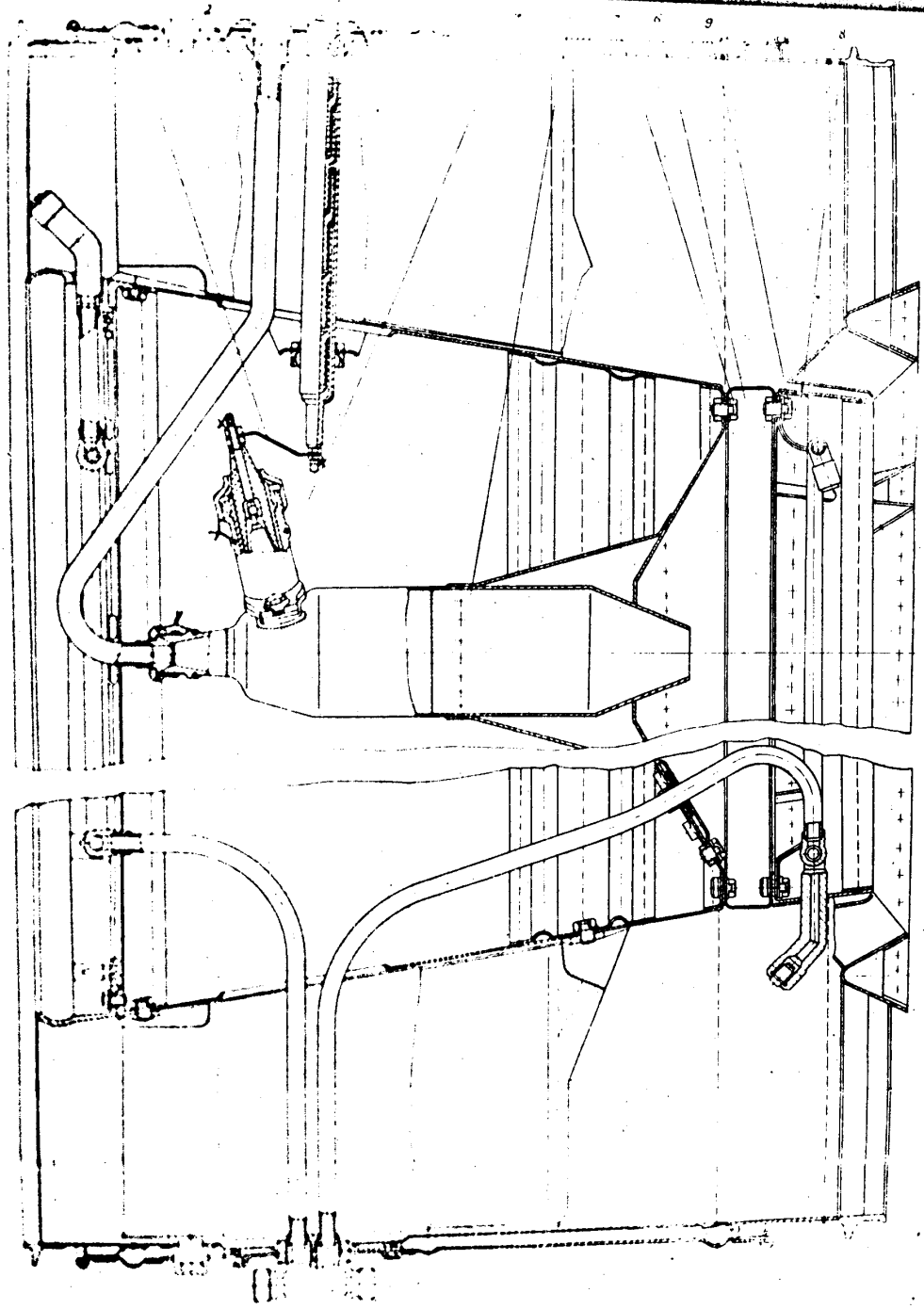


Fig.54. Diffuser with Precombustion Chamber

1 - housing; 2 - fairing; 3 - adapter 7-II; 4 - spark plug CH-10P4; 5 - flame igniter; 6 - distributor piece; 7 - bolt; 8 - flame arrester.

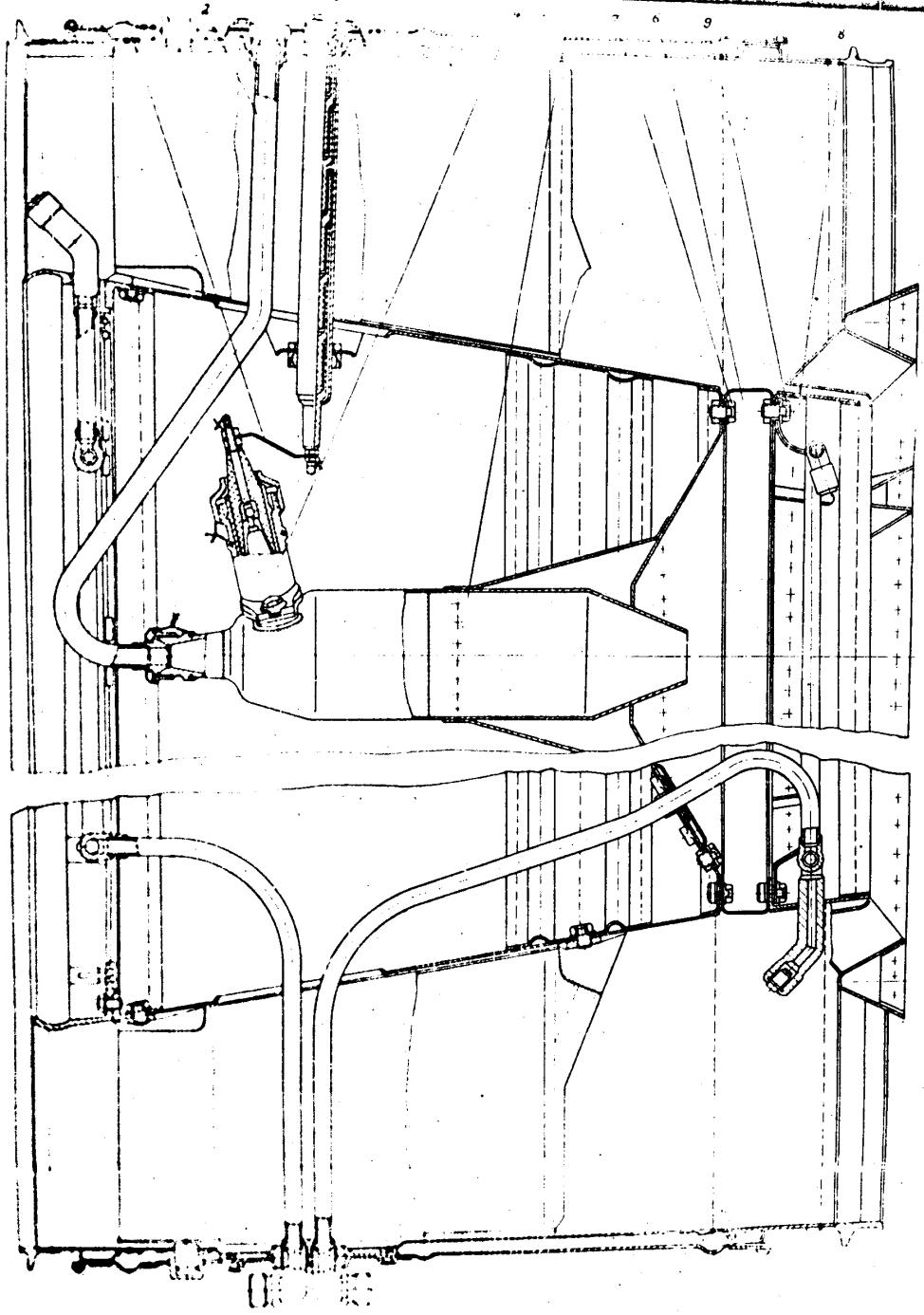


Fig.44. Diffuser with Precombustion Chamber

1 - frame; 2 - fuel-air mixture delivery pipe; 3 - adapter 3-II; 4 - spark plug СД-10РД; 5 - flame igniter; 6 - piston pipe; 7, 9 - bolts; 8 - flame arrester.

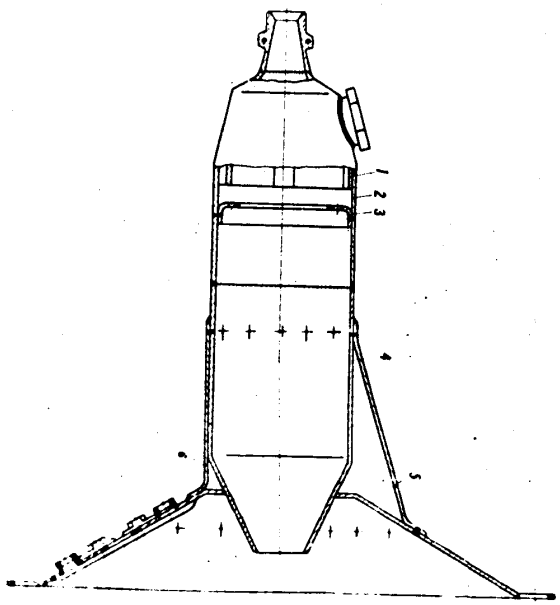


Fig.57. Plane igniter

1 - inner cone; 2 - outer cone; 3 - cup; 4 - nozzle; 5 - end plate; 6 - cone

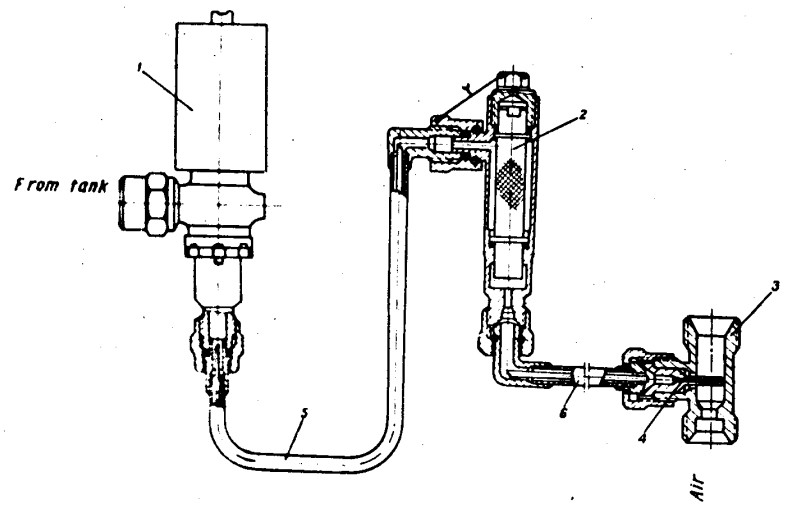


Fig.50. Magnetic Valve with Carburettor

1 - magnetic valve; 2 - throttling unit; 3 - carburettor; 4 - nozzle; 5 - pipe for fuel delivery from magnetic valve to throttling unit; 6 - pipe for fuel delivery from throttling unit to carburettor.

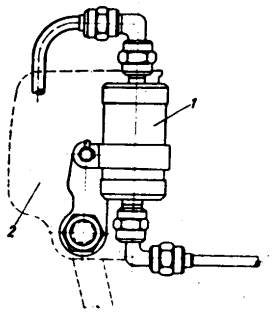


Fig.59. Diagram Showing Connection of Reservoir to Air Blow-Off Band Control Mechanism

1 - reservoir; 2 - blow-off mechanism.

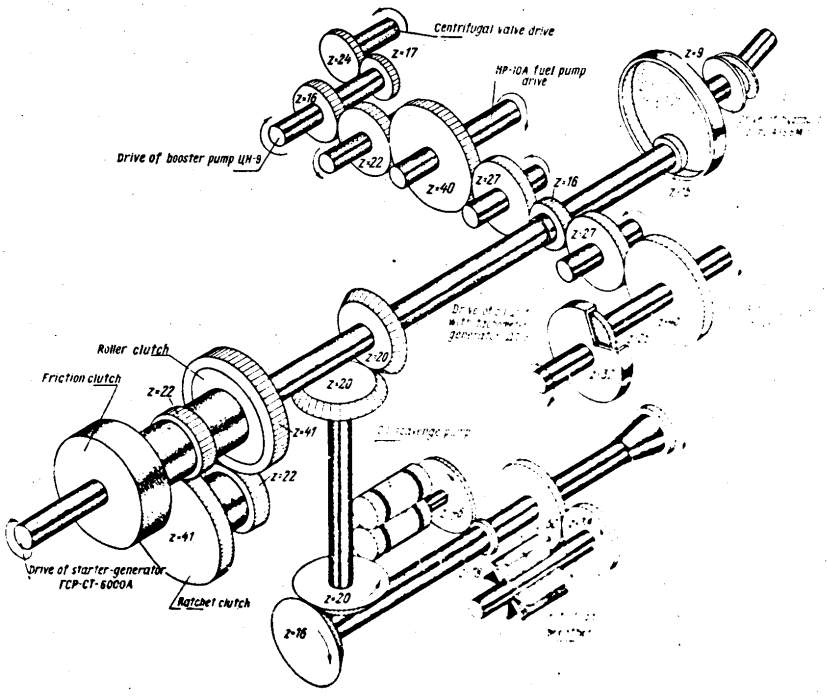


Fig.60. Accessory Gear Box, Two-Speed Drive and Rear Portion of Inlet Housing. Sectional Diagram.

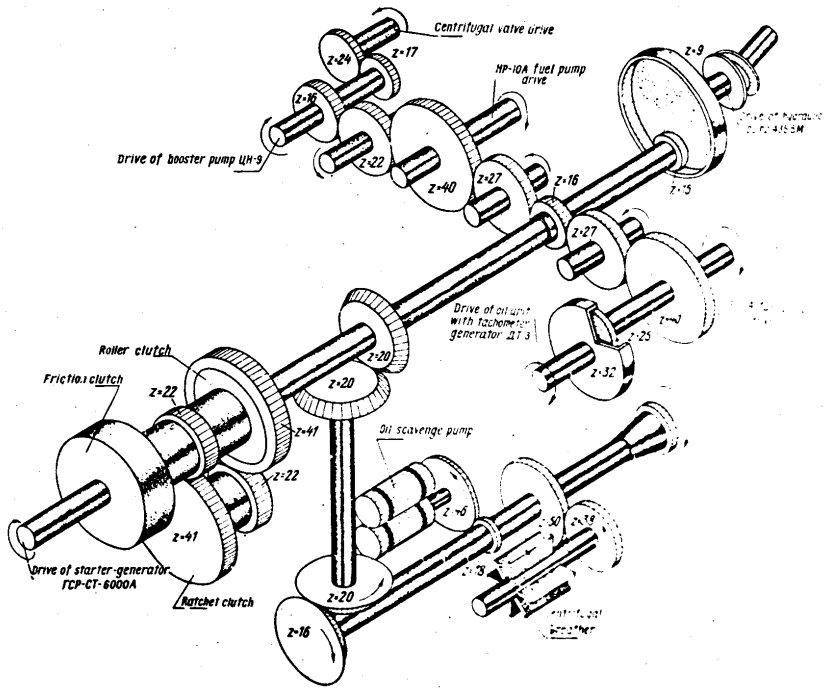


Fig.60. Accessory Gear Box, Two-Speed Drive and Nose Portion of Inlet Housing. Kinematical Diagram.

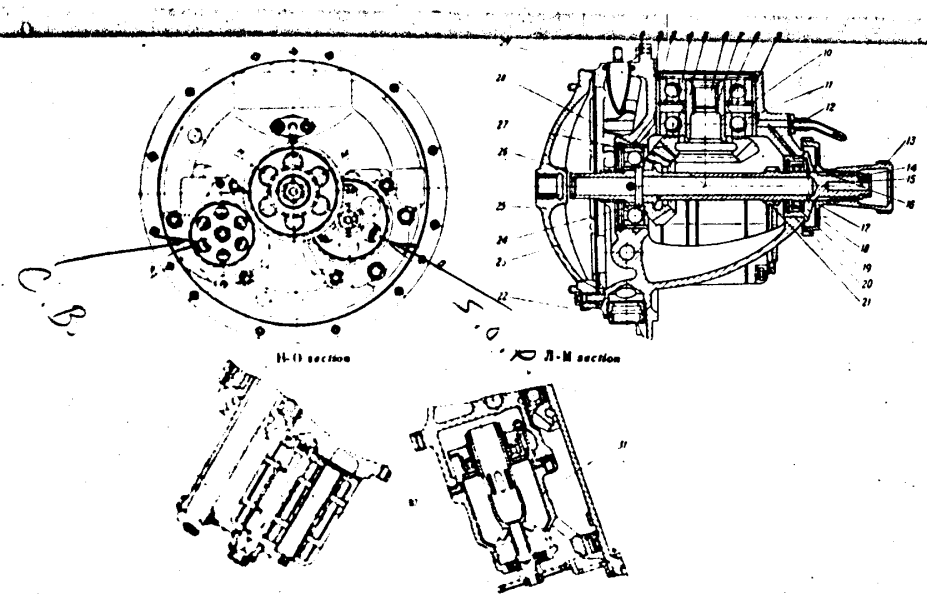


Fig.61. Nose Portion of Compressor Inlet Housing

1 - nose portion housing; 2, 7, 10, 20 - locking rings; 3 - adjusting ring; 4, 11, 24 - ball bearings; 5 - driven gear; 6 - accessory gear box drive; 8 - distance sleeve; 9 - bearing bush; 12-oil seals of compressor rotor front bearing; 13 - coupling; 14 - nut; 15 - lock; 16 - spring ring; 17 - centrifugal breather drive gear; 18 - roller bearing bush; 19 - roller bearing; 21 - scavenge oil pump drive gear; 22 - adapter sleeve; 23 - locking ring; 25 - cover; 26 - driving shaft; 27-adjusting ring; 28 - gear; 29 - breather pipe; 30 - scavenge oil pump; 31 - centrifugal breather.

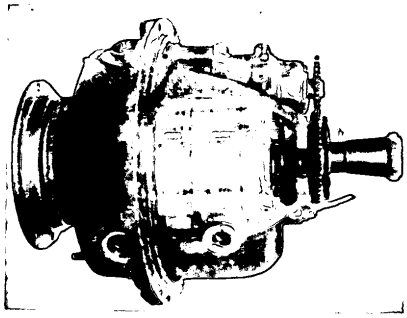
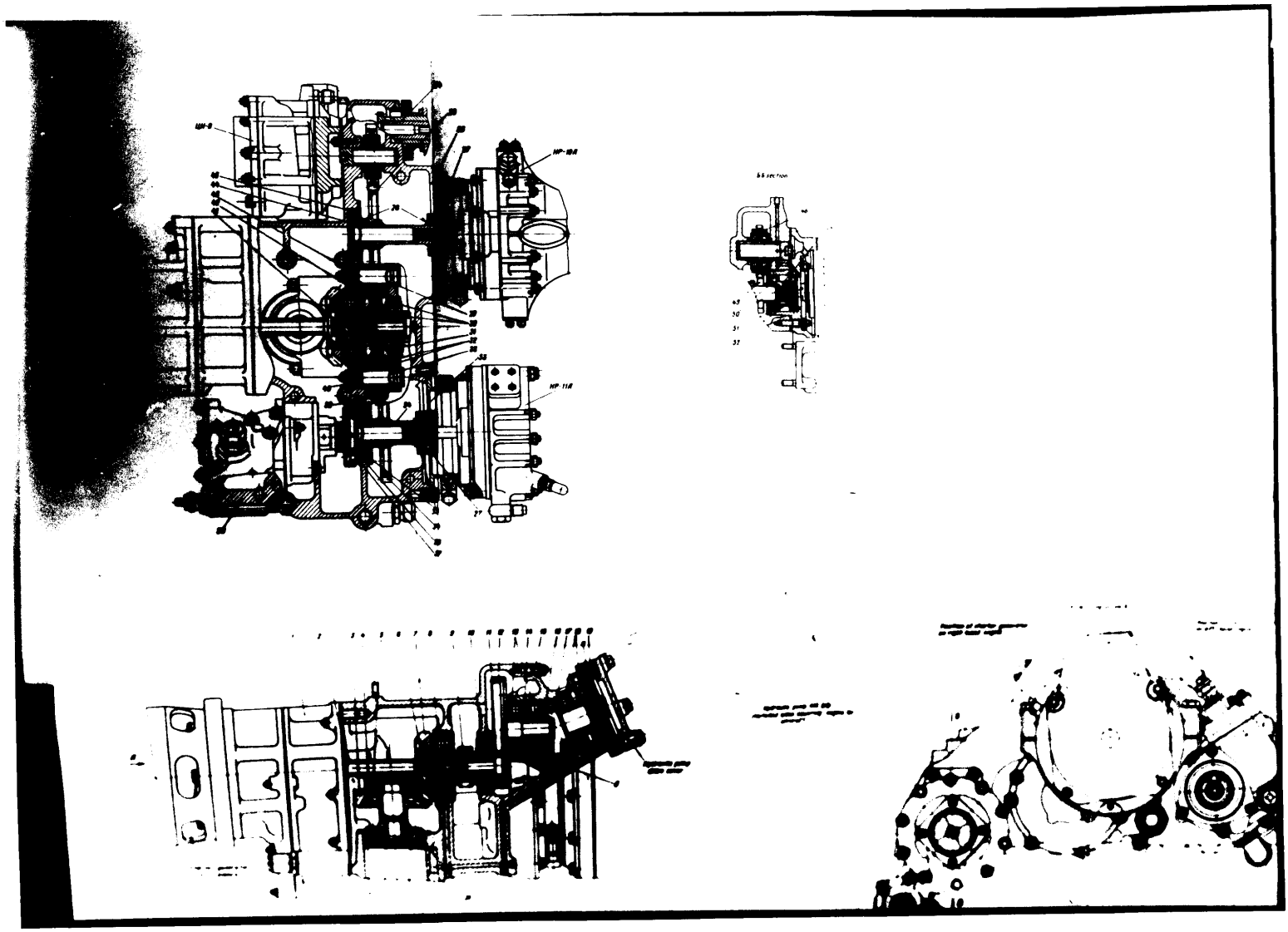
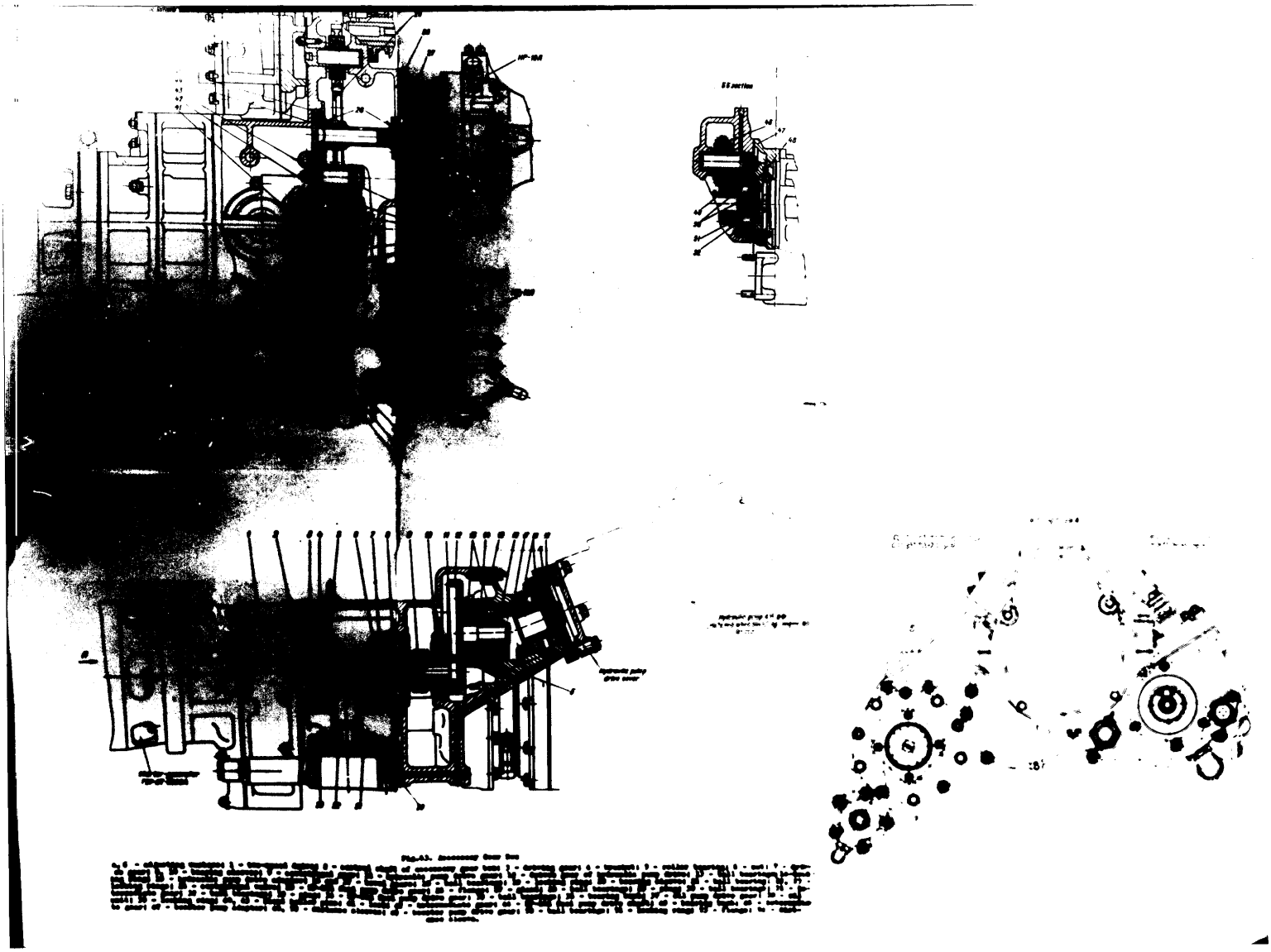


Fig. 62. Nose Portion of Compressor Inlet Housing





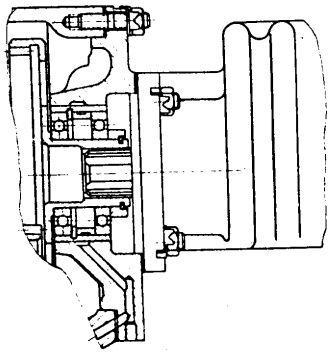


Fig.65. Drive of Hydraulic Pump 623

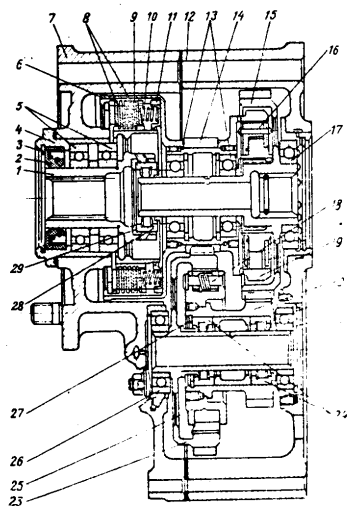


Fig.66. Two-Speed Drive

1 - clutch guide; 2 - rubber gland; 3 - locking ring; 4 - bush; 5, 13, 17, 22, 26 - ball bearings; 6 - friction clutch housing; 7 - two-speed drive cover; 8 - steel discs; 9 - bronze discs; 10 - spring; 11 - spring case; 12 - two-speed drive housing; 14 - driving gear; 15 - driven gear; 16 - roller friction clutch; 18 - ratchet tooth clutch pin; 19 - roller friction clutch holder; 20 - guide gear; 21, 27 - locking rings; 23 - ratchet; 24 - roller bearings; 25 - ratchet tooth clutch housing; 28 - roller bearing; 29 - blind bush.

