1. MODEL ARP4761/COMPLETESYSTEM/ARP_V21;1

1.1 Identification

- Path : /ARP4761/CompleteSystem
- Name : ARP_V21
- Version : 1
- Type : Model
- Creation : 6/25/20 3:00 PM by admin
- Modification : 7/22/22 1:57 PM by admin
- Comment : This model has been developed in parallel with the work done by the working groups Eurocae WG63 and SAE S18 in the frame of the drafting of ED-135A / ARP 4761A guidelines. It illustrates the MBSA model explained in appendix Q9, made with the graphical tool "Cecilia Workshop" in AltaRica dataflow. developed by : Jean Gauthier jean.gauthier@me.com Christophe Frazza christophe.frazza@free.fr verified by : Pierre Darfeuil pierre.darfeuil@gmail.com

1.2 Content

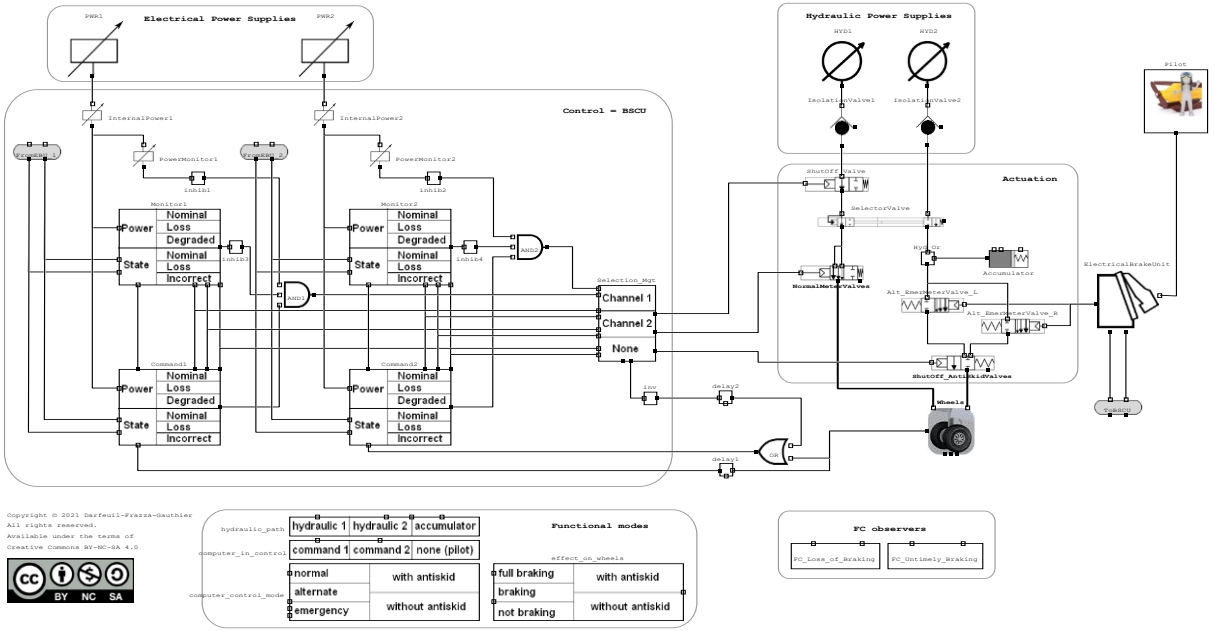
Name	Path	Equipment
AND1	ARP4761/miscelaneous/AND_3;1	No

AND2	ARP4761/miscelaneous/AND_3;1	No
Accumulator	ARP4761/Hydraulic/EmergencyAccumulator;1	No
Alt_EmerMeterValve_L	ARP4761/Hydraulic/Alt_Emer_Meter_Valve;1	No
Alt_EmerMeterValve_R	ARP4761/Hydraulic/Alt_Emer_Meter_Valve;1	No
Command1	ARP4761/BSCU/Command;1	No
Command2	ARP4761/BSCU/Command;1	No
ElectricalBrakeUnit	ARP4761/PilotCtrl/ElectricalBrakeUnit;1	No
FC_Loss_of_Braking	ARP4761/miscelaneous/FC_Braking_loss;1	No
FC_Untimely_Braking	ARP4761/miscelaneous/FC_Untimely_Braking;1	No
FromEBU_1	ARP4761/miscelaneous/Stub1;1	No
FromEBU_2	ARP4761/miscelaneous/Stub1;1	No
HYD1	ARP4761/Hydraulic/Hydraulic_Power;1	No
HYD2	ARP4761/Hydraulic/Hydraulic_Power;1	No
Hyd_Or	ARP4761/Hydraulic/Hyd_Or;1	No
InternalPower1	ARP4761/BSCU/InternalPower;1	No
InternalPower2	ARP4761/BSCU/InternalPower;1	No
IsolationValve1	ARP4761/Hydraulic/Isolation_Valve;1	No
IsolationValve2	ARP4761/Hydraulic/Isolation_Valve;1	No
Monitor1	ARP4761/BSCU/Monitor;1	No
Monitor2	ARP4761/BSCU/Monitor;1	No
NormalMeterValves	ARP4761/Hydraulic/Normal_Valve;1	Yes

