



mt-propeller

No. E-2872
Power Pack P-8HO-()
Technical Manual

Original Issue: March 25, 2016

The technical content of this document is approved under authority of DOA
No. EASA.21J.020



EASA: DE.21G.0008
EASA.21J.020



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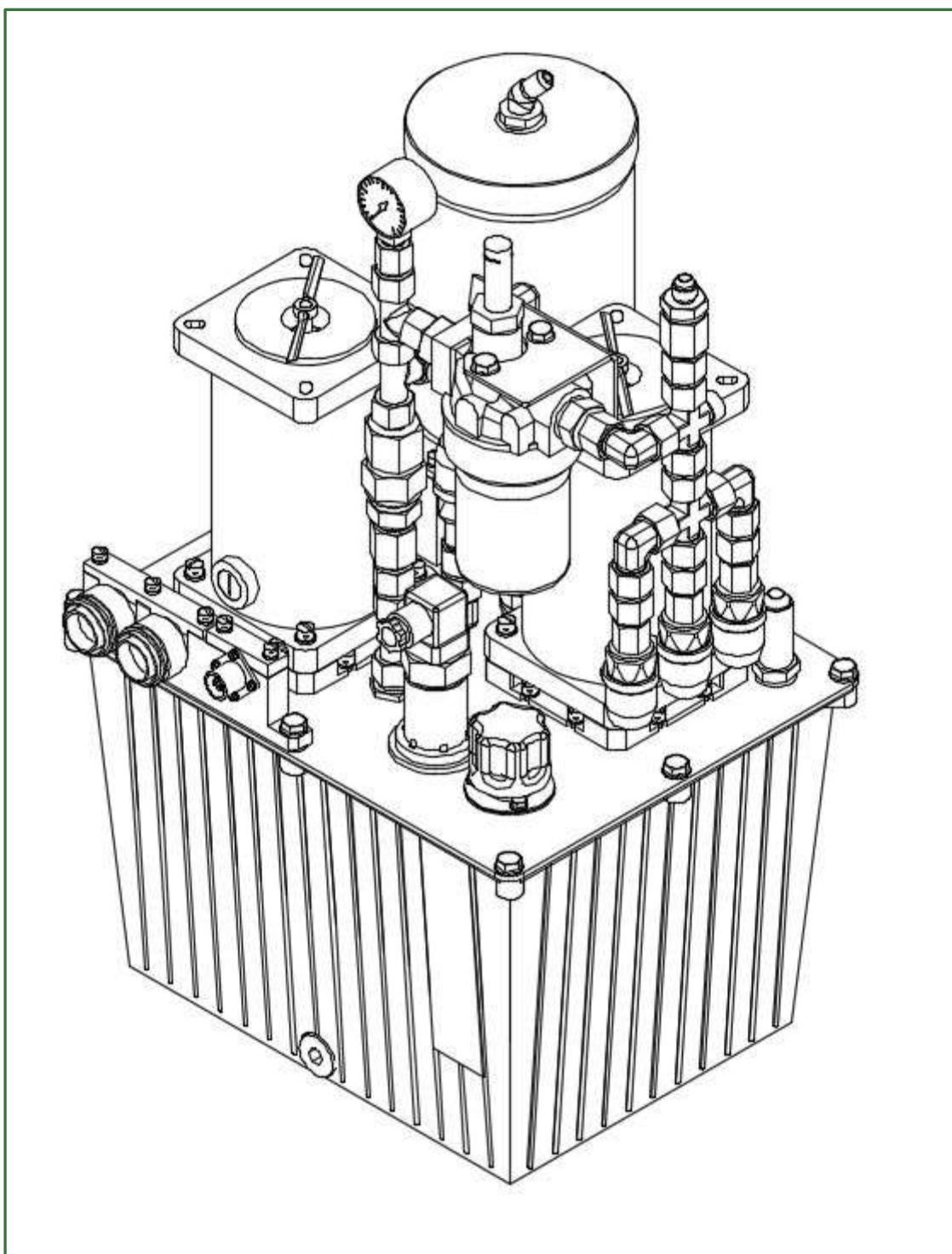
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List of Revisions:

[illegible]



Power Pack P-8HO-()





General Description:

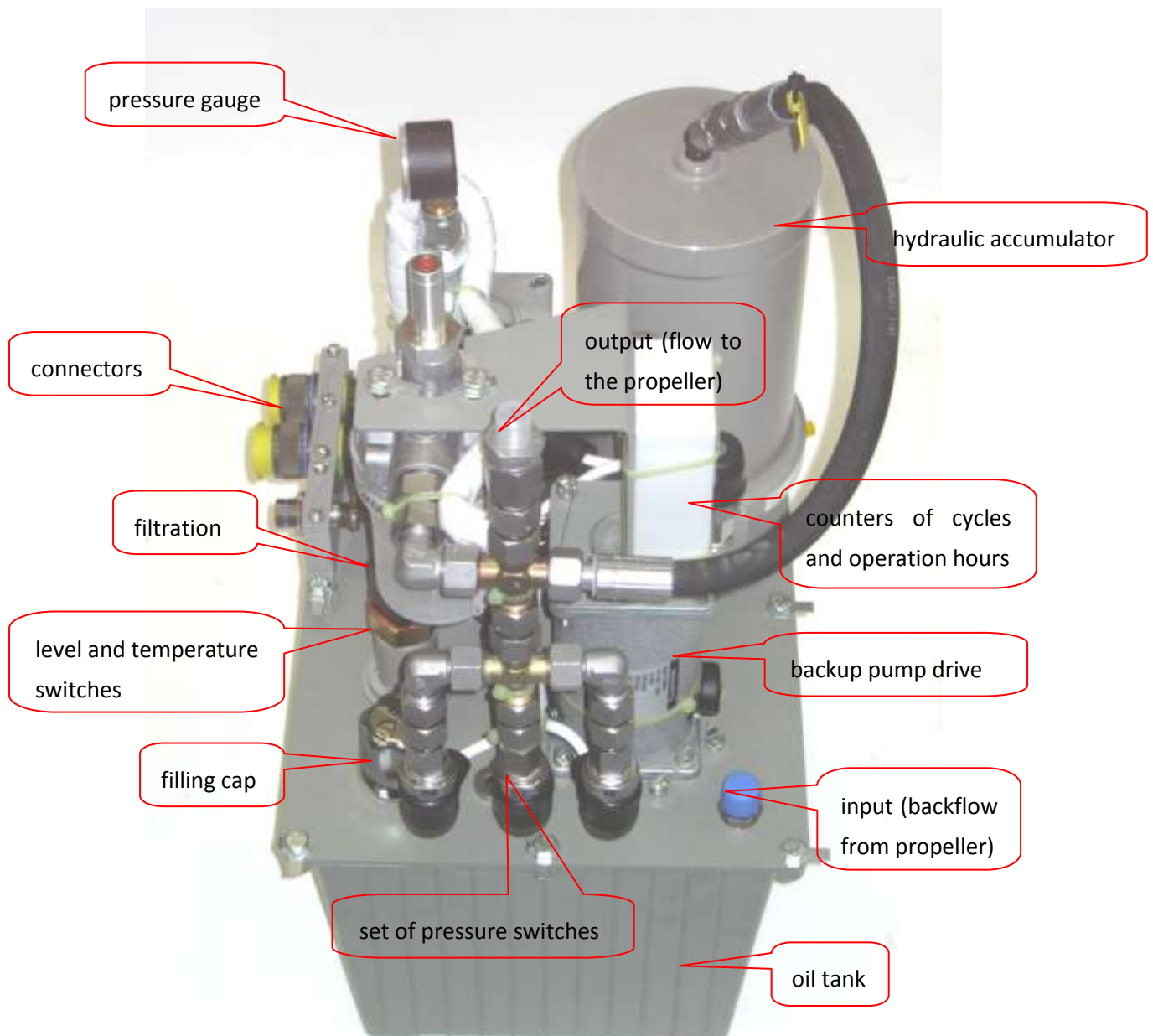
The Power Pack is a hydraulic pump for the use with variable pitch propeller.

It consists of a hydraulic tank, two electric gear pumps with relief valves, one-way valves, pressure switches, hydraulic accumulator, oil level and temperature switch, filtration unit, connectors as electric interface, input and output fitting as hydraulic interface.

The gear pumps are driven by 24 V DC motors.