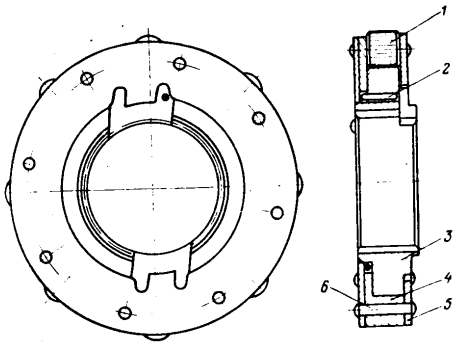


Fig.67. Roller Clutch
1 - roller; 2 - spring; 3 - cam; 4 - clutch separator; 5 - washer; 6 - rivet.

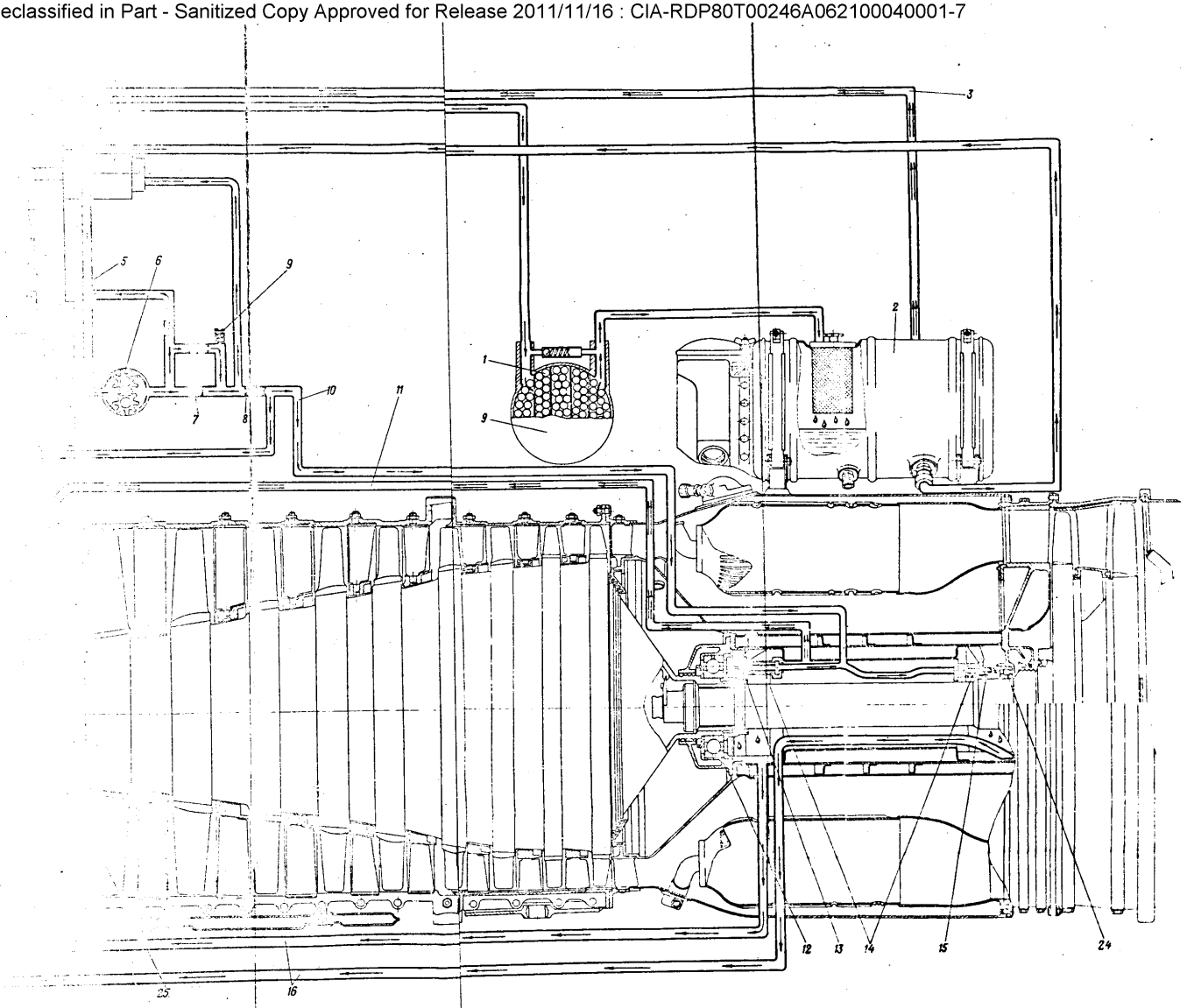


Fig.66. Engine Lubrication Diagram

2 – oil tank; 3 – accessory drive gear box breather pipe; 5 – oil delivery valve; 6 – pipe for oil delivery to oil cooler; 7 – oil filter; 8 – return valve; 9 – pipe for oil delivery to centre and rear bearings; 10 – breather pipe; 11 – centre bearing oil nozzle; 12 – centre bearing oil nozzle filter; 13 – centre bearing oil nozzle; 14 – oil nozzle filter; 15 – pipes for scavenging rear bearing oil nozzle; 16 – pipes for scavenging front bearing; 17 – front bearing oil nozzle; 18, 19 – oil pump; 20 – centrifugal breather; 21 – accessory drive gear box; 22 – oil filter; 23 – pipe line supplying oil to oil cooler; 24 – compressor rotor rear bearing; 25 – compressor rotor front bearing.

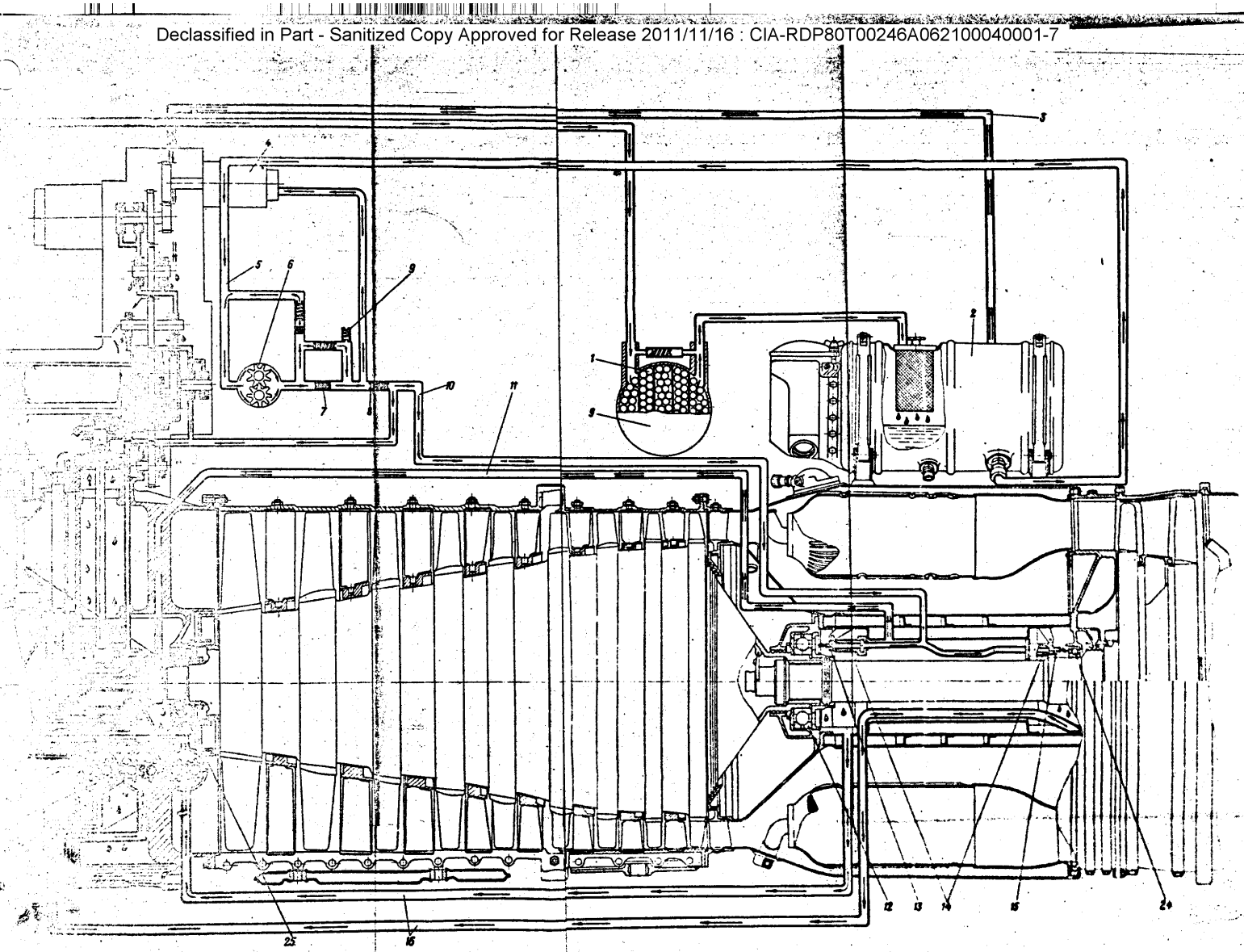


Fig.68. Engine Lubrication Diagram

1 - fuel-oil cooler; 2 - oil tank; 3 - accessory drive gear box breather pipe; 4 - centrifugal valve; 5 - pipe for oil delivery to oil tank; 6 - oil unit pressure pump; 7 - oil filter; 8 - return valve; 9 - pipe union-valve; 10 - pipe for oil delivery to centre and rear bearings; 11 - bearing housing breather pipe; 12 - centre bearing of compressor rotor; 13 - centre bearing oil nozzle; 14 - oil nozzle filter; 15 - turbine rear bearing oil nozzle; 16 - pipes for scavenging oil from centre and rear bearings; 17 - front bearing oil nozzle; 18, 21, 22 - scavenge oil pumps; 19 - centrifugal breather; 20 - accessory drive gear box gauze filter; 23 - pipe line supplying oil to oil cooler; 24 - turbine rotor rear bearing; 25 - compressor rotor front bearing.

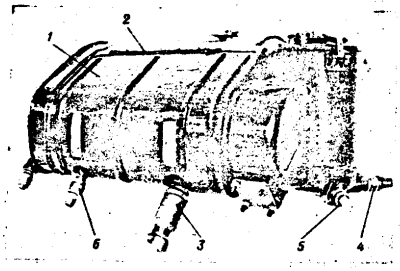


Fig. 60. Fuel-Oil Unit 317A

1 — casing; 2 — screw; 3 — return valve; 4 — pipe union-valve; 5 — union nut with plug; 6 — pipe union-valve.

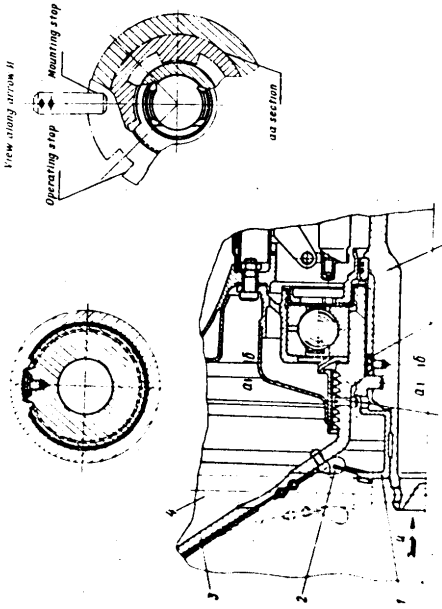


Fig. 16. Diagram showing connection of Turbine Rotor to Compressor Rotor
1 – coupling; 2 – plate spring; 3 – front trunnion of compressor rotor; 4 – mounting arm; 5 – joint; 6 – strip; 7 – turbine rotor shaft.

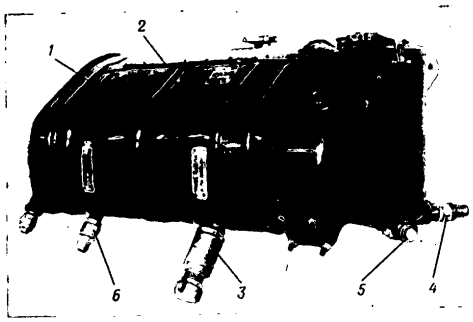


Fig. 69. Fuel-Oil Unit 317A

1 — casing; 2 — screw; 3 — return valve; 4 — pipe union-valve; 5 — union nut with plug; 6 — pipe union-valve.

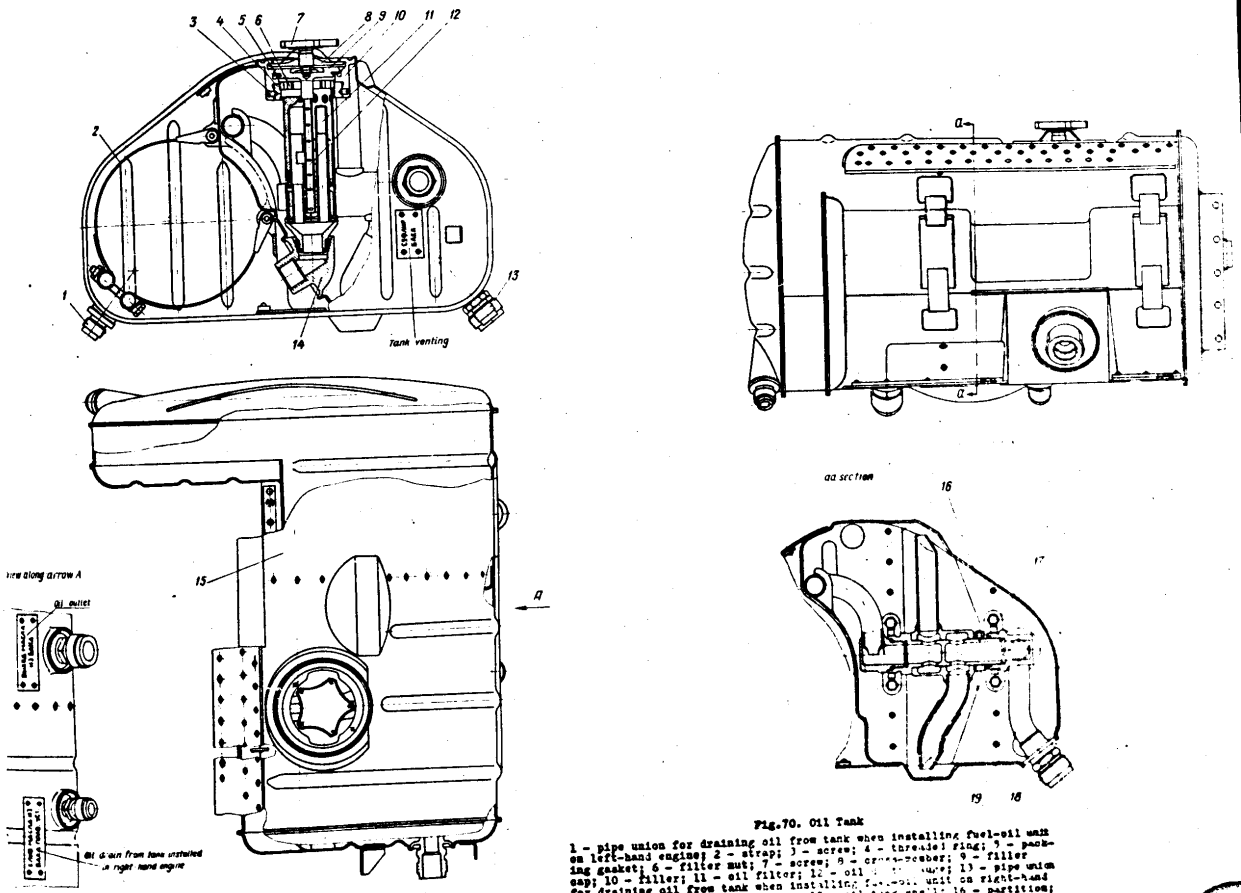


Fig.70. Oil Tank

1 - pipe union for draining oil from tank when installing fuel-oil unit on left-hand engine; 2 - strap; 3 - screw; 4 - threaded ring; 5 - packing gasket; 6 - filler nut; 7 - screw; 8 - cross-washer; 9 - filler cap; 10 - filler; 11 - oil filter; 12 - oil [illegible] valve; 13 - pipe union for draining oil from tank when installing fuel-oil unit on right-hand engine; 14 - oil inlet pipe union; 15 - oil tank assembly; 16 - partition; 17 - strap; 18 - pipe union for delivery of oil from oil tank to engine; 19 - pipe.

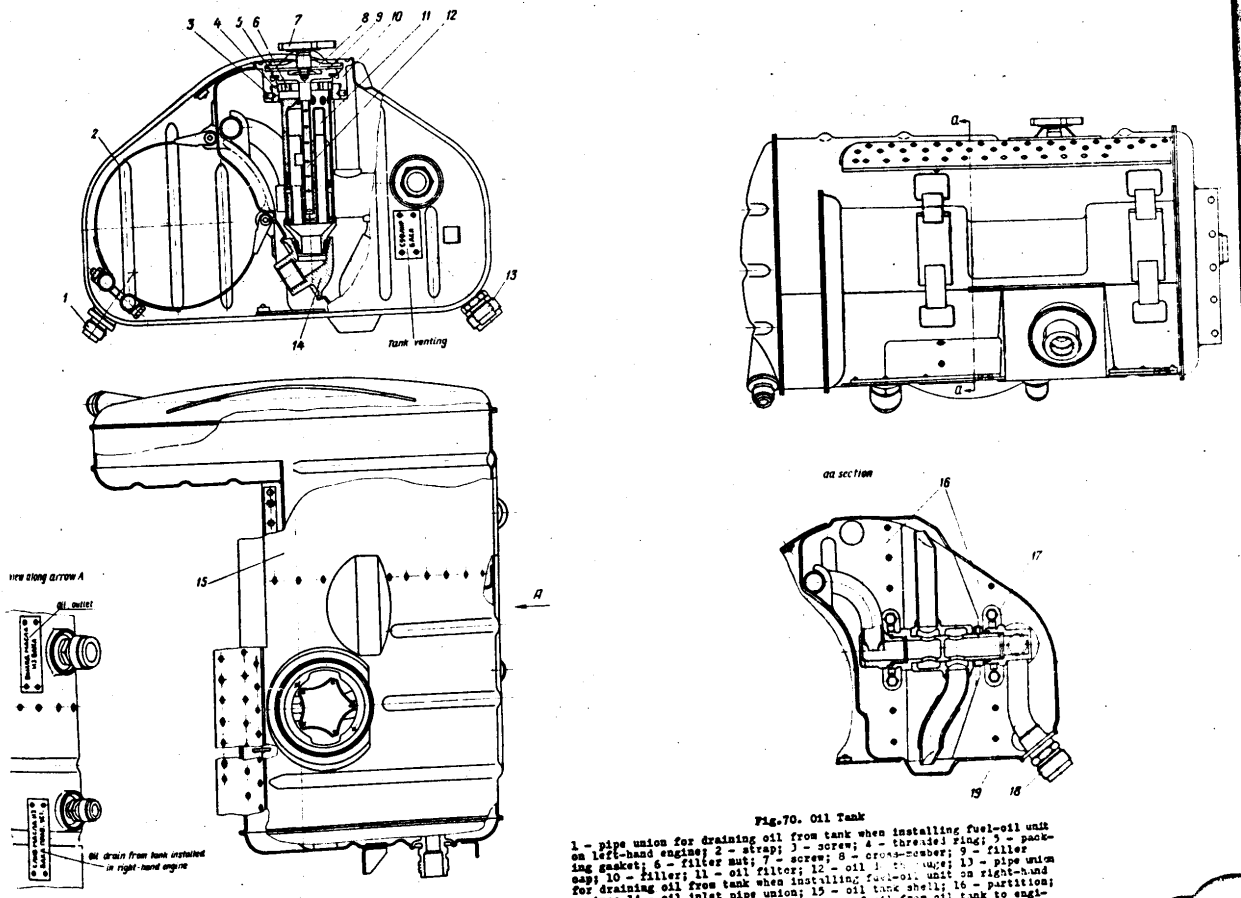


Fig.70. Oil Tank

1 - pipe union for draining oil from tank when installing fuel-oil unit on left-hand engine; 2 - strap; 3 - screw; 4 - threaded ring; 5 - packing gasket; 6 - filter nut; 7 - screw; 8 - cross-member; 9 - filler cap; 10 - filler; 11 - oil filter; 12 - oil [illegible]; 13 - pipe union for draining oil from tank when installing fuel-oil unit on right-hand engine; 14 - oil inlet pipe union; 15 - oil tank shell; 16 - partition; 17 - strap; 18 - pipe union for delivery of oil from oil tank to engine; 19 - pipe.

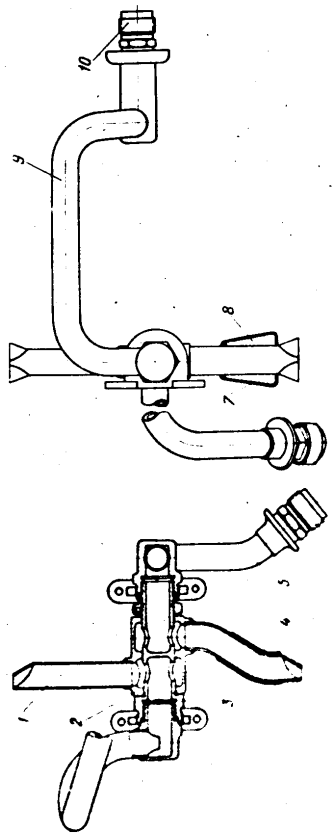


Fig.71. Rotary Oil Intake with Breather Device.
1 - breather pipe; 2 - bush; 3 - bellow axle; 4 - oil intake; 5 - pipe; 6 - oil outlet pipe union; 7 - packet; 8 - lead; 9 - pipe; 10 - breather pipe union.

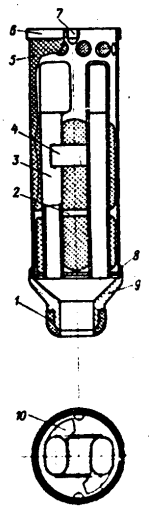


Fig.72. Oil Filter

1 - stud; 2 - filter frame; 3 - [illegible]; 4 - gasket;
5 - filter gauze; 6 - ring; 7 - [illegible]; 8 - bottom;
9 - bolt; 10 - nozzle.

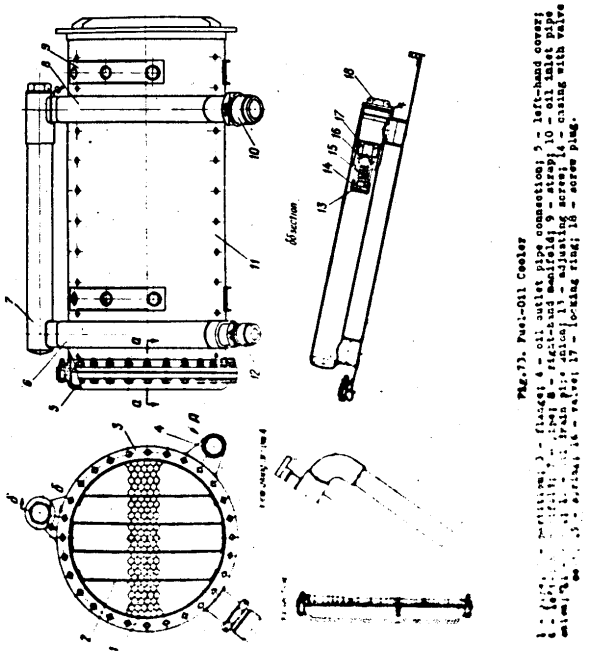


Fig.73. Fuel-Oil Cooler

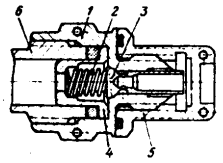


Fig.74. Pipe Union-Valve
1 - pipe union; 2 - spring; 3 - valve rod; 4 - nipple; 5 - cap; 6 - oil drain pipe union.