OR	ARP4761/miscelaneous/OR_2;1	No
PWR1	ARP4761/ElectricalPower/Electrical_Power;1	No
PWR2	ARP4761/ElectricalPower/Electrical_Power;1	No
Pilot	ARP4761/PilotCtrl/Pilot;1	No
PowerMonitor1	ARP4761/BSCU/PowerMonitor;1	No
PowerMonitor2	ARP4761/BSCU/PowerMonitor;1	No
Selection_Mgt	ARP4761/BSCU/SelectionManagement;1	No
SelectorValve	ARP4761/Hydraulic/SelectorValve;1	No
ShutOff_AntiSkidValves	ARP4761/Hydraulic/AntiSkid_Valve;1	Yes
ShutOff_Valve	ARP4761/Hydraulic/ShutOffValve;1	No
ToBSCU	ARP4761/miscelaneous/Stub1;1	No
Wheels	ARP4761/Misceleneaous/Wheels;1	Yes
computer_control_mode	ARP4761/miscelaneous/control_mode;1	No
computer_in_control	ARP4761/miscelaneous/computer_in_control;1	No
delay1	ARP4761/miscelaneous/delay4;1	No
delay2	ARP4761/miscelaneous/delay5;1	No
effect_on_wheels	ARP4761/miscelaneous/effect_on_wheels;1	No
hydraulic_path	ARP4761/miscelaneous/hydraulic_path;1	No
inhib1	ARP4761/miscelaneous/inhib;1	No
inhib2	ARP4761/miscelaneous/inhib;1	No
inhib3	ARP4761/miscelaneous/inhib;1	No

inhib4	ARP4761/miscelaneous/inhib;1	No
inv	ARP4761/miscelaneous/inv;1	No

1.3 Description



1.4 Synchronizations

Name	Type	Events	Comment	FRB	Law	Inspected	In-flight	Attributes	FMEA

							tested		
CCF_HW_COM_MON_Incorrect	CCF	Command1.Incorrect_Behavior Command2.Incorrect_Behavior Monitor1.Incorrect_Behavior Monitor2.Incorrect_Behavior		-	exponential 1.0E-15	-	-	'Safety/DAL;1'=A	-
CCF_HW_COM_MON_Loss	CCF	Command1.Loss Command2.Loss Monitor1.Loss Monitor2.Loss		-	exponential 1.0E-15	-	-	'Safety/DAL;1'=A	-
CCF_SW_COM_Incorrect	CCF	Command1.Incorrect_Behavior Command2.Incorrect_Behavior		-	exponential 1.0E-15	-	-	'Safety/DAL;1'=B	-
CCF_SW_COM_Loss	CCF	Command1.Loss		-	exponential 1.0E-15	-	-	'Safety/DAL;1'=B	-

		Command2.Loss							
CCF_SW_MON_Incorrect	CCF	Monitor1.Incorrect_Behavior Monitor2.Incorrect_Behavior		-	exponential 1.0E-15	-	-	'Safety/DAL;1'=B	-
CCF_SW_MON_Loss	CCF	Monitor1.Loss Monitor2.Loss		-	exponential 1.0E-15	-	-	'Safety/DAL;1'=B	-

1.5 Altarica code

1.6 Initial Configurations

Name	Comment	Initial states
notBraking_withoutMON		Monitor1.States := MON_Loss Monitor2.States := MON_Loss Pilot.States := Not_Braking PowerMonitor1.States :=

		MON_Loss PowerMonitor2.States := MON_Loss inhib1.inhib_state := inhib inhib2.inhib_state := inhib inhib3.inhib_state := inhib inhib4.inhib_state := inhib
notBraking		Pilot.States := Not_Braking
Braking_withoutMON		Monitor1.States := MON_Loss Monitor2.States := MON_Loss Pilot.States := Braking PowerMonitor1.States := MON_Loss PowerMonitor2.States := MON_Loss inhib1.inhib_state := inhib inhib2.inhib_state :=

		inhib inhib3.inhib_state := inhib inhib4.inhib_state := inhib
Braking		Pilot.States := Braking

