**Service Flow Chart Representation**

Blower

True

Check Blower has 24v DC Input

LM358 IC Problem

Check Lm358 IC output has 5.3v

Controller problem

True

False

Set DAC-1 Pin Produce to 3.3v

Check DAC-1 Pin has 3.3v using multimeter

Check Controller board side

False

True

False

Check Pressure Reach 60 Cmh2O or Pressure Sensor Output gives above 2.7v

Buck converter Problem

True

False

False

Check Lung Pressure with your knowledge it is look like below 30 cmh2o

If Test Lung fully filled with air but Sensor give Below 2.7v then Pressure sensor Related Problem

Blower, Blower Driver, Blower Base, Pressure Sensor Works

Check Blower Ready Pin

Pressure Sensor Problem explained in below method

False

works

True

Blower Driver works, but check Blower base

Blower driver Problem

Check 60 cmh2o Pressure or Pressure Sensor gives 2.7v output to Reach in 4 seconds before if Pressure sensor work condition

True

False

Blower Bass works

Blower Base Problem

Pressure Sensor

Check input voltage of the pressure sensor +-1 of 5v

False

True

Check the voltage divider and filter circuit are in good condition

Check the input source of the pressure sensor

True

False

Check the Tubing Near Pressure Sensor is properly inserts without any leakage of chance

voltage divider and filter circuit Problem

True

Check good NRV is Placed or not

True

Close the expiratory valve

True

Check offset voltage of the pressure sensor nearly 200 to 350 mv

True

False

Sensor Problem

If Blower is working condition, Run blower for full speed

Check Pressure sensor output gives above 2.7v

False

True

Pressure sensor fault

Pressure sensor works

Flow sensor

STM32

Communication Result

Communication

Succesfull

Unsuccesfull

ADS1115 Module

ADS1115 Fault, Then LED Respected to ADS1115 not Blink

ADS1115 works, Then LED Respected to ADS1115 Blink

Check input voltage of the Flow sensor +-1 of 5v

False

True

Check filter circuit are in good condition

Check the input source of the Flow sensor

True

False

Check the Tubing Near Flow Sensor is properly inserts without any leakage of chance

filter circuit Problem

True

Check good NRV is Placed or not

True

Open the expiratory valve

True

Do not connect Lung

Check offset voltage of the pressure sensor nearly 2.5v

Run Blower for Gradually

Check 100 l/min Flow or Flow sensor Output gives above 2.9 v Achieved in 4 seconds or before

False

True

Flow Sensor fault

Flow Sensor Works

Expiratory valve

Check Toggle GPIO Pin of Expiratory valve with LED

Toggle

Led status

No toggle

Check Parker valve has 12v input

MOSFET IC Problem

Manually Check Parker valve switching status when touch the parker valve some vibration will be toggle

False

True

Parker valve Fault

Check Expiratory valve flop damaged or not

True

Check good NRV is Placed or not

True

Run a Blower for full speed for 3 seconds

Check The Pressure1

Turn off Blower and wait for 5 seconds

Check the Pressure 2

pressure =pressure1 – pressure2

Pressure value < 5

False

True

No Leak in valve and Expiratory valve works

Leak in valve and expiratory valve fault

Oxygen Blending

Check Controller board side

Set DAC-2 Pin Produce to 2.2v

Check DAC-2 Pin has 2.2v using multimeter

True

False

Controller DAC-2 pin problem

Close the Servo Motor

True

False

Run a Blower for full Speed

Check Optocoupler PWM Signal comes or not

False

True

Check any one Flow sensor (7025) gives 2.2v output or also check Oxygen sensor gives nearly 32 mv

Servo Motor Fault

Optocoupler Problem

False

True

Parker valve working

Parker valve failure