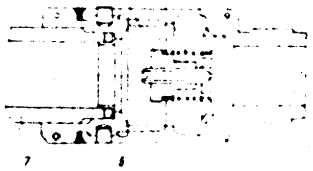


Fig.75. Return Valve
1 - pipe union; 2 - valve guide; 3 - spring; 4 - valve; 5 - housing; 6 - sleeve; 7 - oil inlet pipe union.

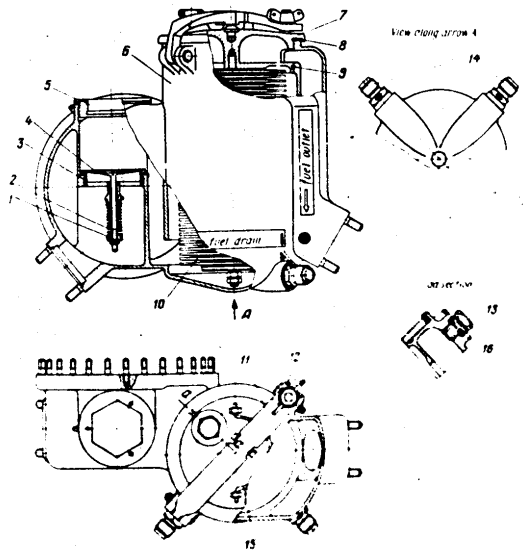


Fig.76. Fuel Filter

1 - valve disc; 2 - spring; 3 - valve seat; 4 - membrane; 5 - pin; 6 - filter cooling; 7 - filter cap; 8 - gasket; 9 - ring; 10 - filter element; 11 - clamp; 12 - wing nut; 13 - screw plug; 14 - fuel drain pipe union; 15 - handle; 16 - packing ring.

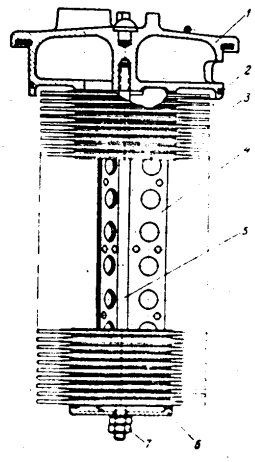


Fig.77. Filter Element
1 - filter cap; 2 - packing ring; 3 - gauze disc; 4 - core; 5 - rod; 6 - bottom; 7 - nut.

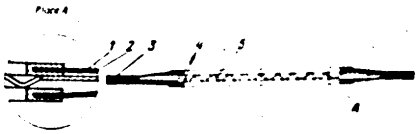
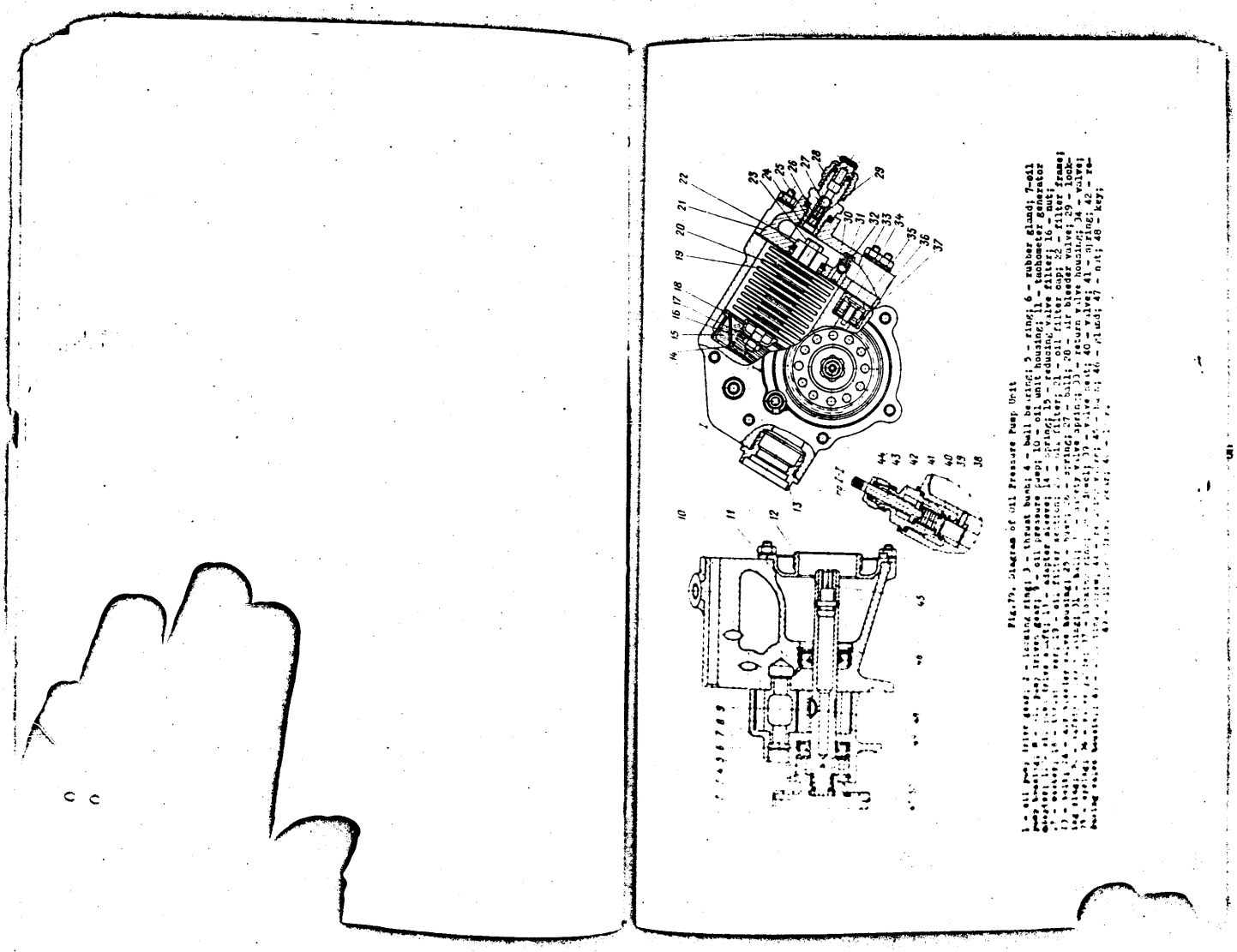


Fig.78. Gauze Disc
1 - fine gauze; 2 - coarse gauze; 3 - outer ring; 4 - inner ring; 5 - corrugated disc.



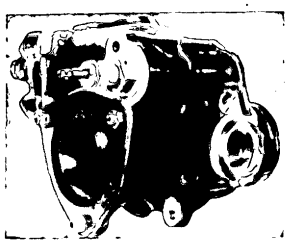


Fig. 80. Oil Pressure Pump Unit

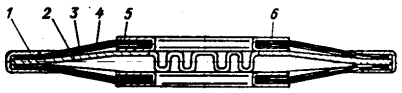


Fig.81. Oil Filter Section.
1 - outer holder; 2 - diaphragm; 3 - filter gauze; 4 - frame gauze; 5 - washer; 6 - inner holder.

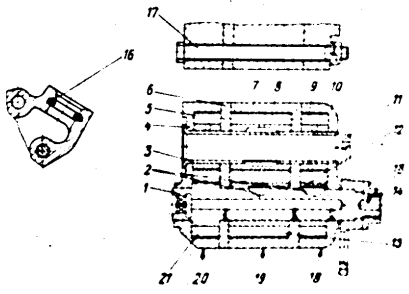


Fig.82. Scavenge Oil Pump
1 - scavenge oil pump drive shaft; 2 - keys; 3 - driven gear axle; 4, 7, 10 - scavenging section housings; 6 - oil pump cover; 5, 8, 9 - driven gears; 11 - oil pump spur drive gear; 12, 14, 21 - driving gears; 13 - nut; 15 - cover; 16 - rubber packing ring; 17 - bolt; 18 - third scavenging section; 19 - middle scavenging section; 20 - first scavenging section.

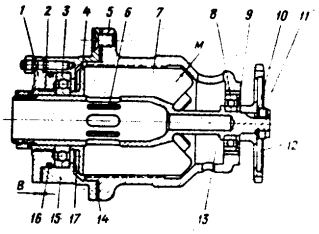


Fig.83. Centrifugal Breather

M, B - clearances; 1 - thrust cover; 2 - oil seal bush; 3, 8 - ball bearings; 4 - thrust disc; 5 - centrifugal breather housing; 6 - rotor part; 7 - rotor blades; 9 - oil slinger; 10 - lock; 11 - nut; 12 - spur gear; 13 - rotor; 14 - brass shim; 15 - centrifugal breather cover; 16 - rubber ring; 17 - recess.

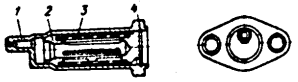


Fig.84. Oil Nozzle of Compressor Rotor Centre Bearing.

1 - nozzle body; 2 - frame; 3 - gauze filter; 4 - locking ring.

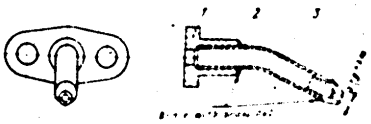


Fig.85. Oil Nozzle of Rotor Front Bearing

1 - flange; 2 - pipe; 3 - jet.

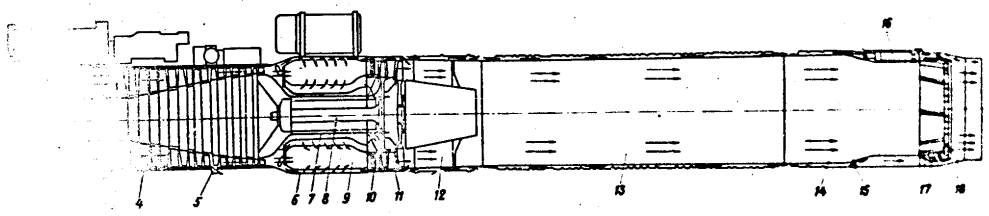


Fig.86. Engine Air Cooling Diagram

1 - nose bullet fairing; 2 - compressor inlet housing; 3 - compressor rotor; 4 - compressor middle housing; 5 - compressor blow-off ports; 6 - rear housing; 7 - shield; 8 - turbine rotor; 9 - combustion chambers; 10 - first stage nozzle assembly; 11 - second stage nozzle assembly; 12 - afterburner diffuser; 13 - afterburner middle pipe; 14 - afterburner adjustable jet nozzle; 15 - ports in adjustable jet nozzle shroud; 16 - actuating cylinder; 17 - adjustable jet nozzle shutters; 18 - ejector.

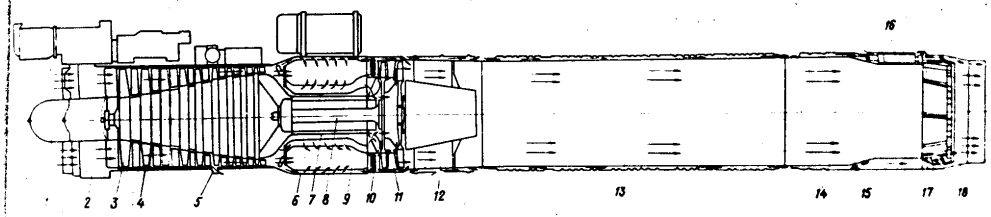


Fig.86. Engine Air Cooling Diagram

1 - nose bullet fairing; 2 - compressor inlet housing; 3 - compressor rotor; 4 - compressor middle housing; 5 - compressor blow-off ports; 6 - rear housing; 7 - shield; 8 - turbine rotor; 9 - combustion chambers; 10 - first stage nozzle assembly; 11 - second stage nozzle assembly; 12 - afterburner diffuser; 13 - afterburner middle pipe; 14 - afterburner adjustable jet nozzle; 15 - ports in adjustable jet nozzle shroud; 16 - actuating cylinder; 17 - adjustable jet nozzle shutters; 18 - ejector.

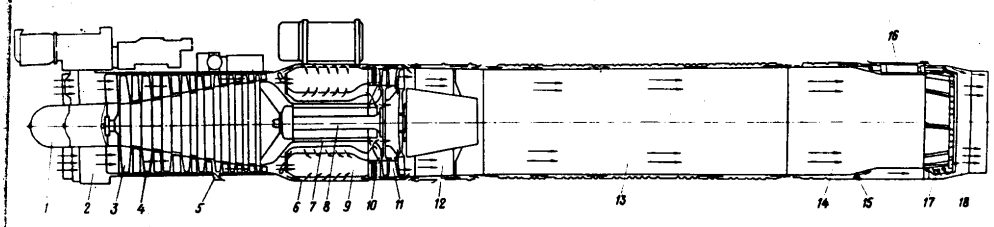


Fig.86. Engine Air Cooling Diagram

1 - nose bullet fairing; 2 - compressor inlet housing; 3 - compressor rotor; 4 - compressor middle housing; 5 - compressor blow-off ports; 6 - rear housing; 7 - shield; 8 - turbine rotor; 9 - combustion chambers; 10 - first stage nozzle assembly; 11 - second stage nozzle assembly; 12 - afterburner diffuser; 13 - afterburner middle pipe; 14 - afterburner adjustable jet nozzle; 15 - ports in adjustable jet nozzle shroud; 16 - actuating cylinder; 17 - adjustable jet nozzle shutters; 18 - ejector.

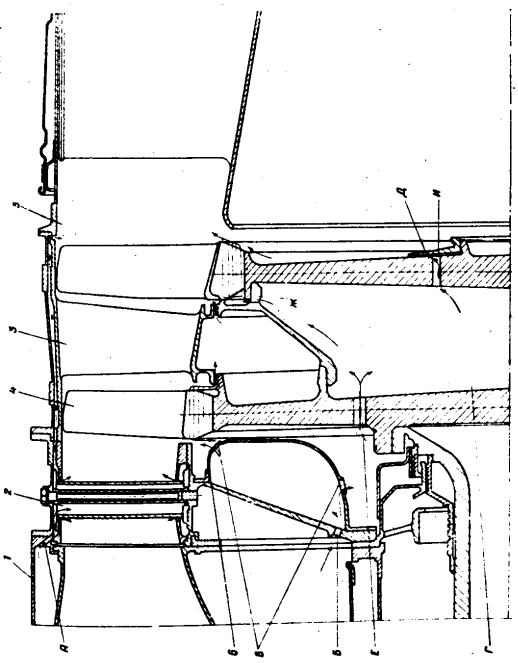


Fig.67. Turbine Cooling Diagram

А, Б, В, Г, Д – holes; Г – cavity; Д – baffle; Е – milled recess; 1 – rear housing; 2 – first stage nozzle assembly; 3 – second stage nozzle assembly; 4 – turbine rotor; 5 – afterburner diffuser; 6 – shield.

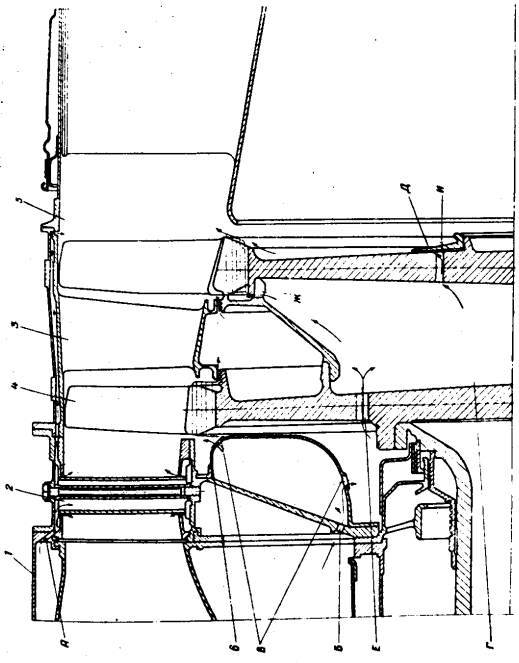


Fig.67. Turbine Cooling Diagram

А, Б, В, Г, Д, Е - holes; Ж - cavity; З - baffle; К - milled recess; 1 - rear housing; 2 - first stage nozzle assembly; 3 - second stage nozzle assembly; 4 - turbine rotor; 5 - afterburner diffuser; 6 - shield.

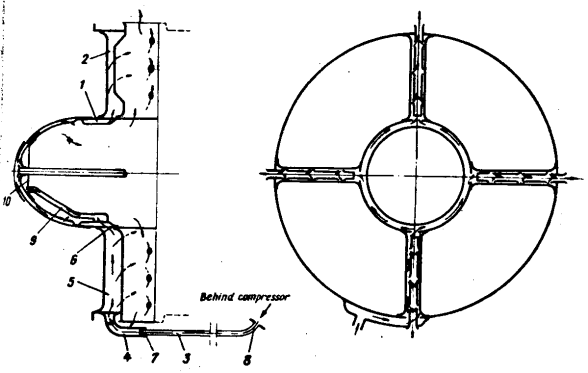


Fig.68. Anti-Icing System Diagram

1 - fairing manifold; 2 - stamped struts; 3 - air delivery pipe; 4 - support pipe connection; 5 - hot air delivery strut; 6 - hole for air delivery into fairing; 7 - jet; 8 - pipe connection for air bleeding from compressor; 9 - pipe for air supply into fairing; 10 - partition.

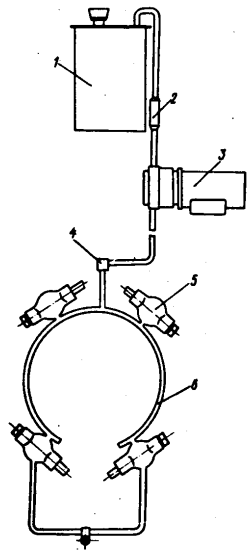


Fig.89. Starting Fuel System Diagram
1 - starting fuel tank; 2 - filter;
3 - [redacted] -10-3M starting fuel pump;
4 - magnetic valve; 5 - flame igniters;
6 - starting fuel manifold.

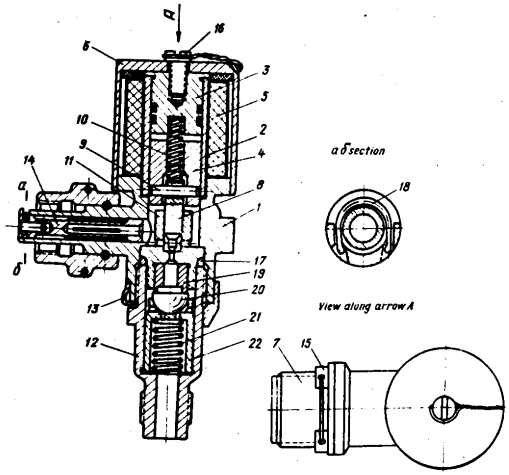


Fig.90. Magnetic Valve

1 - housing; 2 - bush; 3, 4 - cores; 5 - solenoid; 6 - bonnet; 7 - plug connector; 8 - needle; 9 - needle axle; 10 - spring; 11 - bush; 12 - pipe union; 13 - lock; 14 - filter; 15, 16 - screws; 17 - gasket; 18 - lock; 19 - bush; 20 - hemisphere; 21 - spring; 22 - plunger.

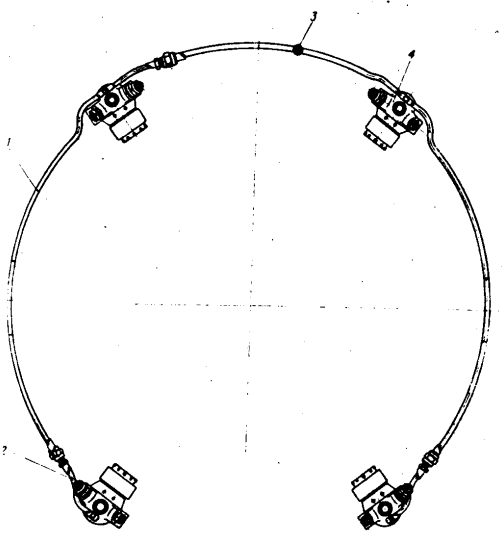


Fig.91. Starting Fuel Manifold
1, 2 - starting fuel manifold pipes; 3 - pipe union; 4 - flame igniter.

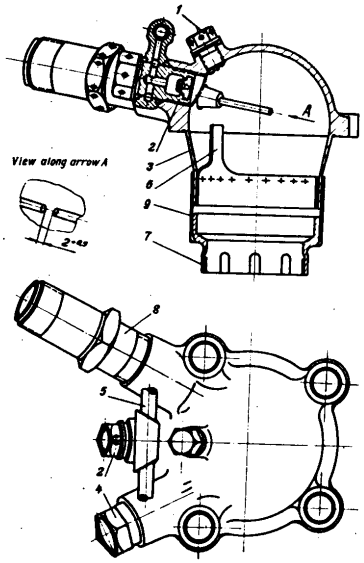


Fig.92. Flame Igniter

1 - screw plug; 2 - starting atomiser; 3 - housing; 4 - discharger; 5 - starting fuel manifold; 6 - shield; 7 - severable bush; 8 - spark plug СД-96; 9 - bush.

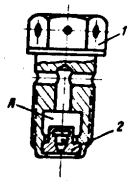


Fig.93. Starting Atomiser

A - cavity; 1 - pipe union; 2 - spray tip.

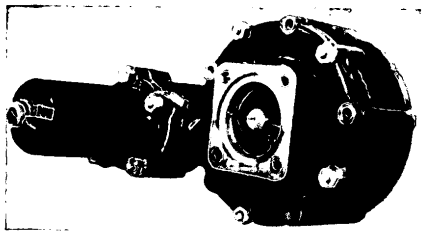


Fig. 94. Booster Pump [illegible]

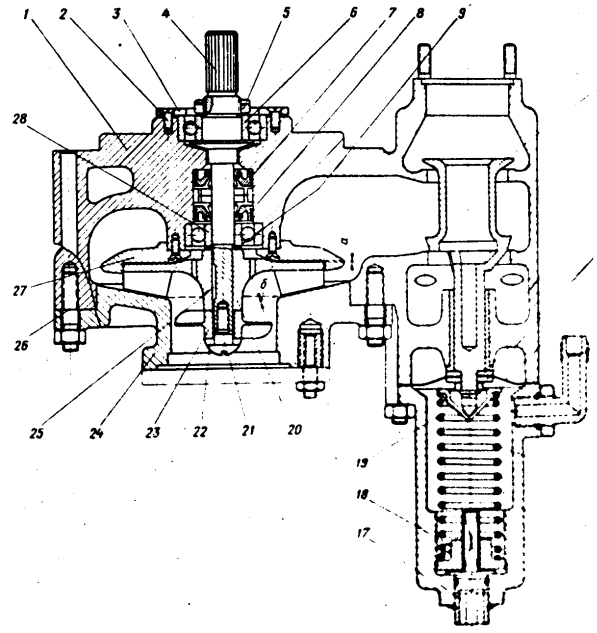


Fig.99. Diagram of Booster Pump 25-9

1 - housing; 2 - screw; 3 - cover; 4 - shaft; 5 - ball; 6 - ball bearing; 7, 8 - packing rings; 9 - adjusting shim; 10 - valve; 11 - bush; 12 - washer; 13 - countersunk; 14 - pipe union; 15 - screw; 16 - spring; 17 - cover; 18 - adjusting screw; 19 - nut; 20 - piston; 21 - steel; 22 - cotter pin; 23 - propeller; 24 - pump cover; 25 - key; 26 - steel; 27 - sealing cover; 28 - ball bearing; 6,8 - impeller mounting riser sleeve.

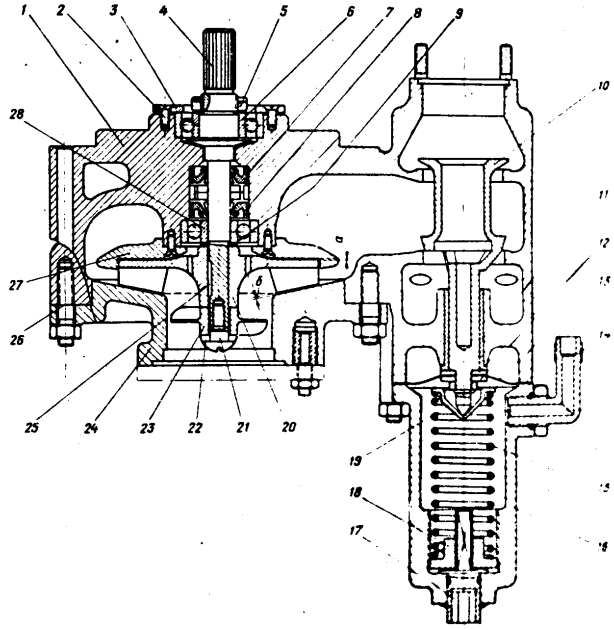


Fig.99. Diagram of Booster Pump ЭЦН-9

1 – housing; 2 – screw; 3 – cover; 4 – shaft; 5 – nut; 6 – ball bearing; 7, 8 – packing rings; 9 – adjusting shim; 10 – valve; 11 – bush; 12 – washer; 13 – gasket; 14 – pipe union; 15 – spring; 16 – cover; 17 – adjusting screw; 18 – nut; 19 – plate; 20 – key; 21 – screw; 22 – cotter pin; 23 – propeller; 24 – pump cover; 25 – key; 26 – stud; 27 – sealing cover; 28 – ball bearing; a,6 – impeller mounting clearances.

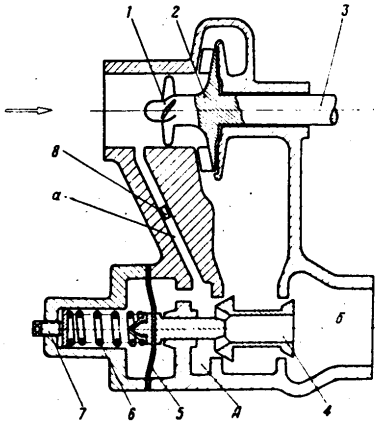


Fig.96. Booster Pump ЦН-9 . Functional Diagram.
а - duct; б - pipe connection; А - cavity; 1 - propeller; 2 - impeller; 3 - shaft; 4 - valve; 5 - membrane; 6 - spring; 7 - spring screw; 8 - jet.