2. DESCRIPTION OF DEPENDENCIES

2.1 Equipment

2.1.1 Model of equipment: /ARP4761/Hydraulic/AntiSkid_Valve

2.1.1.1 Identification

- Path : /ARP4761/Hydraulic
- Name : AntiSkid_Valve
- Version : 1
- Type : Equipment
- Creation : 6/25/20 2:43 PM by admin
- Modification : 7/9/22 3:32 PM by admin
- Comment :

2.1.1.2 General

- Width : 100

- Height : 24
- Icon file : ARP4761/shutoff2.jpg;1
- Draw border : No

2.1.1.3 Ports

Name	Type	Orientation	X	Y
Hyd_Output	ARP4761/Bus/Hyd_Outputs;1	out	57	24
Ctrl	ARP4761/Flow/CTRL;1	in	0	11
Hyd_Input1	ARP4761/Flow/Hyd;1	in	52	0
Hyd_Input2	ARP4761/Flow/Hyd;1	in	62	0
hyd	bool	out	90	24

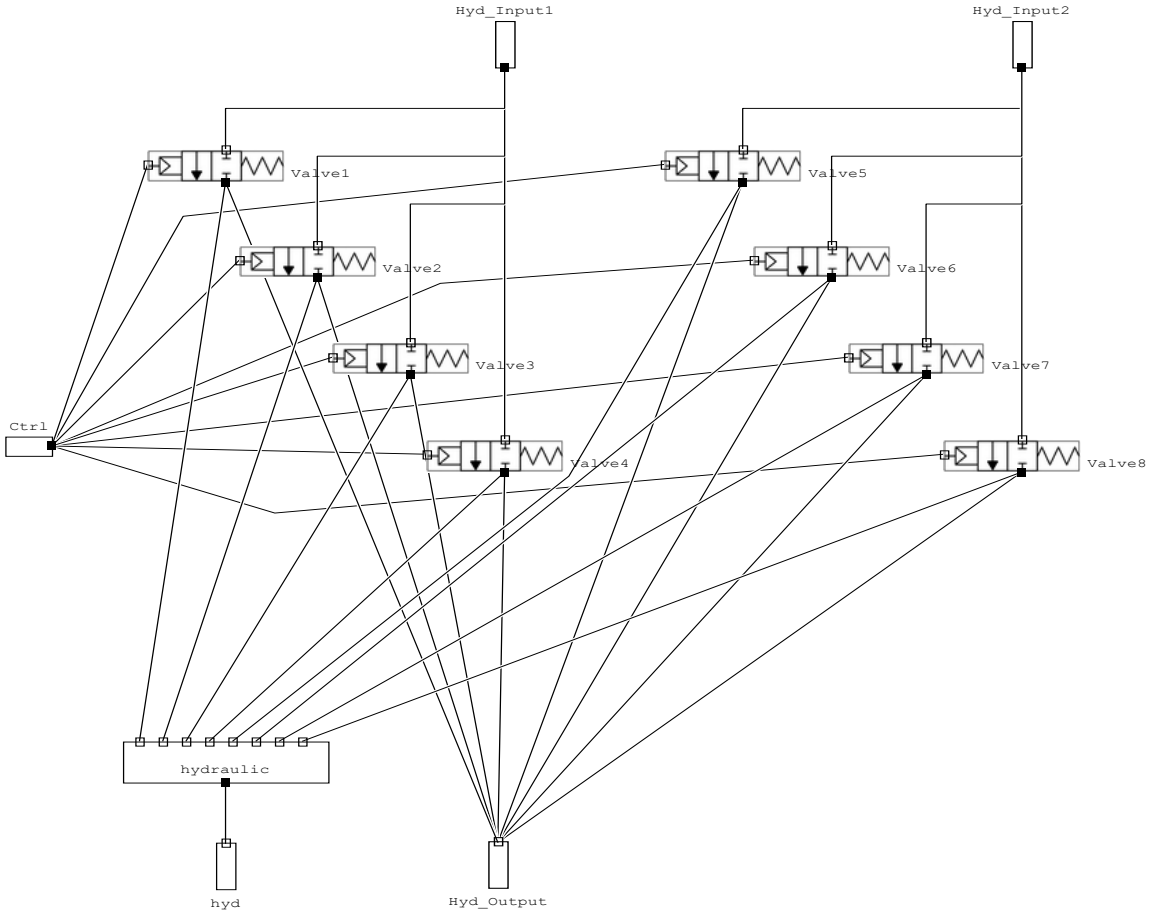
2.1.1.4 Icons

Number	Icon	Path
1		ARP4761/shutoff_o.jpg;1
2		ARP4761/shutoff_c.jpg;1
3		ARP4761/shutoff_ob.jpg;1
4		ARP4761/shutoff_cb.jpg;1
5		ARP4761/shutoff_od.jpg;1
6		ARP4761/shutoff_cd.jpg;1