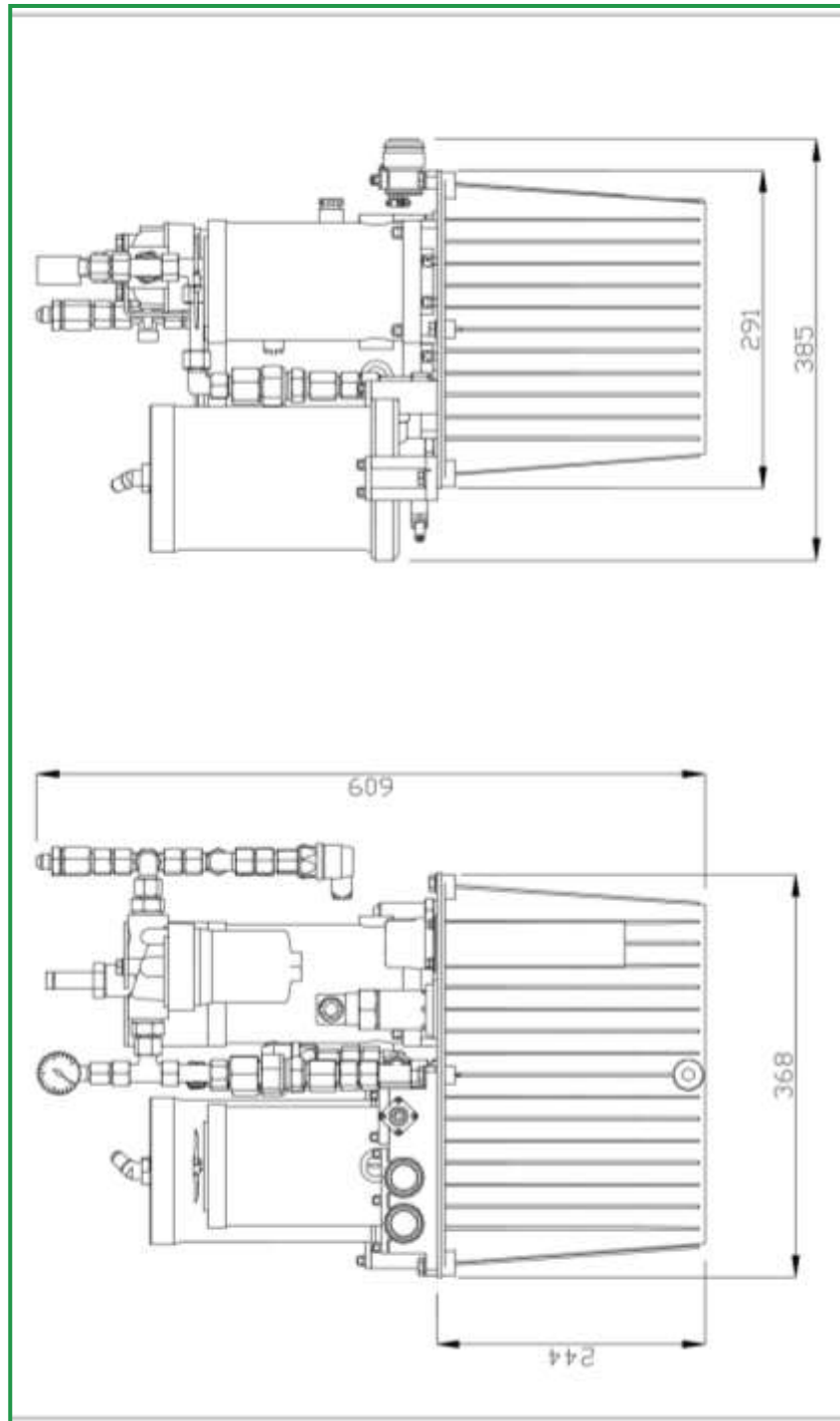
One motor is used as a main pump, the other as a backup pump.

The power pack functionality is monitored by set of pressure switches, which signals different oil pressure levels in the output line and operation of hydraulic gear pumps.





Dimensions:



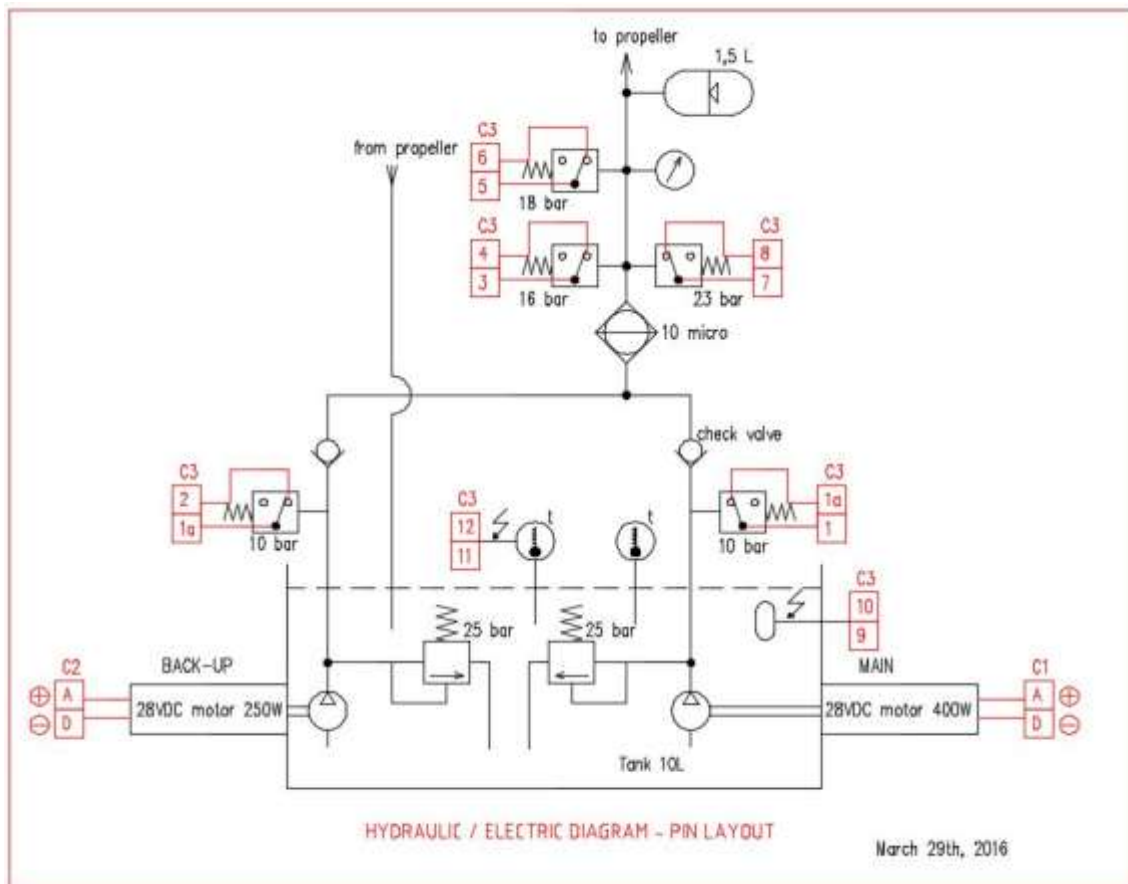
All dimensions in mm



Technical Specification:

Nominal voltage	24 VDC
Maximum current	30 A per motor
Maximum tank volume	20 l
Nominal accumulator volume	1,5 l
Operational usable accumulator volume	0,85 l
Temperature switch setting	80°C
Maximum pressure	28 bar
Pressure setting levels:	pump OFF: 26 bar pump ON: 18 bar pump in operation: 10 bar
Air pressure (accumulator)	12 bar
Filtration element	10 µm
Nominal flow at 20 bar	MAIN : 5 l/min BACKUP : 3,5 l/min
Weight	35 kg

Hydraulic / Electric Diagram:



Pin Layout:

Connector C1 – Main Primary Hydraulic Pump

Type: Amphenol MS3456W20-08P

Pin	Description
A	+ 24 VDC (35 A)
D	- 24 VDC (35 A)

Connector C2 – Standby Hydraulic Pump

Type: Amphenol MS3456W20-08P

Pin	Description
A	+ 24 VDC (35 A)
D	- 24 VDC (35 A)



Connector C3 – Status Operation Signals

Type: Amphenol LJTO0RT-11-35P(014)

Pin	Description	NO / NC
1	pressure switch 10 bar MAIN,STDBY Hi	series, NC
2	pressure switch 10 bar MAIN,STDBY Lo	series
3	pressure switch 18 bar Hi	NC
4	pressure switch 18 bar Lo	
5	pressure switch 20 bar Hi	NC
6	pressure switch 20 bar Lo	
7	pressure switch 23 bar Hi	NC
8	pressure switch 23 bar Lo	
9	oil level switch Hi	closed on low level; open on normal level
10	oil level switch Lo	
11	oil temperature switch Hi	NC
12	oil temperature switch Lo	
13	--	





Function:

The Power Pack provides pressurized oil for hydraulic variable pitch propellers. Oil is pressurized by gear pump, which is also equipped with a relief valve.

This valve keeps oil pressure at pump output. When the pump drive is energized by command from its electronic control unit (not a part of the Power Pack), the pump partly feeds accumulator and also provides pressurized oil directly to output if necessary for immediate use, especially when the propeller is quickly changing its pitch. Operation of the pump is notified by pressure switch at pump output. This switch is located at pump output, downstream on- way valve.

The one-way valve protects oil to flow from currently operational pump output to the other and through this to the tank.

There are two basic hydraulic circuits – MAIN and BACKUP in the Power Pack.

These circuits are almost identical, but hydraulically and electrically separated.

The backup circuit has lower power to reduce current consumption in case of emergency and thus to minimize load of electric network.

Pressurized oil from pump flows through filtration unit to output line.

This line provides T-connections to pressure switches and the accumulator.

The Power Pack is equipped with a pressure gauge, which can be use only for information. Its accuracy is not suitable for setting of pressure switches.

A cycle counter and operation hours counter provide information about usage of the main pump.



Self Test (proposal)

- All switches (pressure, oil level an temperature) are ON.
- Switch ON Back-up pump: 10 bar pressure switch goes OFF.
- Keep it ON up to 16 bar pressure switch goes OFF. Then switch OFF the Back-up pump.
- Within about 5 seconds 10 bar pressure switch goes ON.
- Switch ON Main pump: 10 bar pressure switch goes OFF.
- 16 bar and then 18 bar pressure switch goes OFF.
- When 23 bar pressure switch goes OFF, switch OFF the Main pump.

RESULT: pumps and pressure switches are OK.