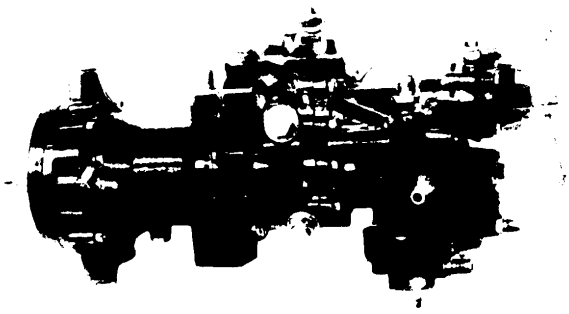


Fig. 97. HP 10A Fuel Regulating Pump, Left Hand View

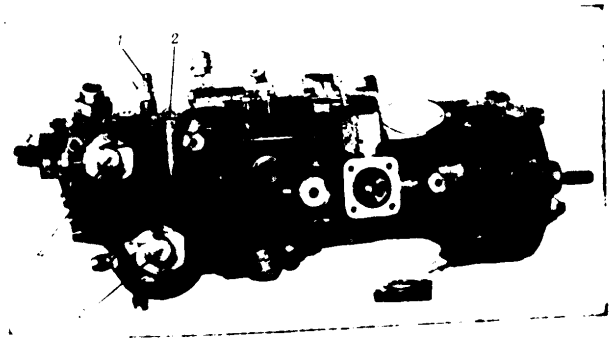


Fig. 98. HP 10A Fuel Regulating Pump, Right Hand View

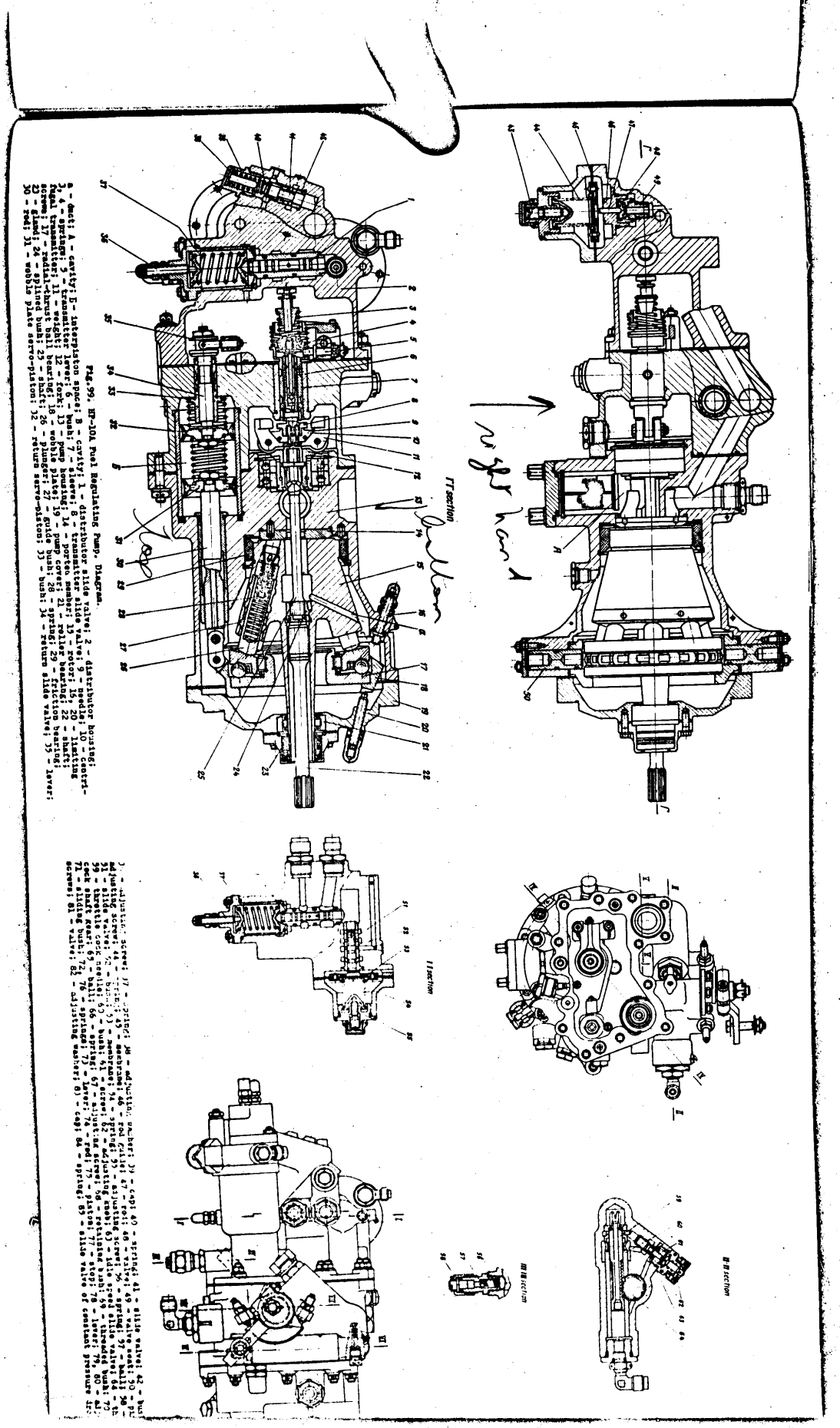


Fig. 99. MP-10A Fuel Regulating Pump. Diagram.

a - shaft; A - cavity; B - interpiston space; B1 - cavity; 1 - distributor slide valve; 2 - distributor housing; 3, 4 - springs; 5 - transmitter lever; 6 - sleeve; 7 - sleeve; 8 - transmitter slide valve; 9 - stop; 10 - control lever; 11 - weight; 12 - pump housing; 13 - pin; 14 - porter ring; 15 - roller bearing; 16 - roller bearing; 17 - shaft; 18 - roller plate; 19 - pump cover; 20 - limiting screw; 21 - radial thrust bush; 22 - shaft; 23 - bush; 24 - plunger; 25 - shaft; 26 - spring; 27 - friction bearing; 28 - spring; 29 - friction bearing; 30 - gland; 31 - roller; 32 - return servo-piston; 33 - bush; 34 - return slide valve; 35 - lever; 36 - rod; 37 - wobble plate servo-piston

I-I section

II-II section

III-III section

IV-IV section

1 - adjusting screw; 17 - spring; 38 - adjusting washer; 39 - cap; 40 - spring; 41 - slide valve; 42 - bush; 43 - eccentric; 44 - roller; 45 - eccentric; 46 - rod; 47 - bush; 48 - adjusting screw; 49 - valve seat; 50 - adjusting screw; 51 - slide valve; 52 - bush; 53 - eccentric; 54 - roller; 55 - adjusting screw; 56 - adjusting knob; 57 - idle speed adjusting screw; 58 - retaining bush; 59 - throttle cock control; 60 - spring; 61 - adjusting screw; 62 - lever; 63 - idle speed slide valve; 64 - bush; 65 - cock shaft; 66 - lever; 67 - bush; 68 - retaining bush; 69 - lever; 70 - lever; 71 - plug; 72 - spring; 73 - lever; 74 - rod; 75 - plug; 76 - slide valve of constant pressure device; 77 - sliding bush; 78 - valve; 79 - adjusting screw; 80 - spring; 81 - adjusting washers; 82 - adjusting washers; 83 - cap; 84 - spring; 85 - slide valve of constant pressure device

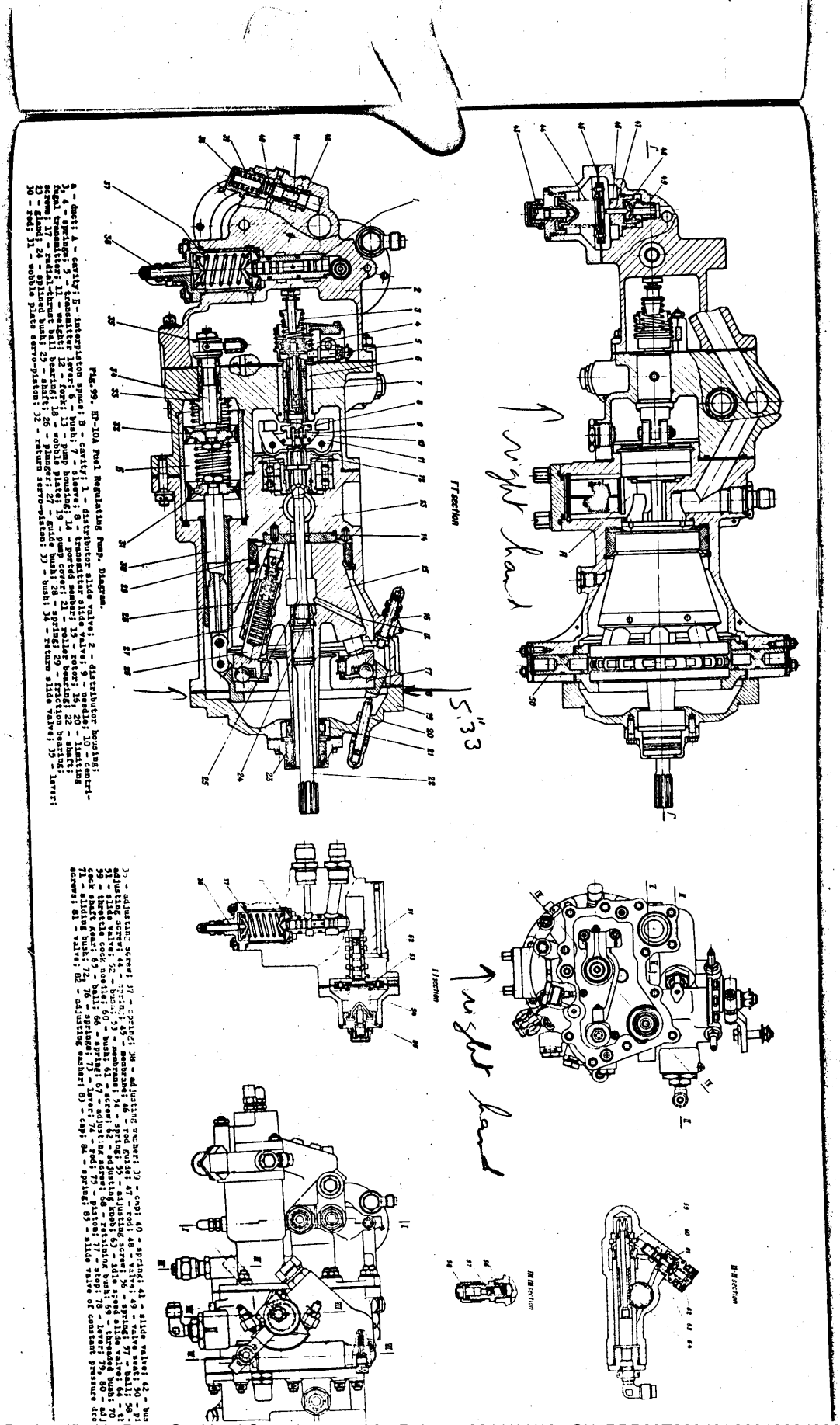
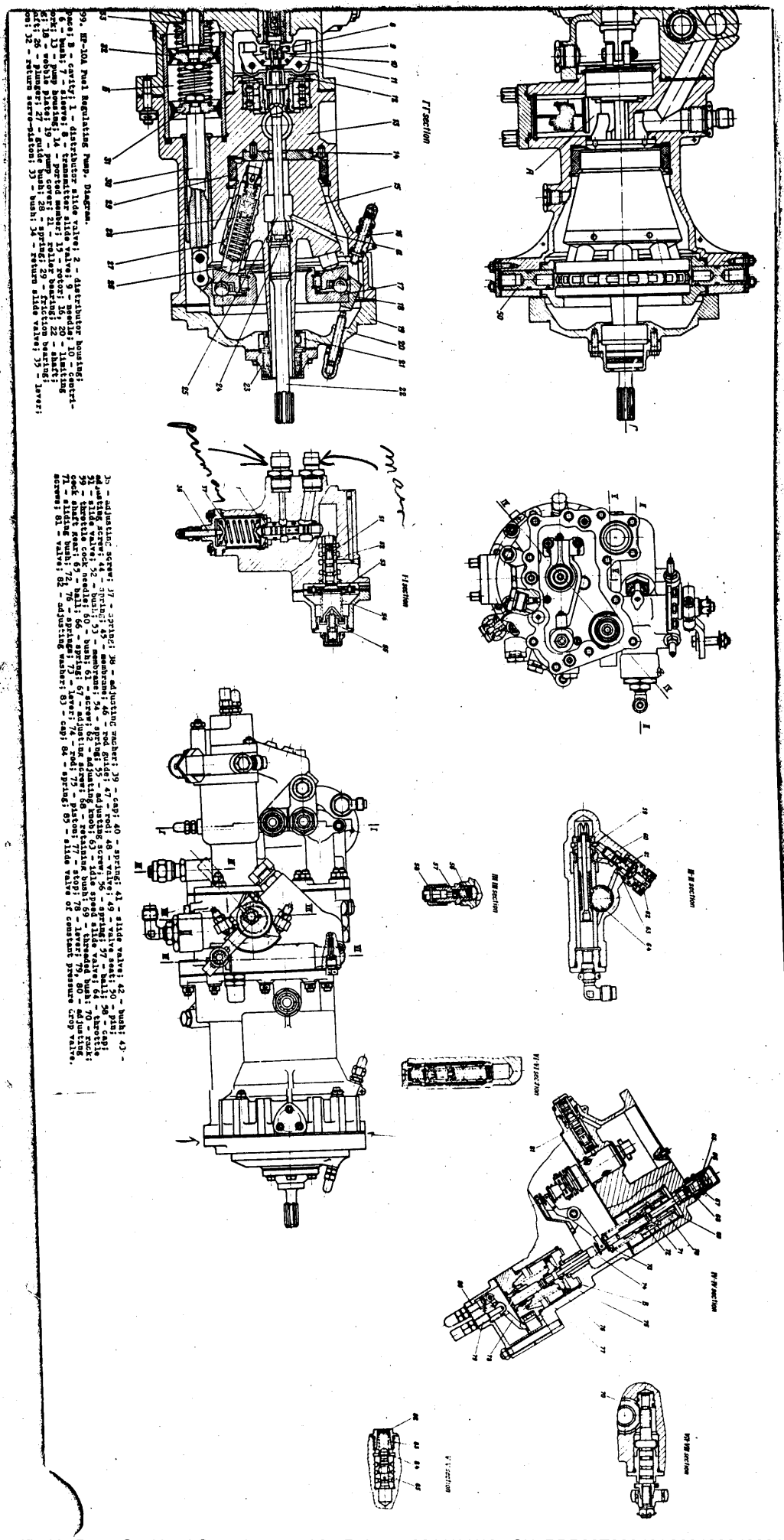


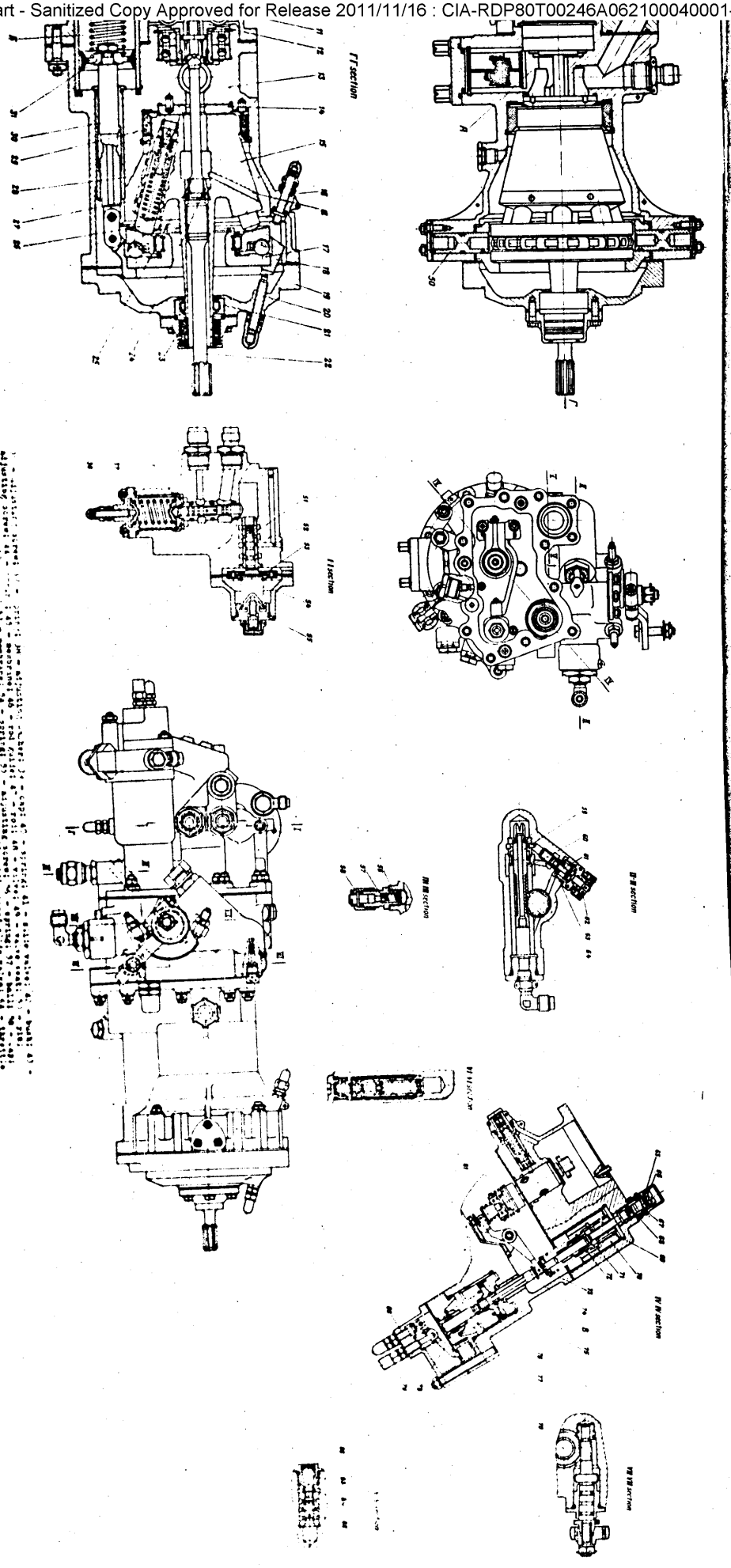
FIG.99. HP-10A Fuel Regulating Pump. Diagram.

a - duct; A - cavity; B - interpiston space; B - cavity; 1 - lever; 2 - distributor slide valve; 2 - distributor housing; 3, 4 - springs; 5 - transmitter lever; 6 - bush; 7 - transmitter slide valve; 8 - transmitter housing; 9 - adjusting screw; 10 - lever; 11 - weight; 12 - lever; 13 - pump housing; 14 - ported member; 15 - roller bearing; 16 - thrust ball bearing; 17 - radial-thrust ball bearing; 18 - driveshaft; 19 - wobble plate; 20 - pump cover; 21 - limiting screw; 22 - shaft; 23 - guide bush; 24 - splined bush; 25 - spring; 26 - plunger; 27 - guide bush; 28 - spring; 29 - friction bearing; 30 - rod; 31 - wobble plate servo-piston; 32 - return servo-piston; 33 - bush; 34 - return slide valve; 35 - lever; 36 - adjusting screw; 37 - spring; 38 - adjusting washer; 39 - cap; 40 - spring; 41 - slide valve; 42 - bush; 43 - membrane; 44 - rod guide; 45 - membrane; 46 - rod guide; 47 - valve; 48 - valve seat; 49 - valve seat; 50 - spring; 51 - adjusting screw; 52 - bush; 53 - membrane; 54 - adjusting knob; 55 - idle speed adjusting bush; 56 - adjusting screw; 57 - bush; 58 - throttle cock needle; 59 - bush; 60 - adjusting screw; 61 - adjusting screw; 62 - retaining bush; 63 - idle speed adjusting bush; 64 - spring; 65 - lever; 66 - bush; 67 - adjusting screw; 68 - retaining bush; 69 - lever; 70, 71 - sliding bush; 72, 73 - bush; 74 - lever; 75 - pistons; 76 - slide valve of constant pressure drop; 77 - spring; 78 - lever; 79, 80 - adjusting screws; 81 - valve; 82 - adjusting washer; 83 - cap; 84 - spring; 85 - slide valve of constant pressure drop



99. MW-10A Fuel Regulating Pump, Diagram.

Space B - cavity; 1 - distributor-type slide valve; 2 - distributor housing; 6 - bush; 7 - bearing; 14 - ported member; 15 - rotor; 16; 20 - lining; 18 - mobile plate; 19 - pump cover; 21 - roller bearing; 22 - adjustment bracket; 26 - plunger; 27 - guide bush; 28 - spring; 32 - adjusting screw; 33 - bush; 34 - return slide valve; 35 - lever; 36 - adjusting screw; 37 - spring; 38 - adjusting washer; 39 - cap; 40 - spring; 41 - slide valve; 42 - bush; 43 - adjusting screw; 44 - spring; 45 - membrane; 48 - rod; 49 - valve; 50 - pin; 51 - slide valve; 52 - bush; 53 - housing; 54 - adjusting screw; 56 - spring; 57 - ball; 58 - cap; 59 - throttle cock; 65 - ball; 66 - spring; 67 - adjusting screw; 68 - retaining bush; 69 - lever; 70 - rack; 71 - sliding bush; 72, 76 - springs; 73 - lever; 74 - rod; 75 - piston; 78 - adjusting screw; 81 - valve; 82 - adjusting washer; 83 - cap; 84 - spring; 85 - slide valve of constant pressure drop valve.



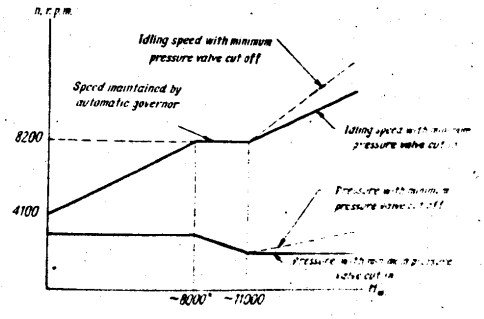
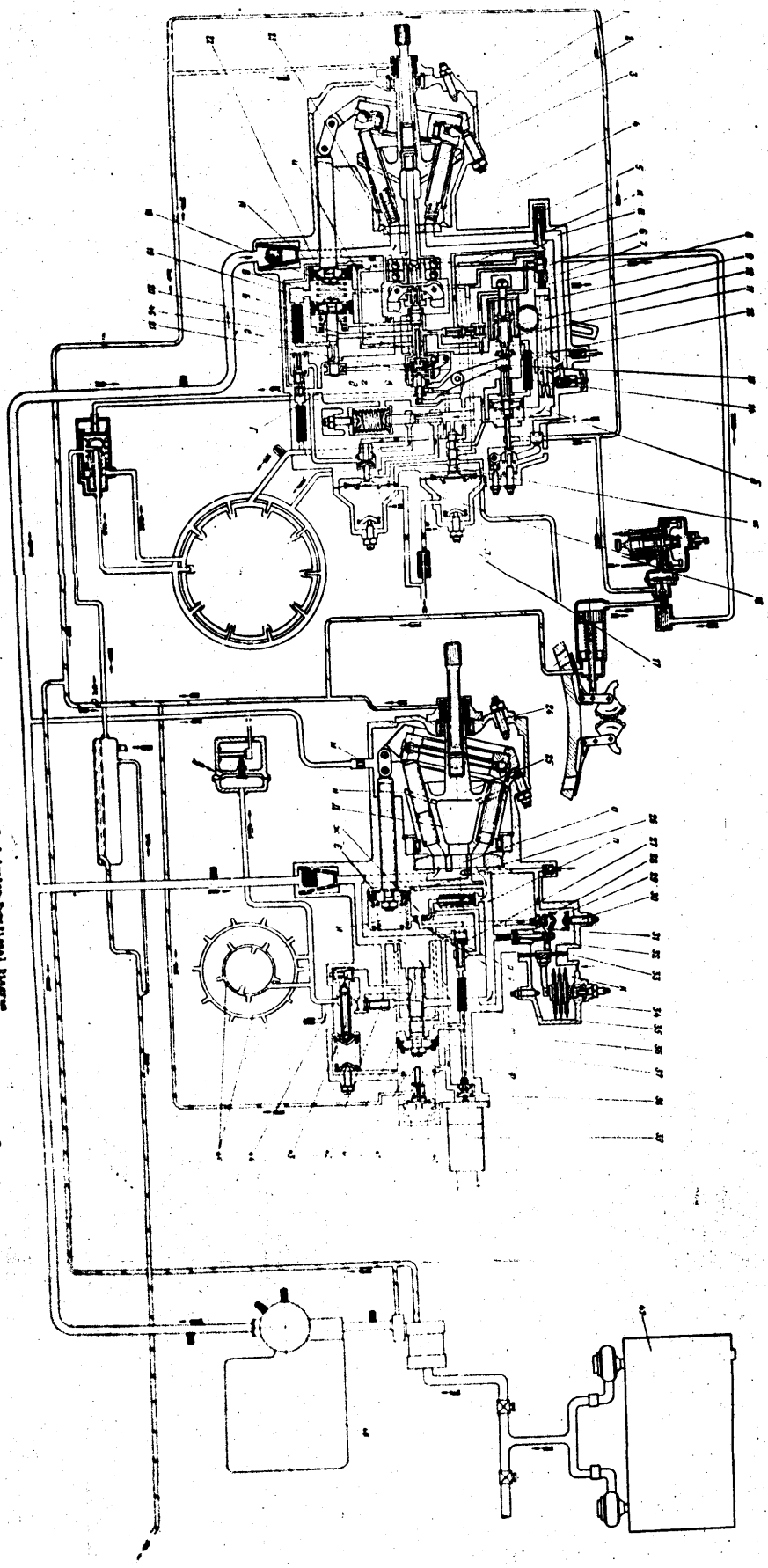


Fig.100. Graph, showing Changes in Speed when Minimum Pressure Valve is Turned On



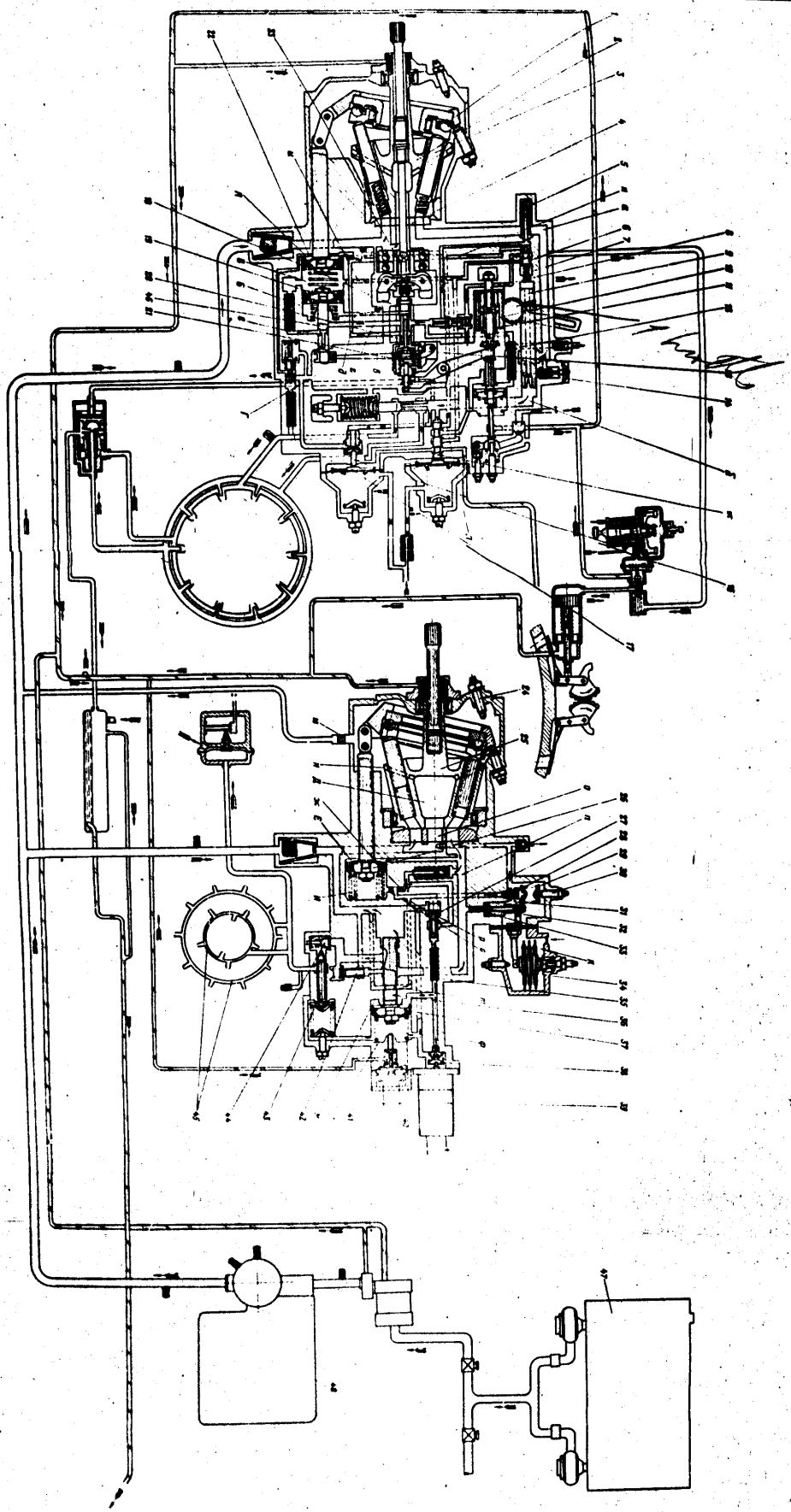


Fig.101. Fuel System Functional Diagram

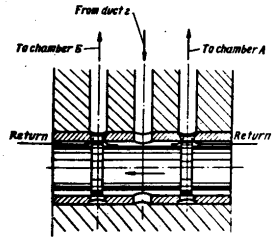


Fig.102. Position of Transmitter Slide Valve with Predetermined Engine Speed Reduced

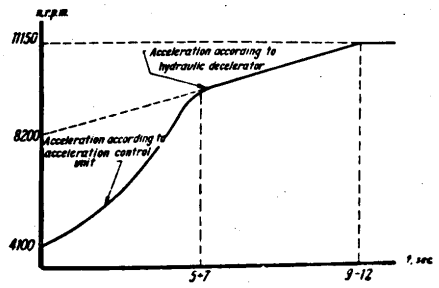


Fig.103. Nature of Engine Speed Change, when Accelerating Engine from Idling to Maximum Speed on Ground, with Reference to Acceleration Control Unit and Hydraulic Decelerator.

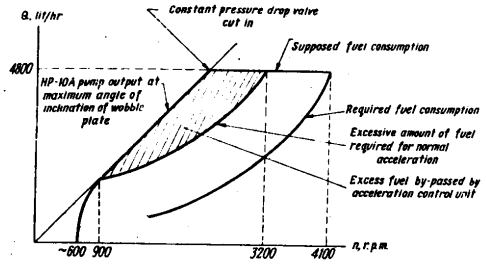


Fig.104. Nature of Change in Fuel Delivery by Starter Control Unit

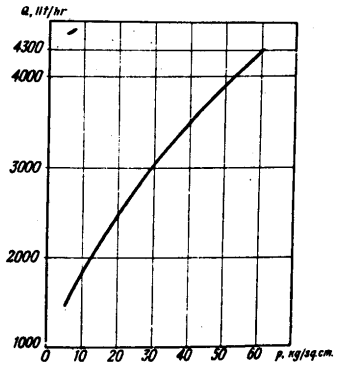


Fig.105. Nature of Changes in Fuel Flow Through Fuel Manifold and Main Burners, Depending on Fuel Pressure.

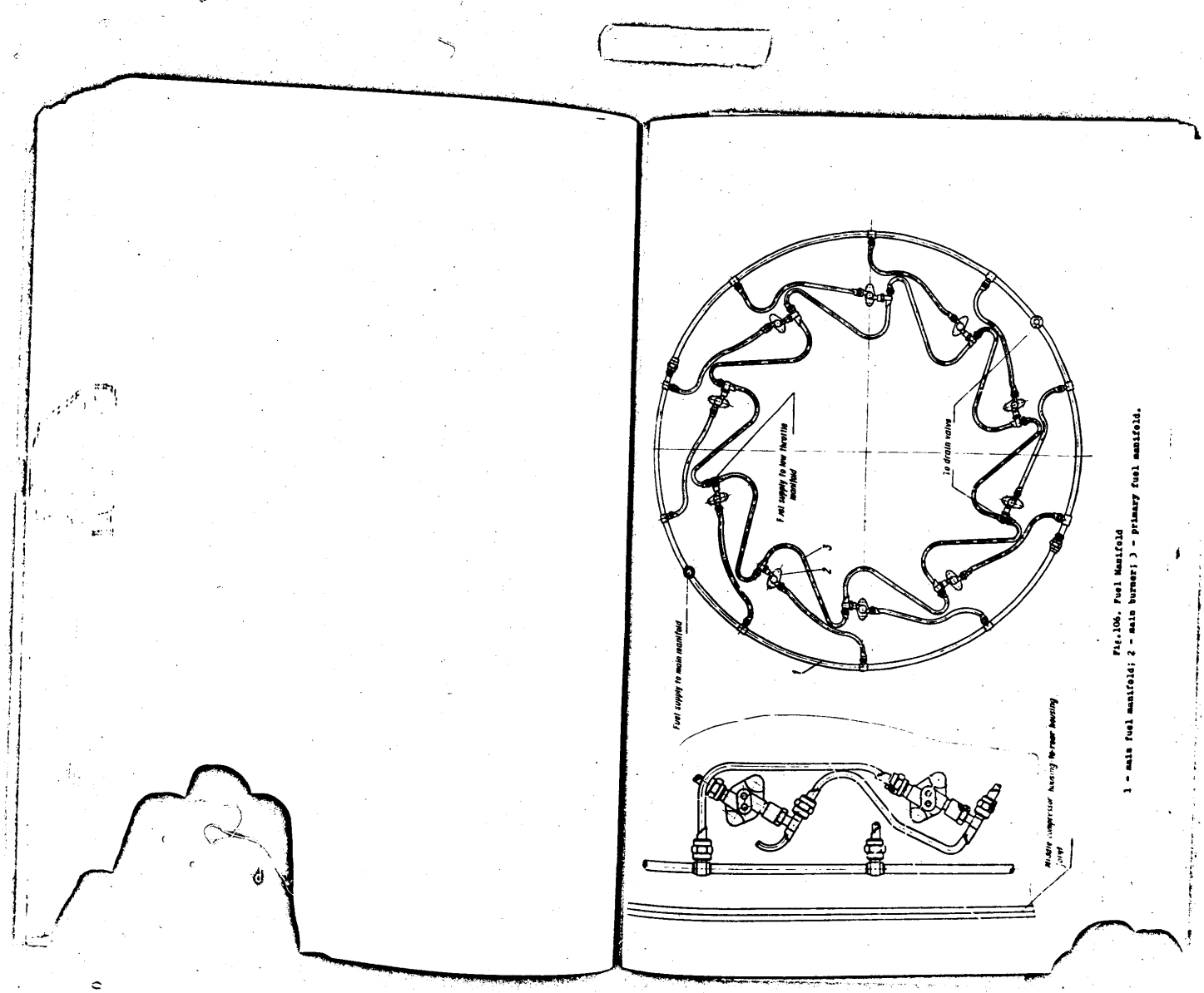


Fig.106. Fuel Manifold

1 - main fuel manifold; 2 - main burner; 3 - primary fuel manifold.

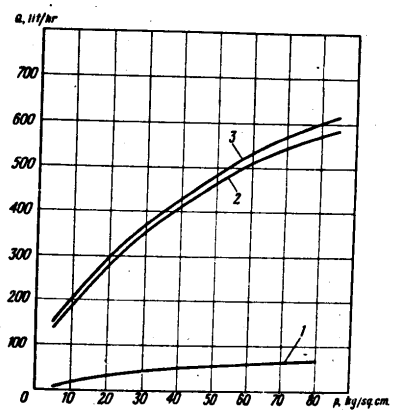


Fig.107. Nature of Changes in Fuel Flow Through Main Burner Ducts Depending on Fuel Pressure Before Burner

1 - fuel flow through primary duct; 2 - fuel flow through main duct; 3 - total fuel flow.

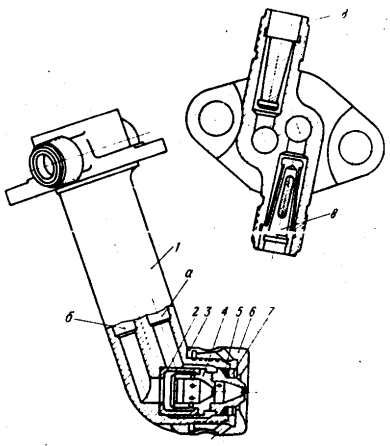


Fig.108. Main Burner
а - primary duct; д - main duct; 1 - body; 2 - separating bush; 3 - lock; 4 - spray tip; 5 - packing ring; 6 - nut; 7 - swirler; 8 - filters.

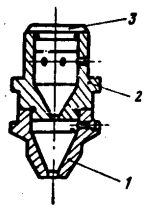


Fig. 109. Spray Tip
1 - primary nozzle; 2 - main nozzle; 3 - plug

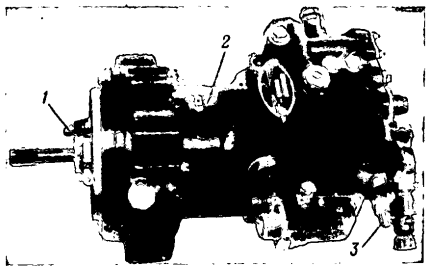


Fig. 110. HP-11A Fuel Regulating Pump. Left-Hand View

1 — cap enclosing stop screw limiting wobble plate minimum angle of inclination; 2 — cap enclosing stop screw limiting wobble plate maximum angle of inclination; 3—cap enclosing fuel valve spring adjusting screw

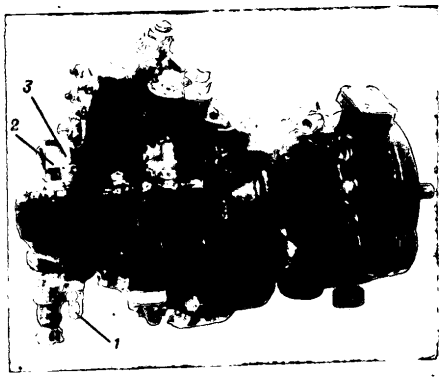


Fig. 111. HP-11A Fuel Regulating Pump. Right-Hand View

1 — cap enclosing barostat aneroid thrust screw; 2 — cap enclosing barostat spring adjusting screw; 3—cap enclosing barostat aneroid adjusting screw.

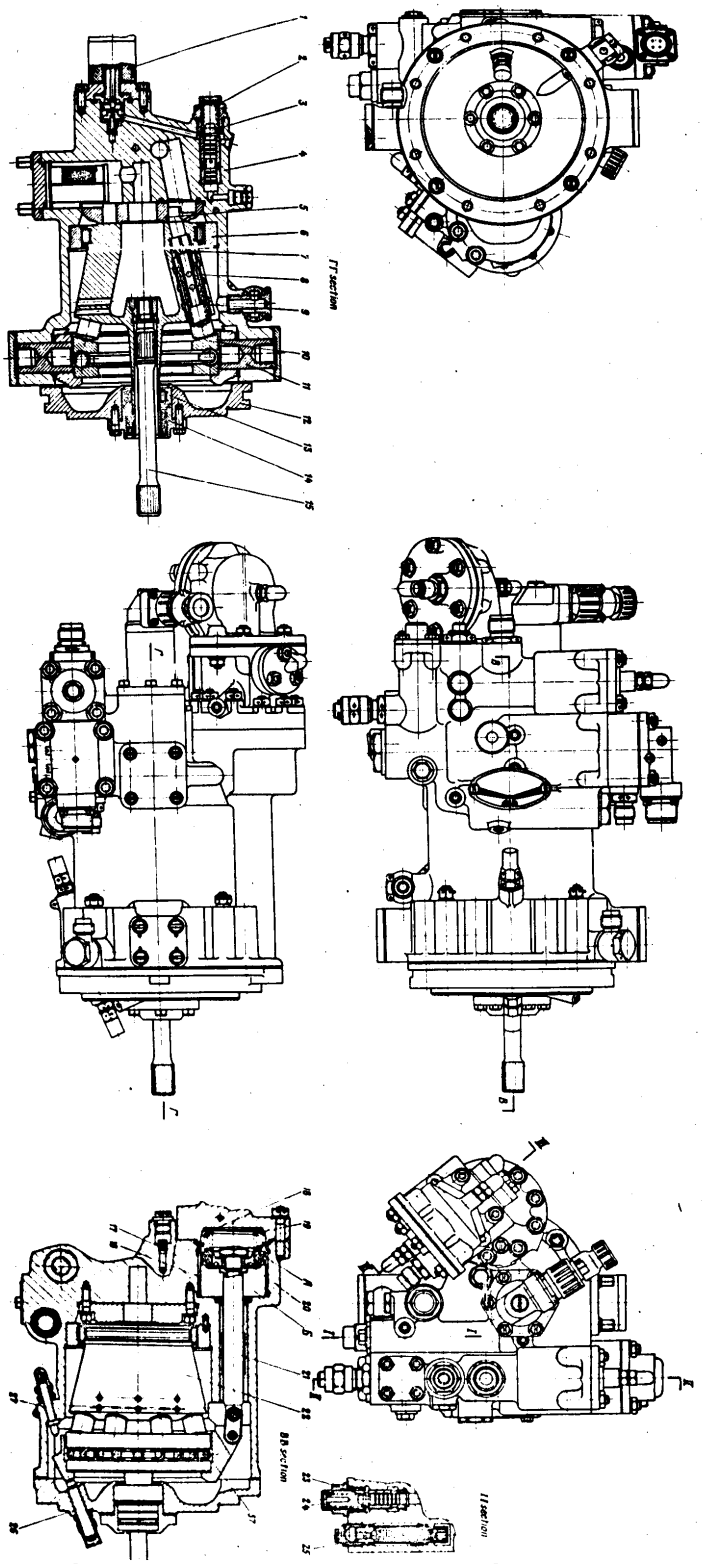


Fig.112. HP-11A Fuel Regulating Pump

a - cylindrical groove; A,B - services; B - pipe union; 1 - solenoid; 2 - spring; 3 - constant pressure valve; 4 - body; 5 - spotted member; 6 - roller bearing; 7 - spring; 8 - ball; 9 - cover; 10 - double plate thrust ball bearing; 11 - pin; 12 - cover; 13 - servo-piston; 14 - gland packing; 15 - shaft; 16 - bush; 17 - jet; 18 - by-pass valve; 19 - spring; 20 - throttle; 21 - servo-piston rod; 22 - pump rotor; 23 - slide; 24 - screw limiting maximum delivery; 25 - adjusting unit; 26 - screw limiting minimum delivery; 27 - manifold screws; 28 - lever; 29 - flexible partition (membrane); 30 - manifold; 31 - levers; 32 - flexible partition (membrane); 33, 34 - washers; 35 - eccentric bush; 36 - rod; 37 - valve stem; 38 - bush; 39 - adjusting screw; 40 - spring adjusting screw; 41 - barrel; 42 - screw rod; 43 - fuel valve adjustment screw; 44 - piston; 45 - spring; 46 - cut-off valve; 47, 52 - cut-off valves; 55 - guide bush; 48 - fuel valve; 50 - ball; 57 - nozzle plate; 58 - plug; 59 - spring; 60 - fuel valve bush.

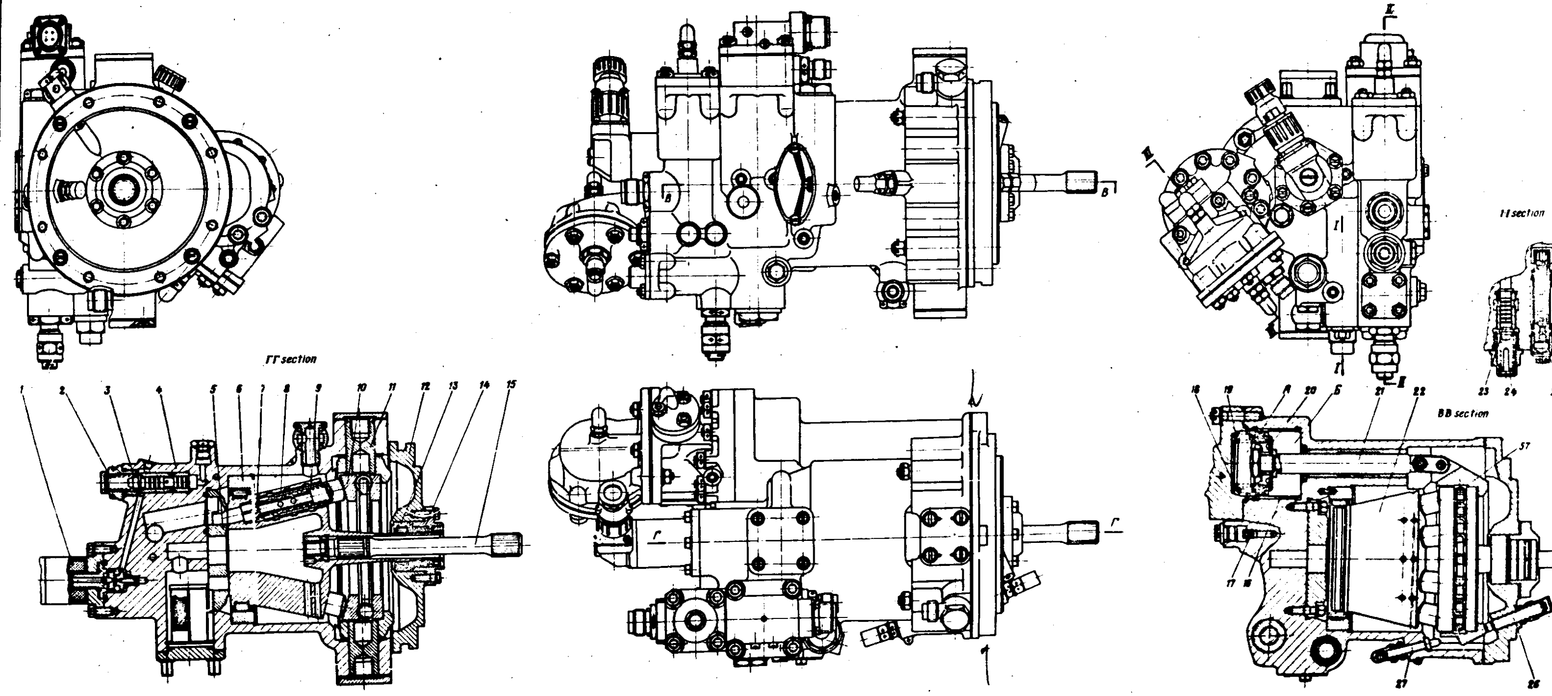


Fig.112. HP-11A Fuel Regulating Pump

a - cylindrical groove; A,Б - cavities; B - pipe union; 1 - solenoid; 2 - spring; 3 - constant pressure valve; 4 - pump housing; 5 - ported member; 6 - roller bearing; 7 - spring; 8 - plunger; 9 - plunger guide; 10 - wobble plate thrust ball bearing; 11 - pin; 12 - cover; 13 - roller bearing; 14 - gland packing; 15 - shaft; 16 - bush; 17 - jet; 18, 19 - springs; 20 - servo-piston; 21 - servo-piston rod; 22 - pump rotor; 23 - slide valve of by-pass valve; 24 - spring; 25-throttling unit; 26 - screw limiting minimum delivery; 27 - screw limiting maximum delivery; 28 - aneroid; 29, 56 - barostat housings; 30 aneroid screw; 31 - lever; 32 - flexible partition (membrane); 33 - piston; 34 - membrane; 35 - eccentric bush; 36 - rod; 37 - valve seat; 38 - mushroom valve; 39 - spring; 40 - spring adjusting screw; 41 - aneroid screw; 42 - guide bush; 43 - afterburner valve needle; 44 - piston; 45 - spring; 46 - contactor; 47 - rod; 48 - fuel valve adjusting screw; 49 - spring; 50 - fuel valve; 51 - cut-off valve seat; 52 - cut-off valve; 53 - guiding dowel; 54 - spring; 55 - flushing valve ball; 57 - wobble plate; 58 - plug; 59 - spring; 60 - fuel valve bush.

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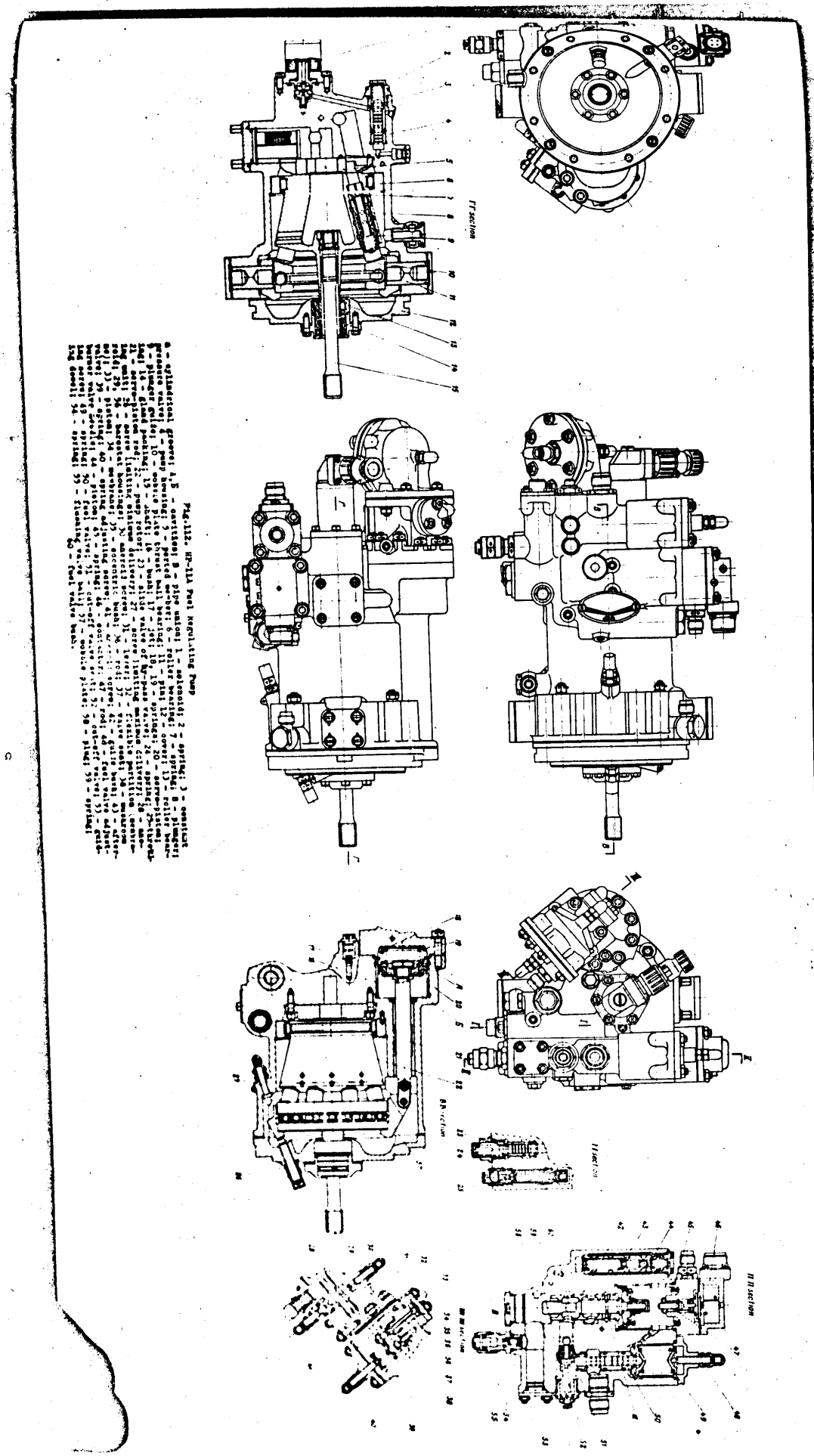

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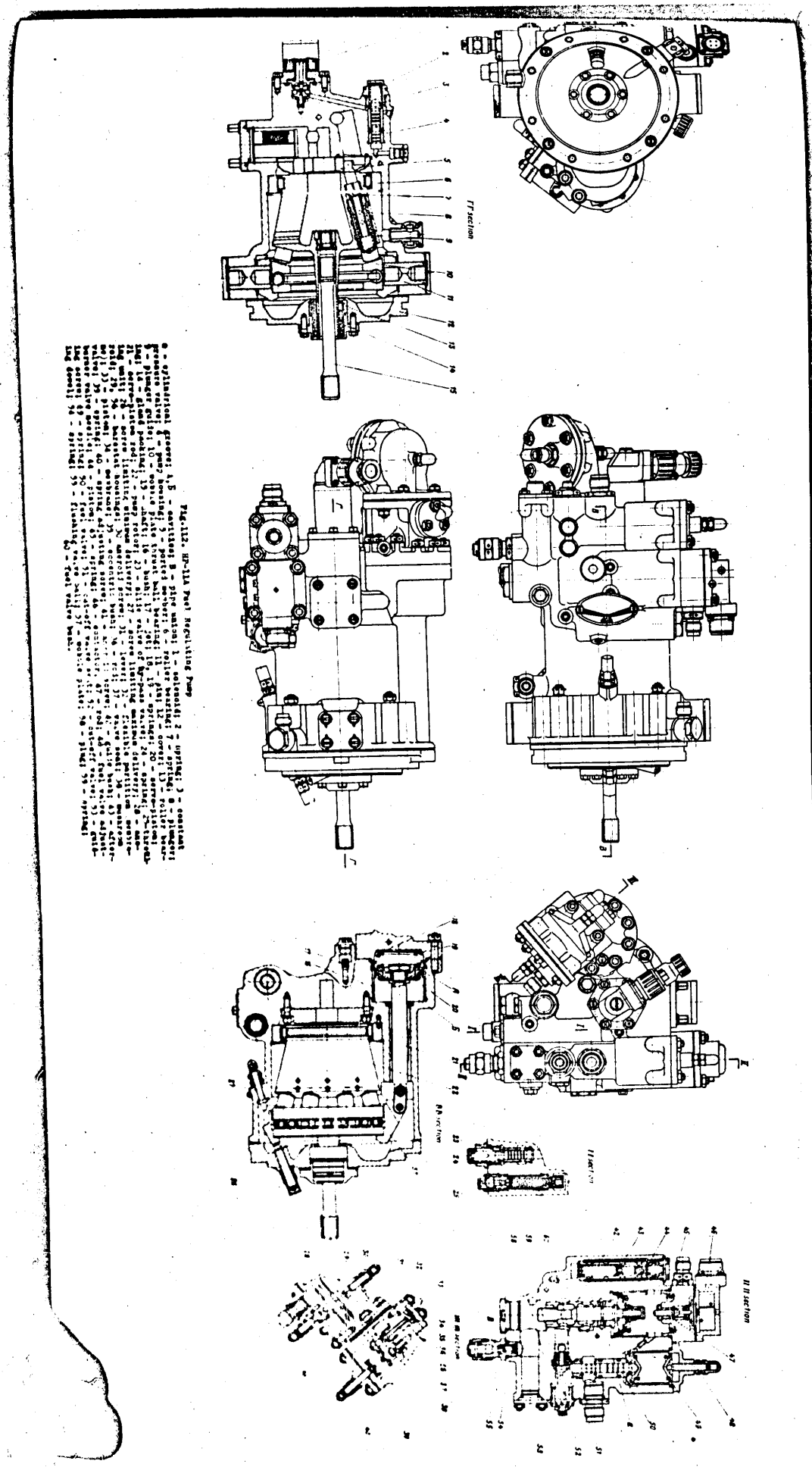


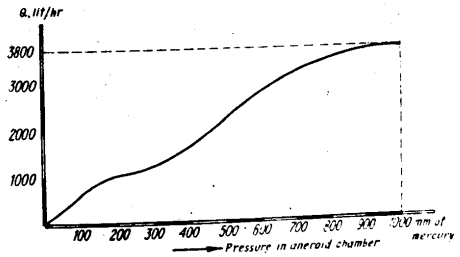


Fig.113. Graph Showing Dependence of HP-11A Pump Output on Pressure in Barostat Aneroid Chamber

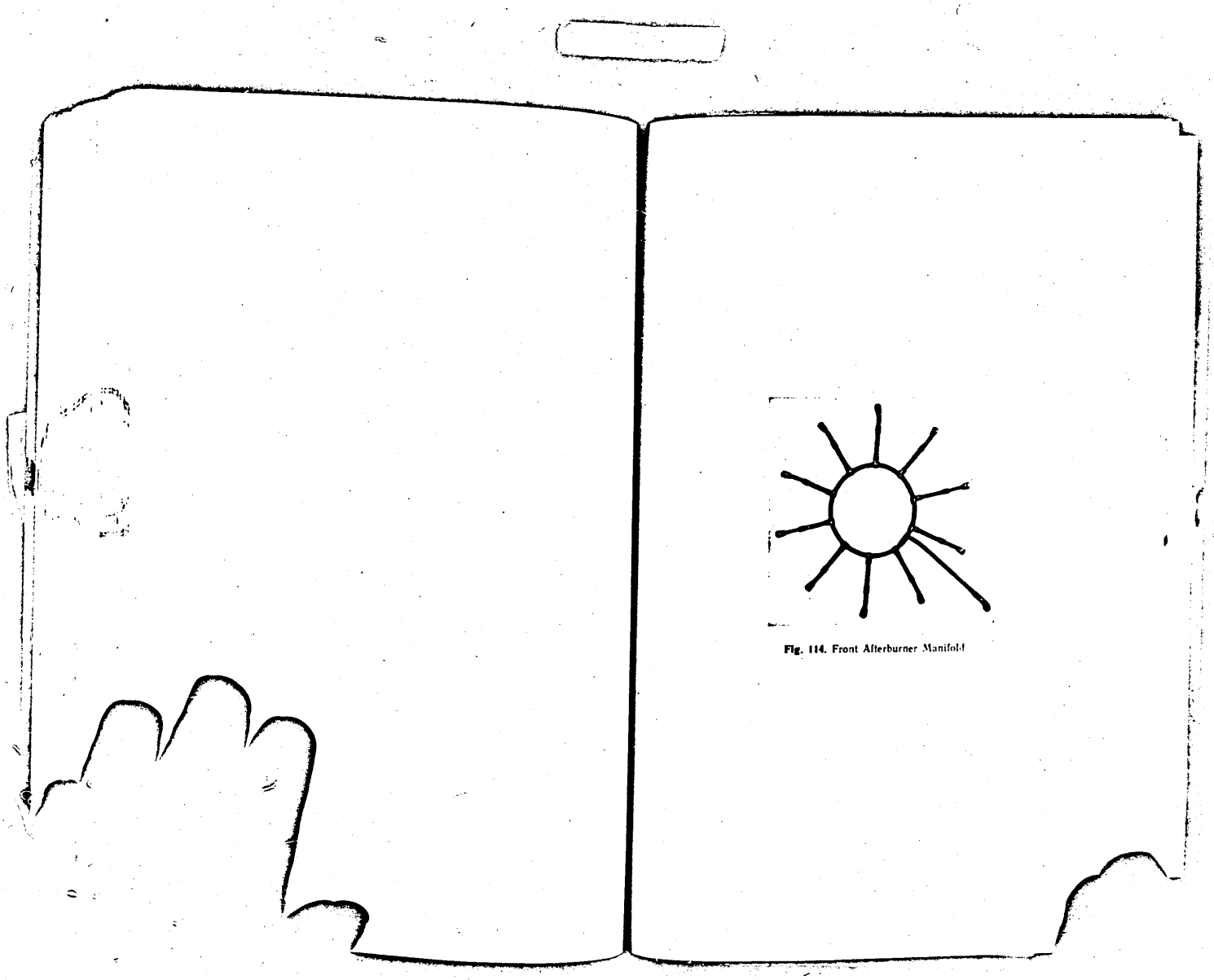


Fig. 114. Front Afterburner Manifold

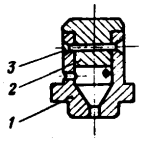


Fig.115. Afterburner Fuel Nozzle

1 - atomizer; 2 - plug; 3 - retainer.

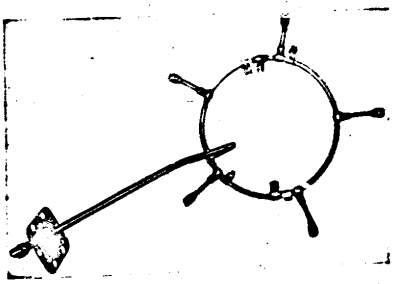


Fig. 116. Rear Afterburner Manifold

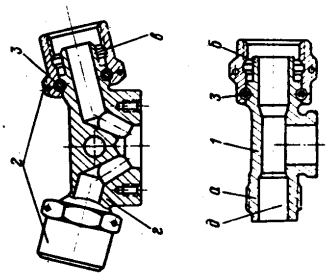


Fig.116. Tee-piece
a - pipe union; d, e, g - nipples;
b - duct; 1 - adapter; 2 - union nut;
3 - locking ring.

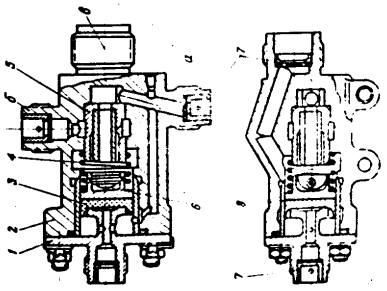


Fig.117. Drain Valve
a, d, e - pipe unions; b, c - ducts; 1 - cover;
2 - housing; 3 - cup; 4 - spring; 5 - valve
stop; 6 - valve; 7 - filter; 8 - bush.

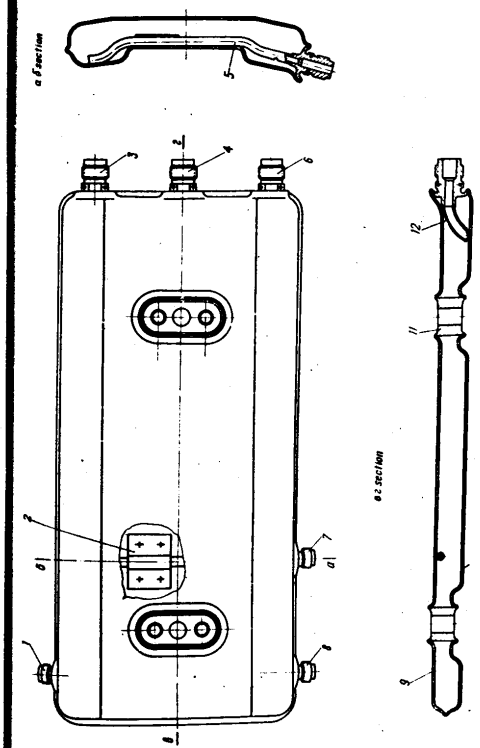


Fig.119. Drainage Tank

3, 8 - pipe unions for delivery of air to; 2 - clamp; 3, 6 - fuel drain pipe unions; 4 - reserve pipe union; 5 - pipe; 7 - air by-pass pipe union; 9 - tank upper section; 10 - tank lower section; 11 - bracket; 12 - pipe.

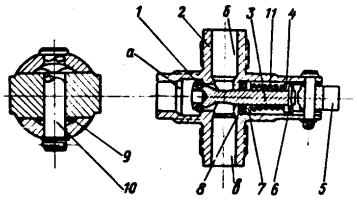


Fig.120. Drain Cock

а, б, в – pipe unions; 1 – rubber ring; 2 – body; 3 – rod; 4 – thrust bush; 5 – cam; 6 – dowel; 7 – washer; 8 – rubber ring; 9 – plate spring; 10 – dowel; 11 – spring.

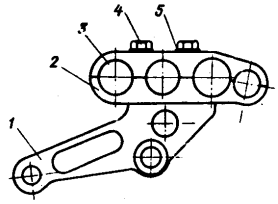


Fig.121 Yoke

1 – bracket; 2,3 – clamp; 4 – bolt; 5 – plate lock.

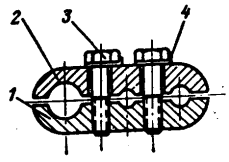


Fig.122. Clamp

1,2 – clamp; 3 – bolt; 4 – plate lock.

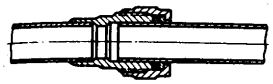


Fig.123. Nipple Joint of AM Type

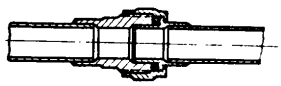


Fig.124. Nipple Joint Sealed by Aluminium or Copper Rings

Fig.125. Flanged Joint

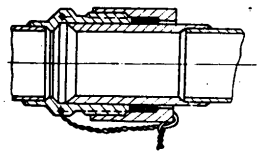


Fig.126. Telescopic Joint

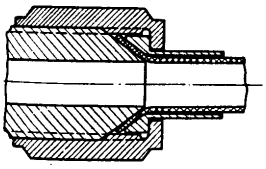


Fig.127. Nipple Joint of "Parker" Type

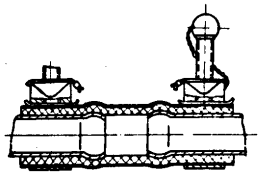


Fig.128. Durite Joint

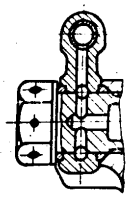


Fig.129. Nipple Joint

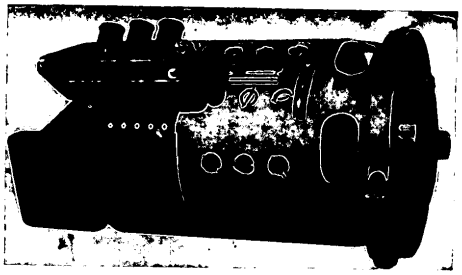


Fig. 130. Starter-Generator ГСР-СТ-6000А

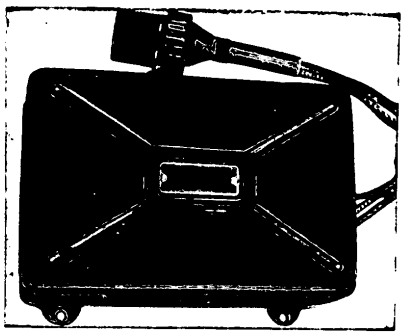


Fig. 131. Timer

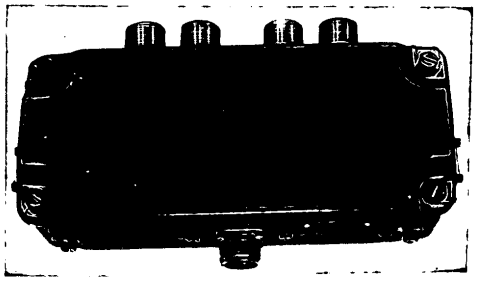


Fig. 132. Booster Coil Unit КП-21Б1М. Top View

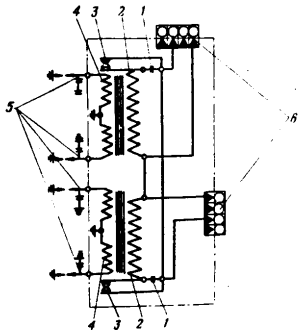


Fig.133. Wiring Diagram of Booster Coil Unit KII-21BM

1 - capacitor; 2 - primary winding; 3 - breaker; 4 - secondary winding; 5 - discharger; 6 - plug connector.

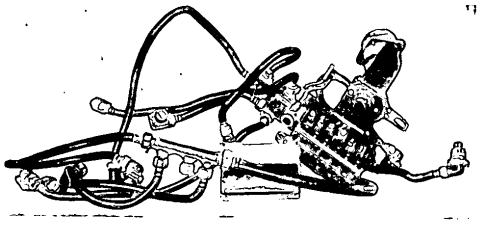


Fig. 134. Control Panel ПУ-3

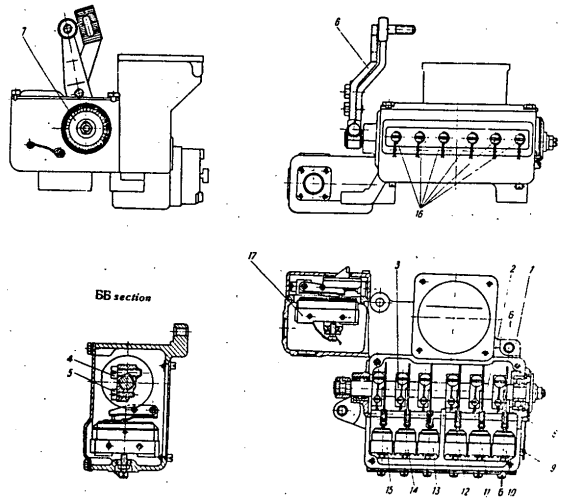


Fig.135. Control Panel ПУ-3

1 - housing; 2 - shaft; 3 - cam; 4 - micrometric screw; 5 - coupling screw; 6 - lever; 7 - dial; 8,9 - axles; 10-15 - limit switches; 16 - adjusting screws; 17 - limit switch.

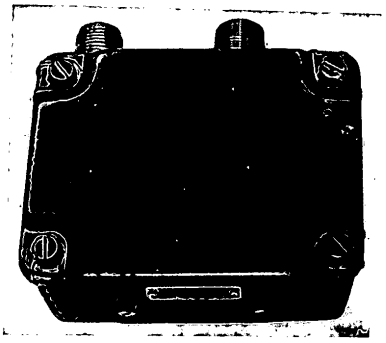


Fig. 136. Booster Coil KIIM-1A. Top View

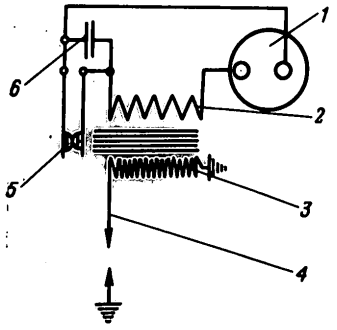


Fig.137. Wiring Diagram of Booster Coil KIM-IA

1 - plug connector; 2 - primary winding; 3 - secondary winding; 4 - discharger; 5 - breaker; 6 - capacitor.

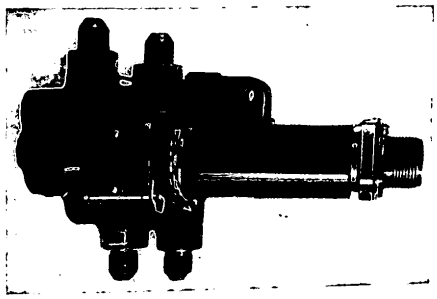


Fig. 138. Two-Position Slide Valve ГА-21

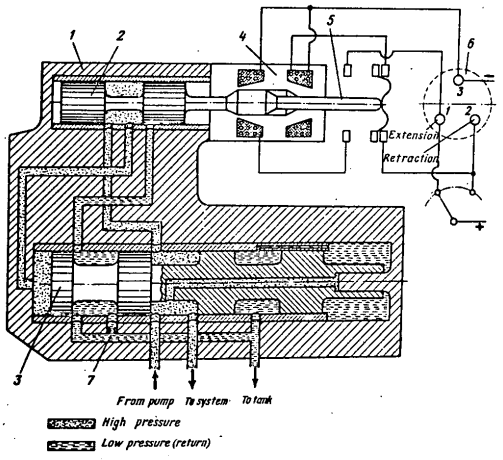


Fig.139. Operation of Two-Position Slide Valve ГА-2I. Diagram.
1 - housing; 2 - small slide valve; 3 - big slide valve; 4 - two-way electromagnet; 5 - microswitch; 6 - plug connector МР20Ш3Г7 ; 7 -throttle, dia.0.8 mm.

Note: Position of the slide valves and microswitch, illustrated in Fig.139, corresponds to closed contact 1 (extension).

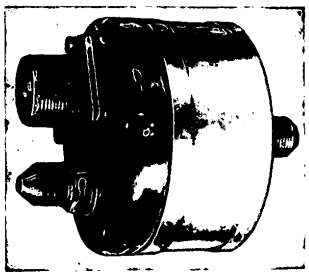


Fig. 140. Fuel Pressure Warning Mechanism ДСД-2

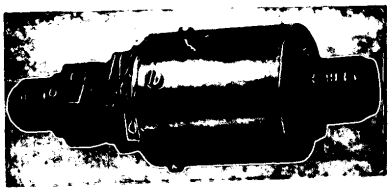


Fig. 141. Hydraulic Switch УТ34/1

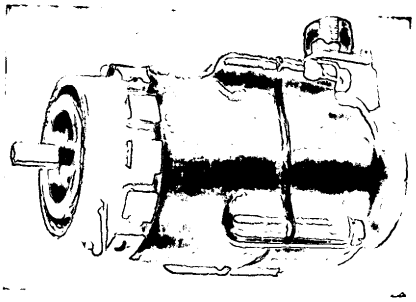


Fig. 142. Tachometer Generator ДТ-3. Drive End View

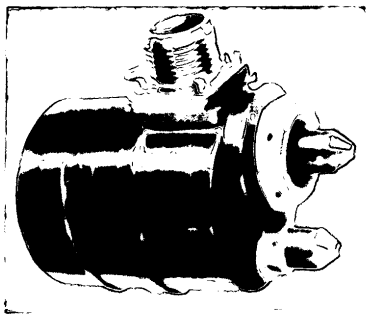


Fig. 143. Tool Steel [illegible]

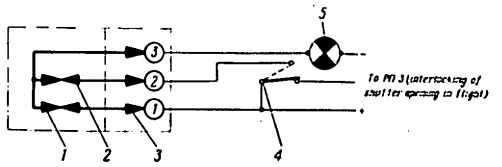


Fig.144. Oil Pressure Warning Mechanism. Key Diagram.
1 - first stage contacts; 2 - second stage contacts; 3 - plug connector; 4 - control panel switch 8; 5 - pilot lamp.

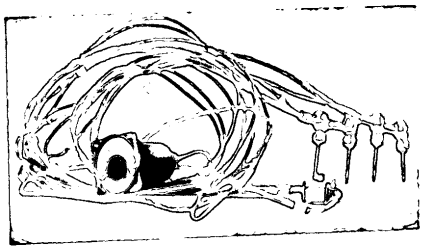
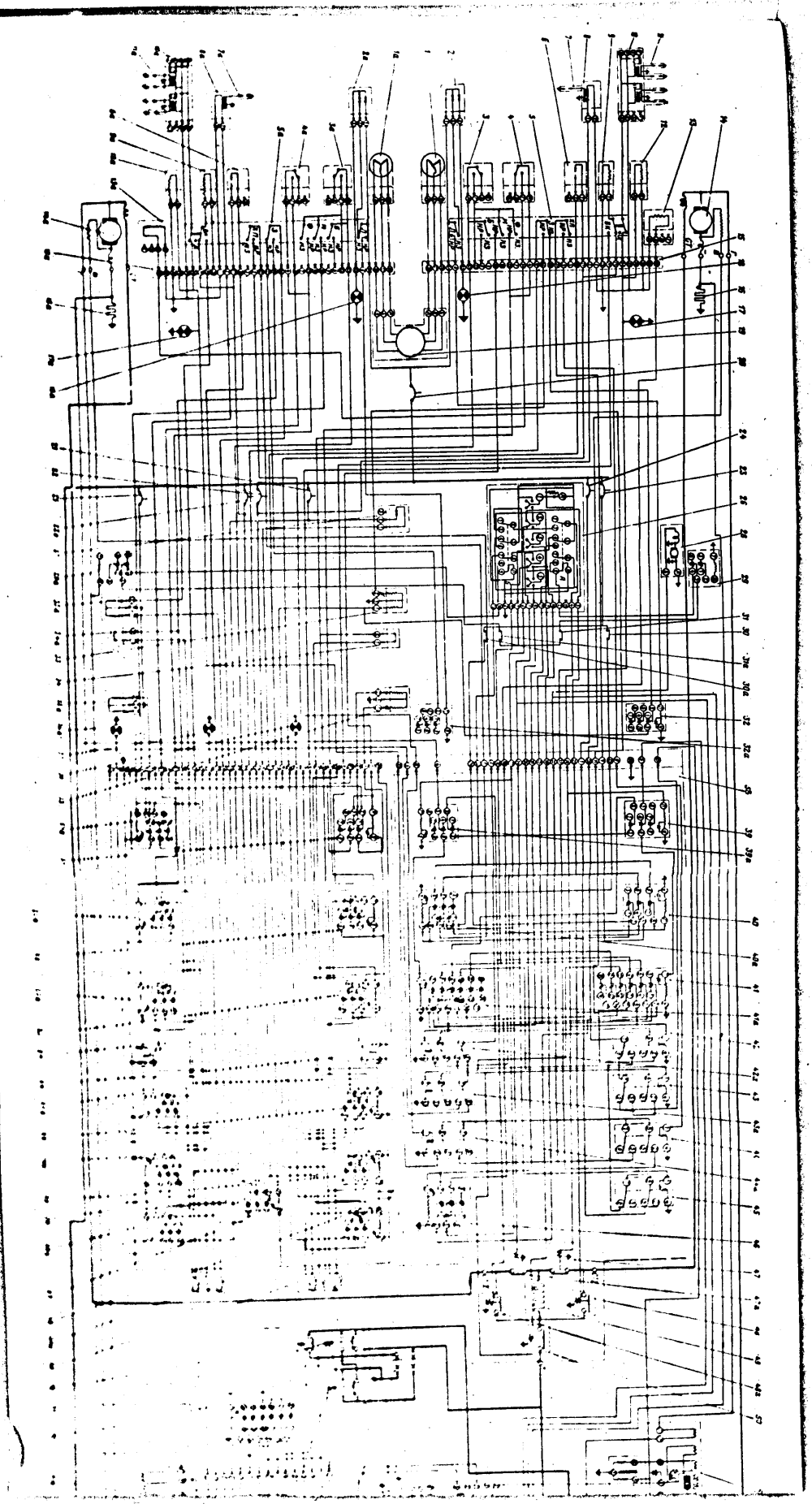
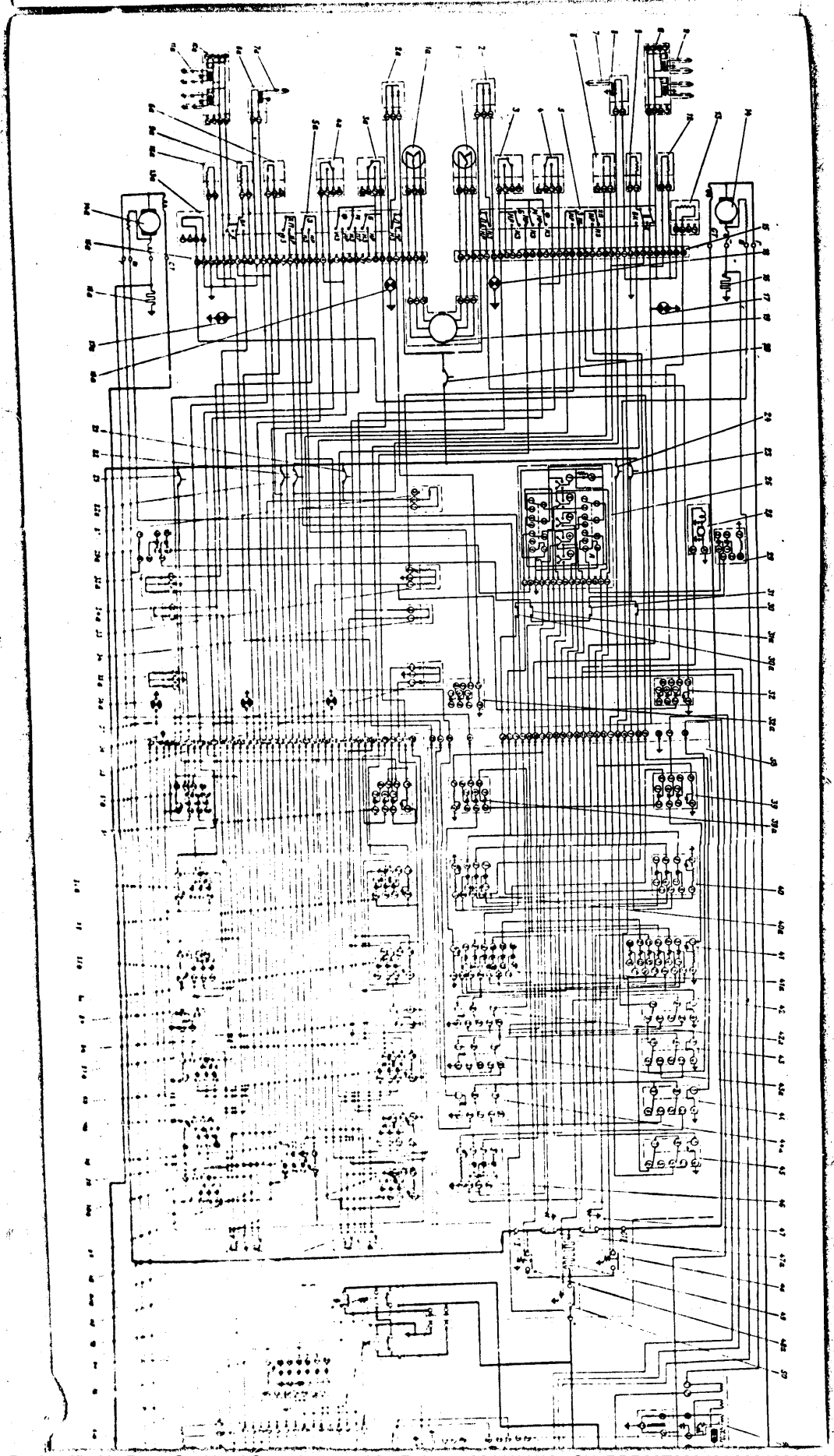


Fig. 143. Thermometer TBГ-II





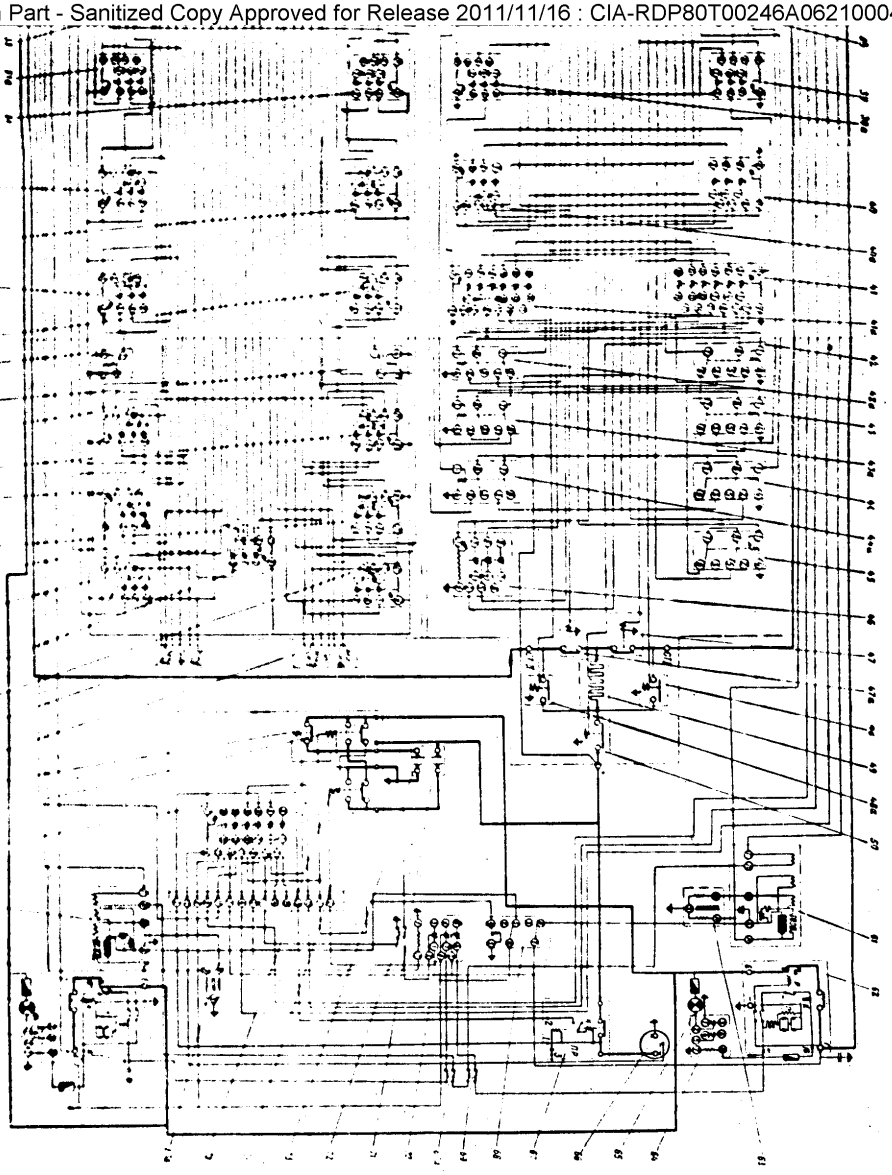
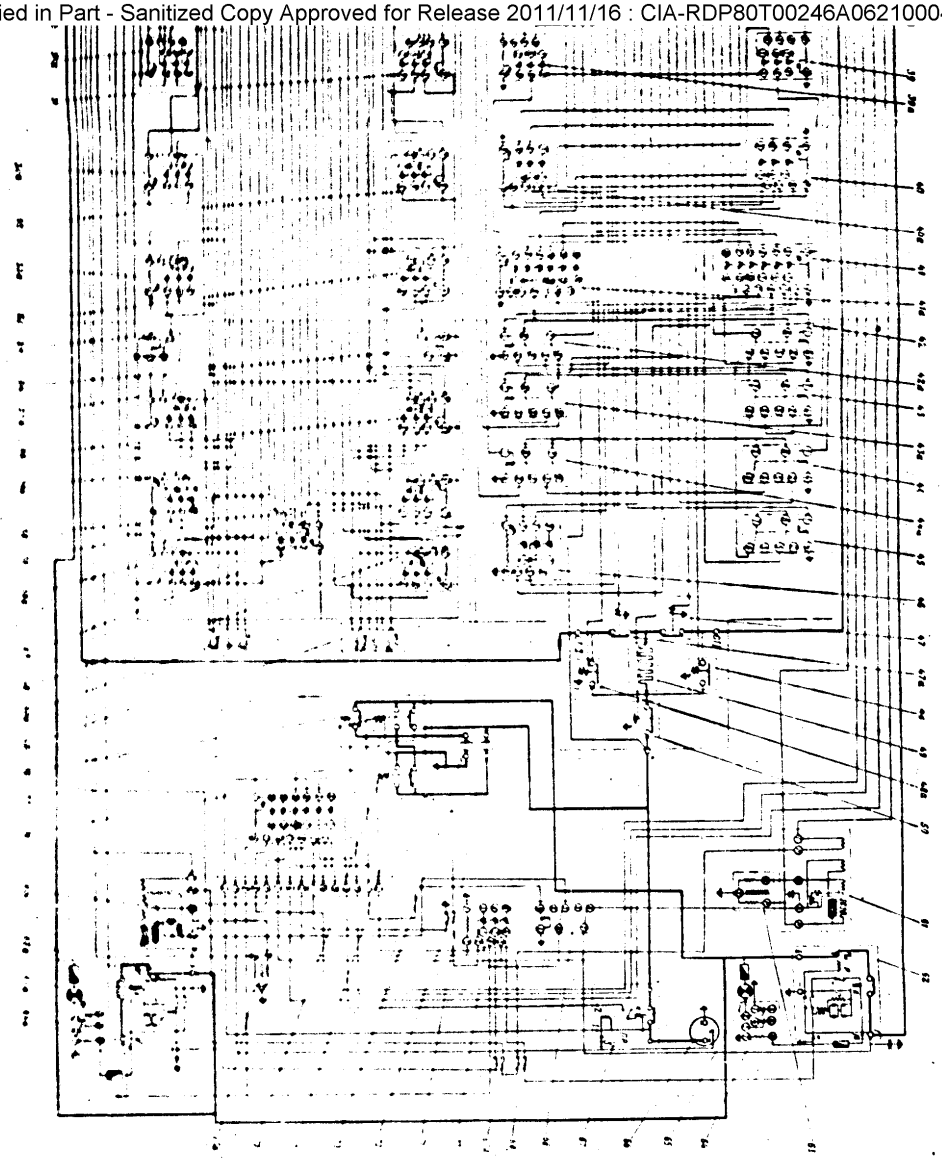
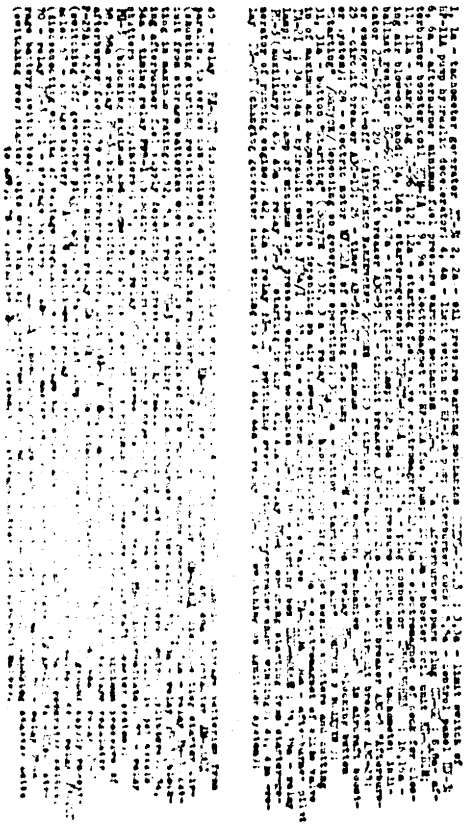


Fig.166. Diagram of Engine Electric Equipment Operating on 24 - 48 V





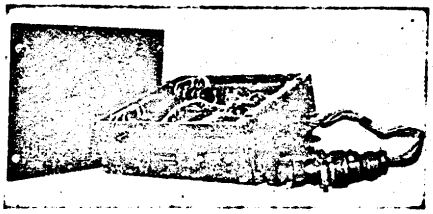


Fig. 147. Starter Control Unit ПКС-6000Е

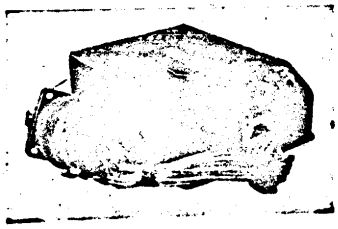
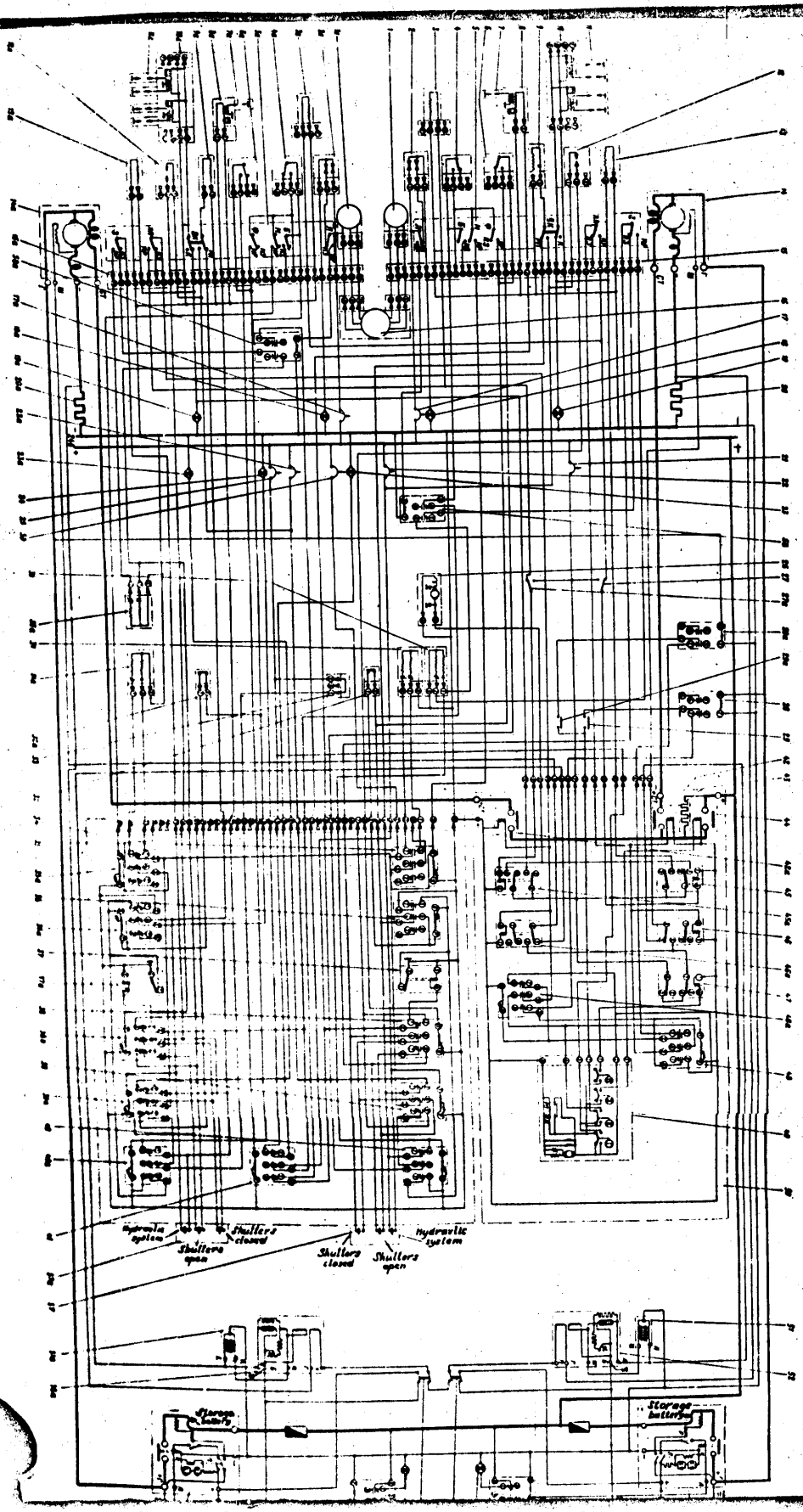


Fig. 148. Afterburner Control Unit КАФ-2



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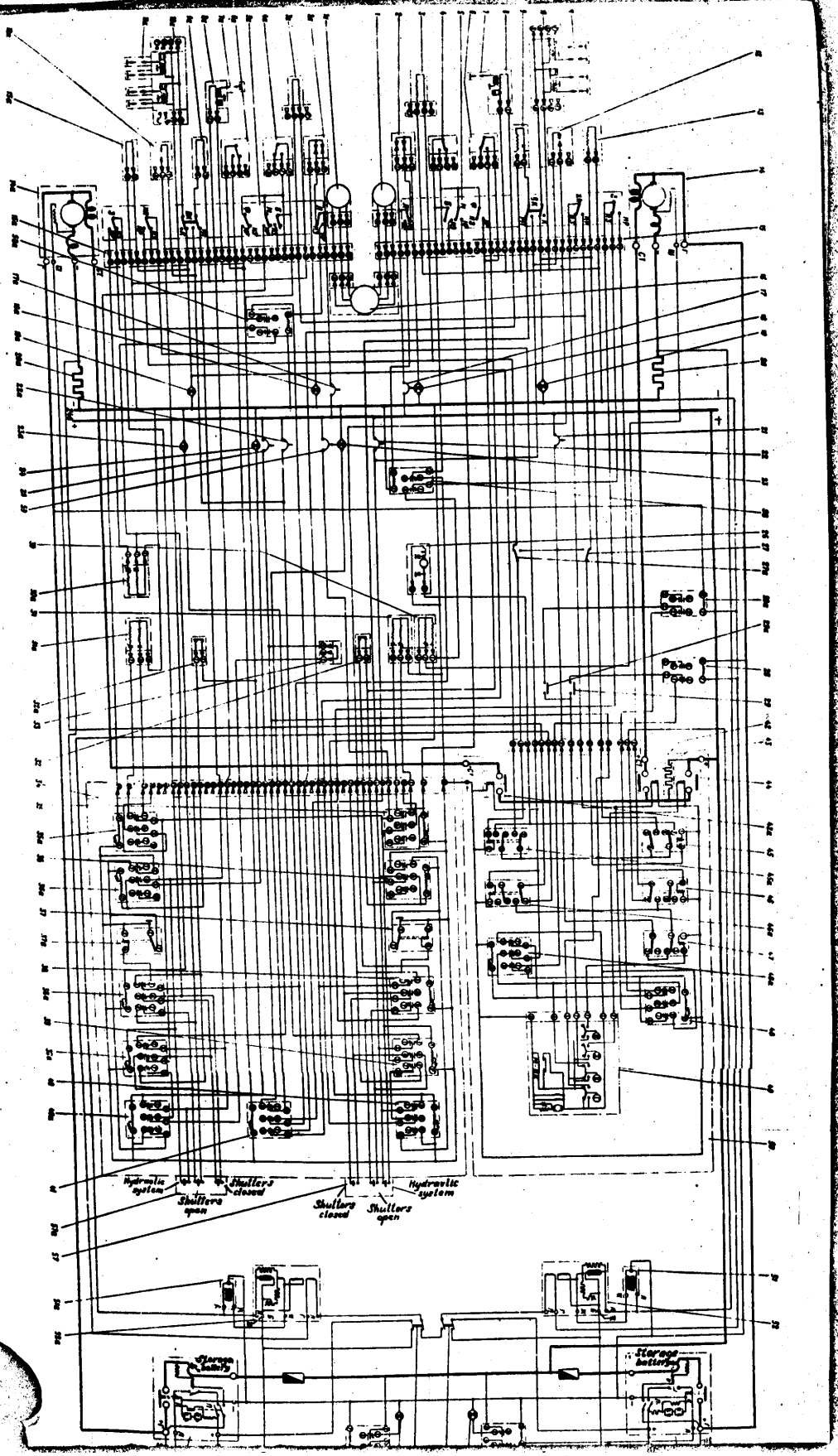

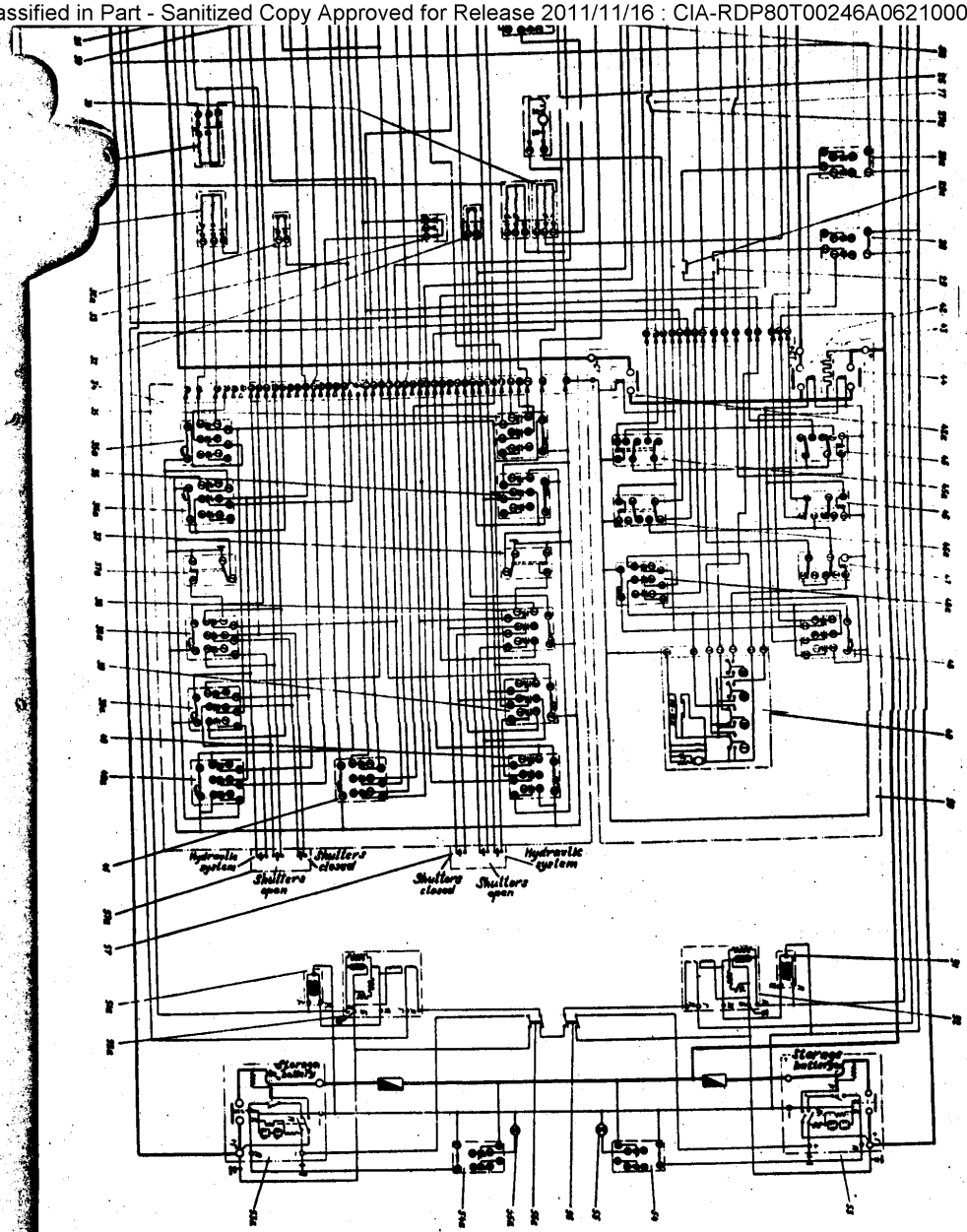

Fig. 149. Diagram of Engine Electric Equipment Operating on 24 V

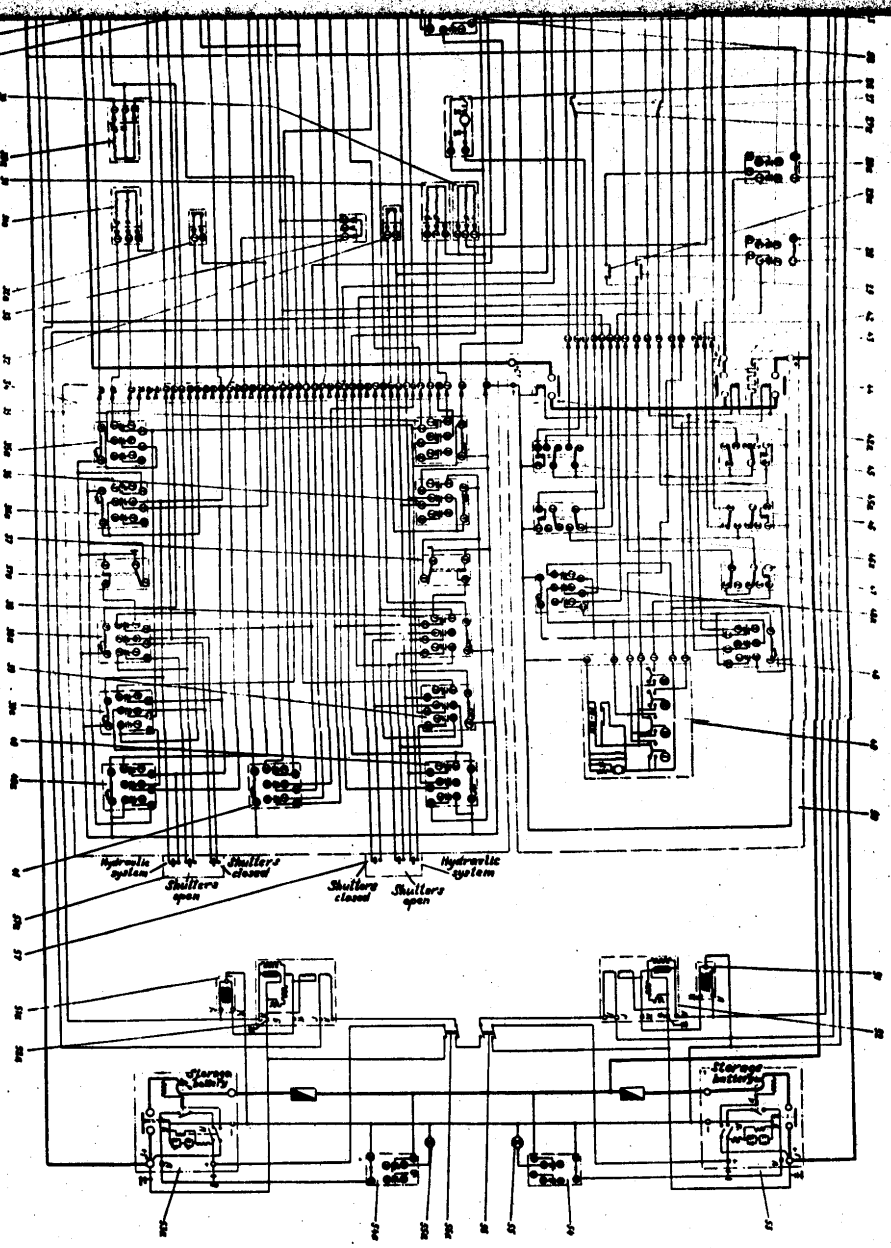

Fig.169. Diagram of Engine Electric Equipment Operating on 24 V

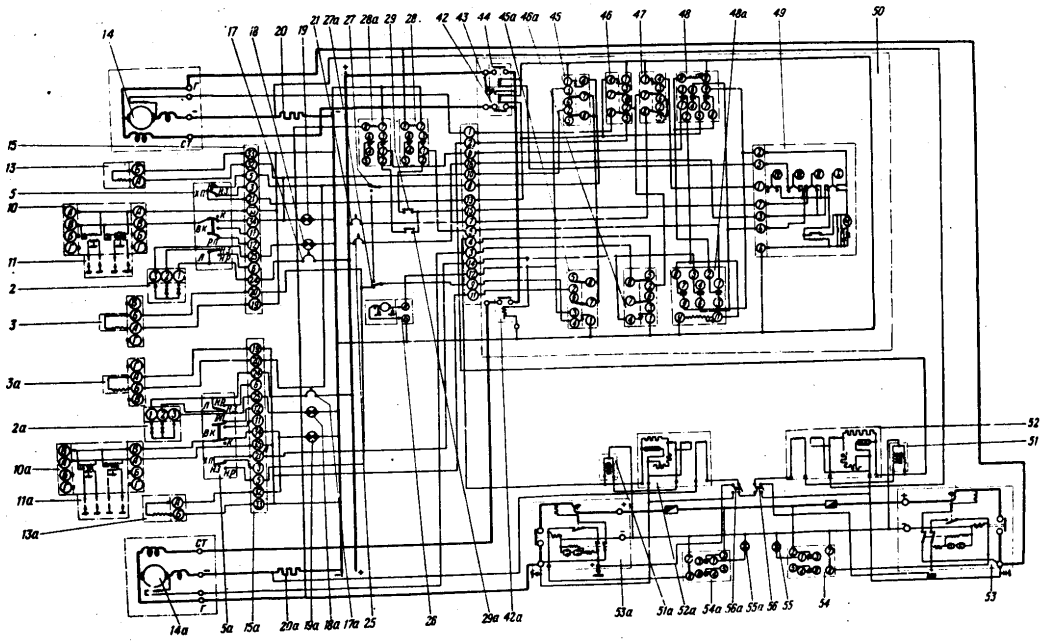

Fig.150. Electric Diagram of Starting System Operating on 24 V
(For reference Nos see Fig.149)

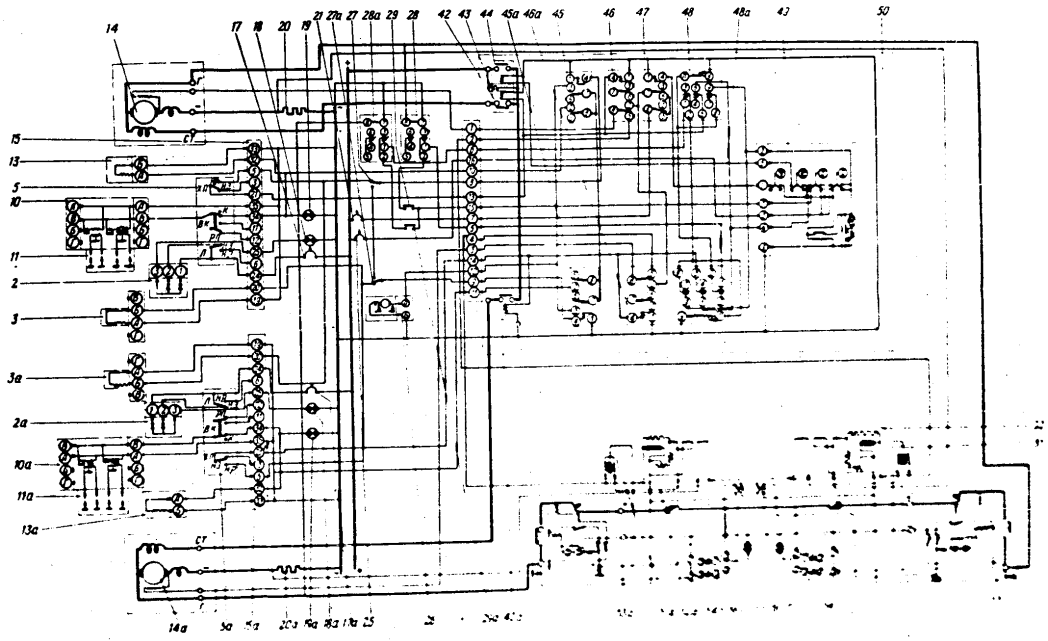

Fig.190. Electric Diagram of Starting [rotor operating on 24 V
(For reference See see Fig.169)

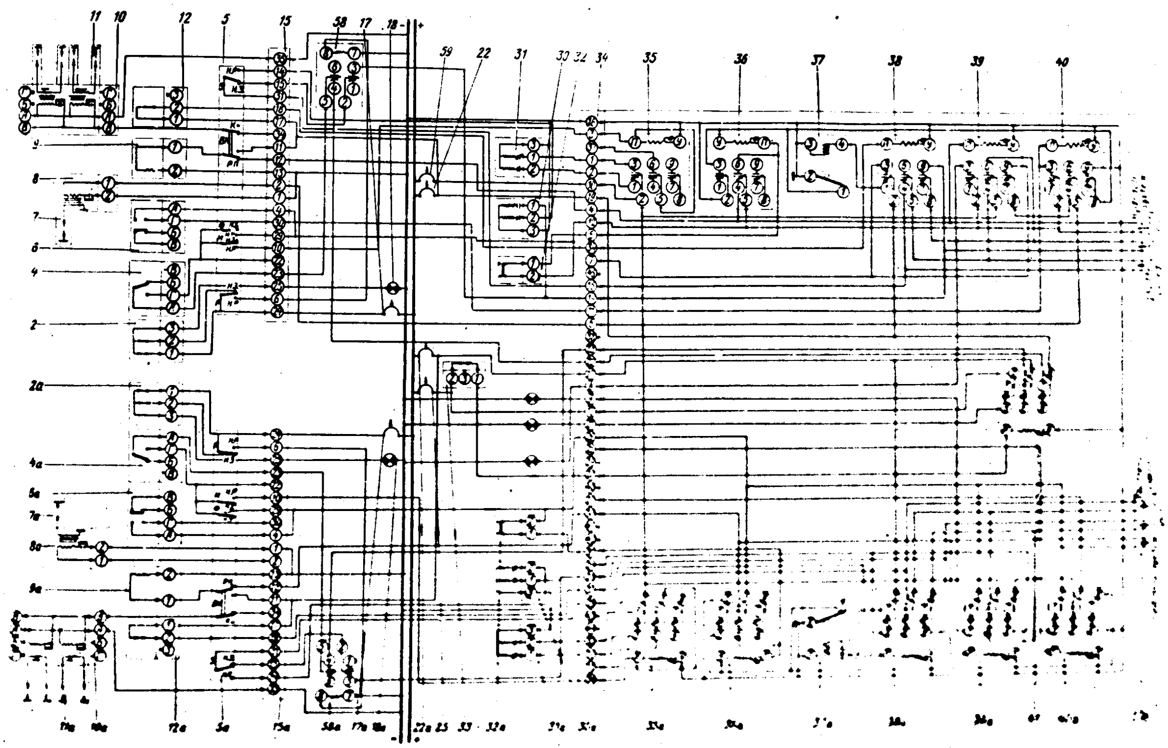

Fig.191. Electric Diagram Showing Cutting-in of Maximum and Augmented Ratings from [illegible]
(For reference see Fig. [illegible])

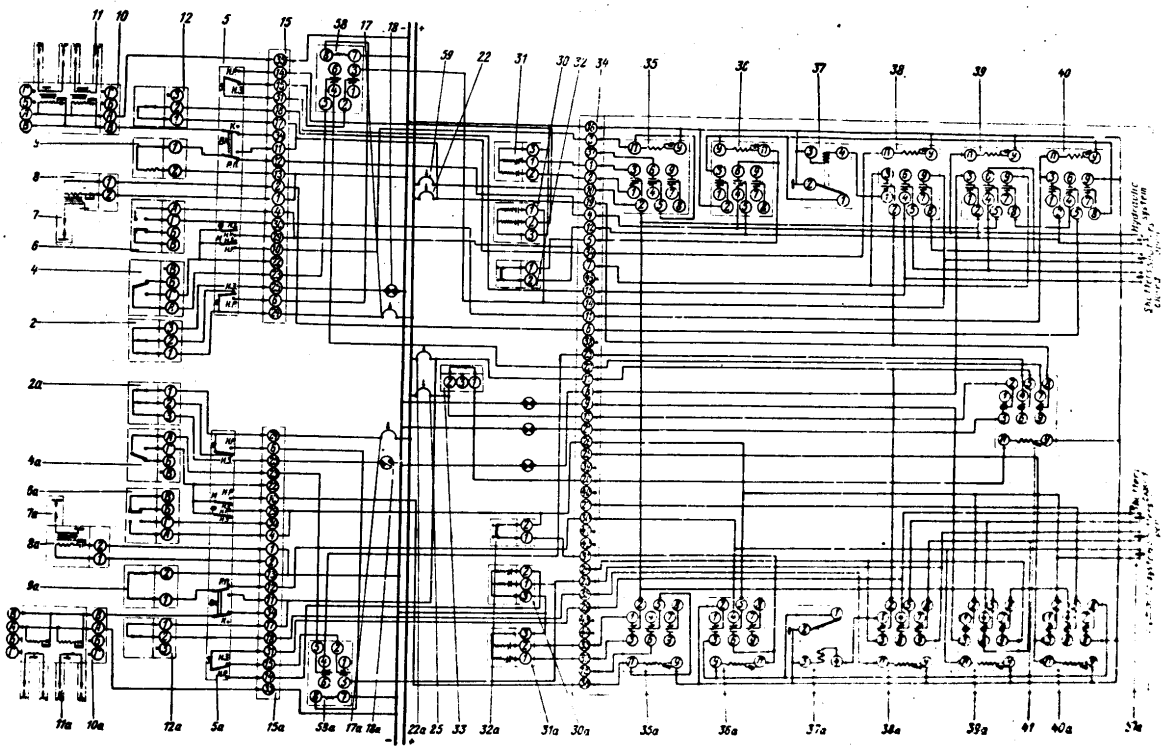

Fig.151. Electric Diagram Showing Cutting-In of Maximum and Augmented Ratings from 24 V
(For reference Nos see Fig.149)

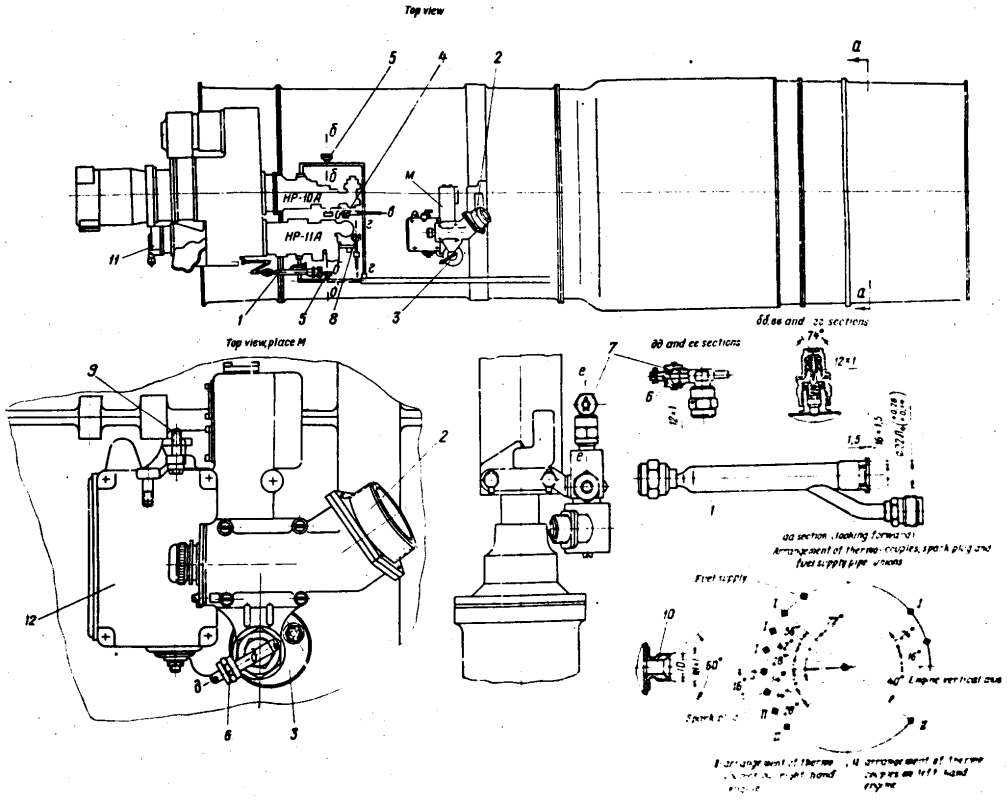

Fig.152. Arrangement of Measuring Equipment

1 - oil temperature gauge at engine inlet; 2 - plug connector of control panel ПУ-3; 3 - oil pressure warning mechanism ИТЭ-1,5-3 (at engine inlet); 4 - pressure gauge measuring main fuel pressure aft of НР-10А pump; 5 - pressure cut-in measuring fuel pressure in low-pressure line; 6 - oil pressure gauge at engine inlet; 7 - starting fuel pressure relief; 8 - afterburner fuel pressure gauge; 9 - point of aircraft link connection, 10 - thermo-couple mounting place; 11 - tachometer-generator ТГ-3; 12- control panel ПУ-3.

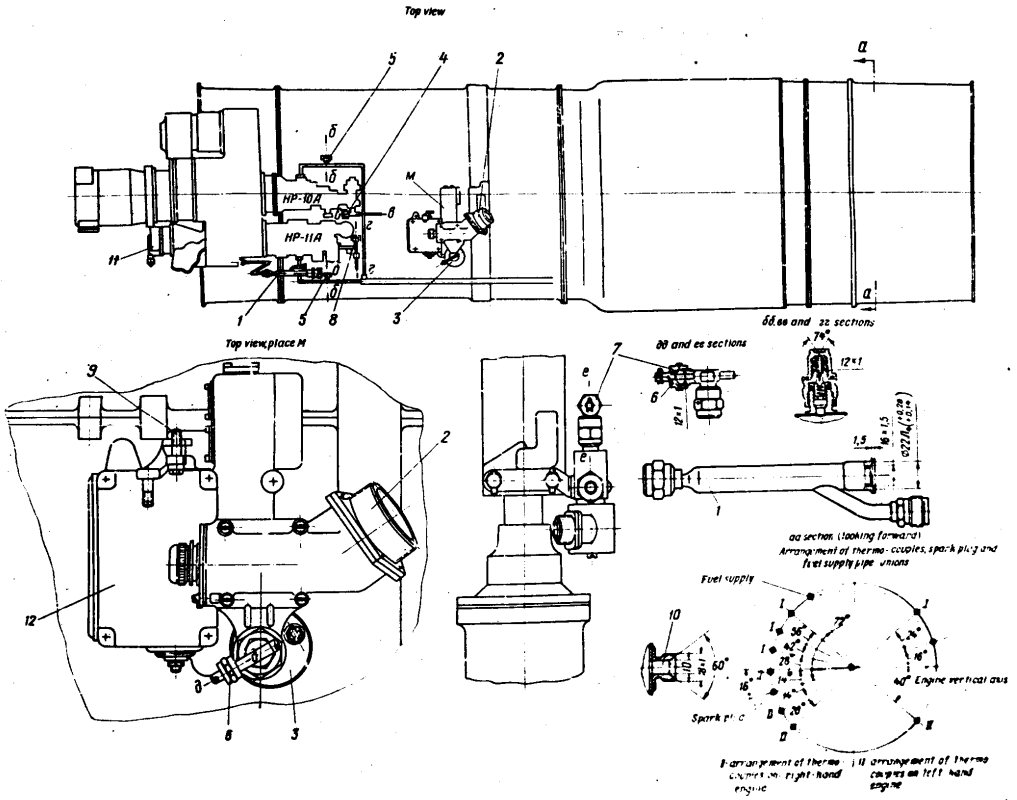

Fig.152. Arrangement of Measuring Equipment

1 - oil temperature gauge at engine inlet; 2 - plug connector of control panel ПУ-3; 3 - oil pressure warning mechanism ЭСМ5-1,5-3 (at engine inlet); 4 - pressure gauge measuring main fuel pressure aft of НР-10А pump; 5 - pressure gauge measuring fuel pressure in low-pressure line; 6 - oil pressure gauge at engine inlet; 7 - starting fuel pressure gauge; 8 - afterburner fuel pressure gauge; 9 - point of aircraft link connection; 10 - thermo-couple mounting place; 11 - tachometer-generator ТГ-5; 12- control panel ПУ-3.

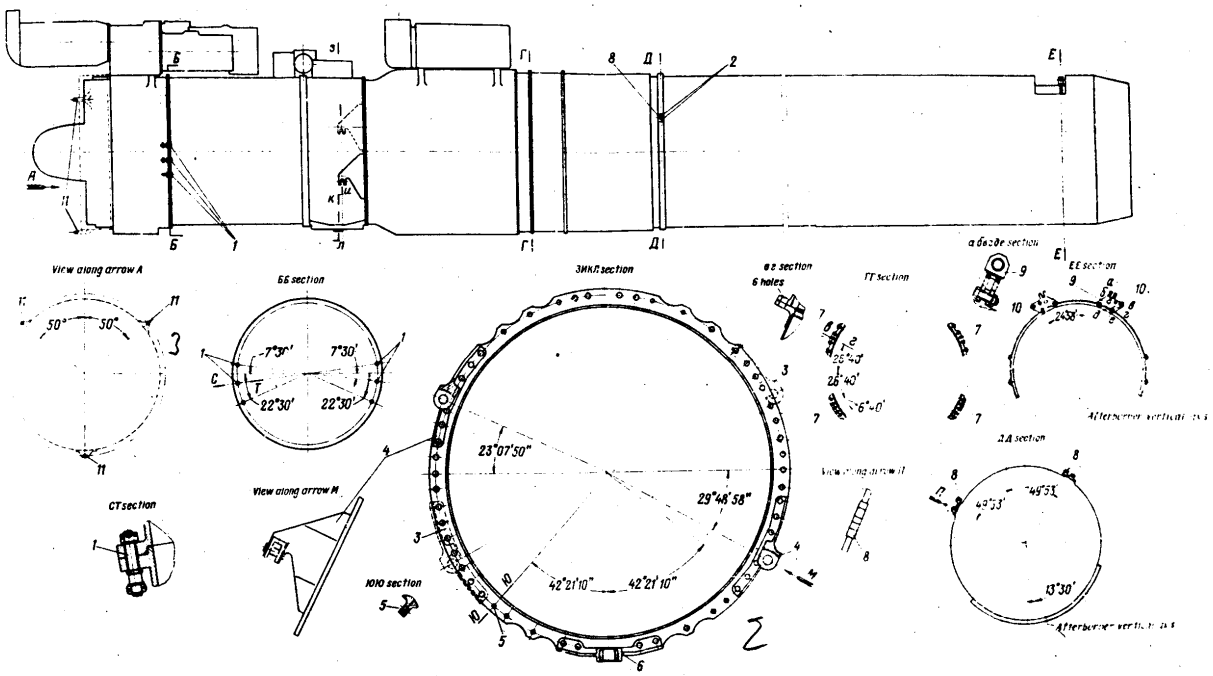

Fig.153. Engine Mounting Diagram

1 - shipping and rigging bolts at inlet housing-to-middle housing joint; 2 - shipping bolts; 3 - engine attachment side bracket (right-hand); 4 - engine attachment side bracket (left-hand); 5 - hole for engine mounting on aircraft; 6 - engine attachment lower bracket; 7 - shipping and rigging holes at nozzle assembly joint; 8 - plates for mounting afterburner shipping and rigging fixtures; 9 - afterburner attachment brackets; 10 - shipping holes; 11 - dowels (aircraft) for engine attachment.

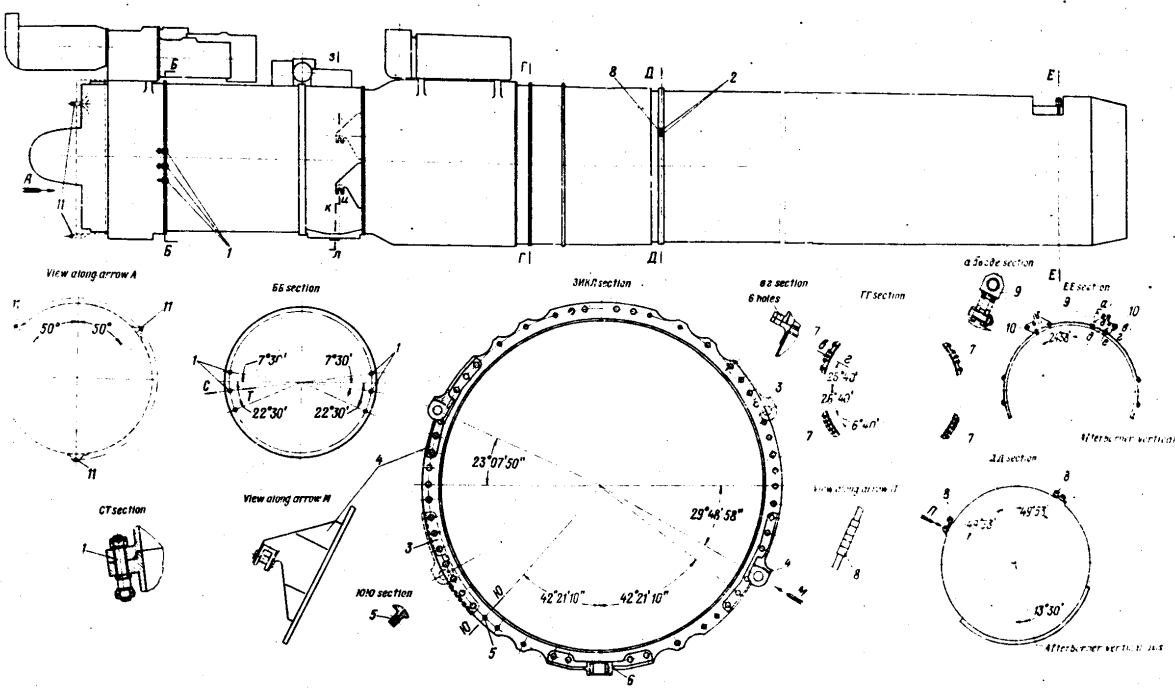

Fig.153. Engine Mounting Diagram

1 - shipping and rigging bolts at inlet housing-to-middle housing joint; 2 - shipping bolts; 3 - engine attachment side bracket (right-hand); 4 - engine attachment side bracket (left-hand); 5 - hole for engine mounting on aircraft; 6 - engine attachment lower bracket; 7 - shipping and rigging holes at nozzle assembly joint; 8 - plates for mounting afterburner shipping and rigging fixtures; 9 - afterburner attachment brackets; 10 - shipping holes; 11 - dowels (aircraft) for engine attachment.

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