2.1.1.5 Equipment content

Name	Path	Equipment
Valve1	ARP4761/Hydraulic/AntiSkidValve;1	No
Valve2	ARP4761/Hydraulic/AntiSkidValve;1	No
Valve3	ARP4761/Hydraulic/AntiSkidValve;1	No
Valve4	ARP4761/Hydraulic/AntiSkidValve;1	No
Valve5	ARP4761/Hydraulic/AntiSkidValve;1	No
Valve6	ARP4761/Hydraulic/AntiSkidValve;1	No
Valve7	ARP4761/Hydraulic/AntiSkidValve;1	No
Valve8	ARP4761/Hydraulic/AntiSkidValve;1	No
hydraulic	ARP4761/miscelaneous/hyd1;1	No

2.1.1.6 Description



2.1.1.7 Altarica code

```
assert

if  (Valve1.States=Nominal and

    Valve2.States=Nominal and

    Valve3.States=Nominal and

    Valve4.States=Nominal and

    Valve5.States=Nominal and

    Valve6.States=Nominal and

    Valve7.States=Nominal and

    Valve8.States=Nominal and (Hyd_Input1=No_Pressure and
Hyd_Input1=No_Pressure ))then (icone =2 and Hyd_Output^Bus_Color =
No_Pressure)

else if (Valve1.States=Failed_On and

    Valve2.States=Failed_On and

    Valve3.States=Failed_On and

    Valve4.States=Failed_On and

    Valve5.States=Failed_On and

    Valve6.States=Failed_On and

    Valve7.States=Failed_On and

    Valve8.States=Failed_On and (Hyd_Input1=No_Pressure and
Hyd_Input1=No_Pressure ))then (icone =4 and Hyd_Output^Bus_Color =
No_Pressure)

else if (Valve1.States=Nominal and
```

```
    Valve2.States=Nominal and

    Valve3.States=Nominal and

    Valve4.States=Nominal and

    Valve5.States=Nominal and

    Valve6.States=Nominal and

    Valve7.States=Nominal and

    Valve8.States=Nominal and Ctrl!=Not_Braking) then (icone =1 and ( if
Valve1.Hyd_Output = Full_Pressure then Hyd_Output^Bus_Color = Full_Pressure

                                          else Hyd_Output^Bus_Color =
Ctrl_Pressure

                                        )

                                  )

else if (Valve1.States=Nominal and

    Valve2.States=Nominal and

    Valve3.States=Nominal and

    Valve4.States=Nominal and

    Valve5.States=Nominal and

    Valve6.States=Nominal and

    Valve7.States=Nominal and

    Valve8.States=Nominal and Ctrl=Not_Braking) then (icone =2 and
Hyd_Output^Bus_Color = No_Pressure)

else if (Valve1.States=Failed_On and

    Valve2.States=Failed_On and
```

```
    Valve3.States=Failed_On and

    Valve4.States=Failed_On and

    Valve5.States=Failed_On and

    Valve6.States=Failed_On and

    Valve7.States=Failed_On and

    Valve8.States=Failed_On )then (icone =3 and Hyd_Output^Bus_Color =
Full_Pressure)

else if (Valve1.States=Failed_Off and

    Valve2.States=Failed_Off and

    Valve3.States=Failed_Off and

    Valve4.States=Failed_Off and

    Valve5.States=Failed_Off and

    Valve6.States=Failed_Off and

    Valve7.States=Failed_Off and

    Valve8.States=Failed_Off )then (icone =4 and Hyd_Output^Bus_Color =
No_Pressure)

else if Ctrl=Not_Braking  then (icone =6 and Hyd_Output^Bus_Color =
Mixed_Pressure)

else (icone =5 and Hyd_Output^Bus_Color = Mixed_Pressure)
```

2.1.2 Model of equipment: /ARP4761/Hydraulic/Normal_Valve

2.1.2.1 Identification

- Path : /ARP4761/Hydraulic
- Name : Normal_Valve
- Version : 1
- Type : Equipment
- Creation : 6/25/20 2:43 PM by admin
- Modification : 7/9/22 3:32 PM by admin
- Comment :

2.1.2.2 General

- Width : 100
- Height : 24
- Icon file : ARP4761/normal.jpg;1
- Draw border : No

2.1.2.3 Ports

Name	Type	Orientation	X	Y
Hyd_Output	ARP4761/Bus/Hyd_Outputs;1	out	59	24
Ctrl	ARP4761/Flow/CTRL;1	in	0	11
Hyd_Input1	ARP4761/Flow/Hyd;1	in	54	0
Hyd_Input2	ARP4761/Flow/Hyd;1	in	65	0
hyd	bool	out	94	24

2.1.2.4 Icons

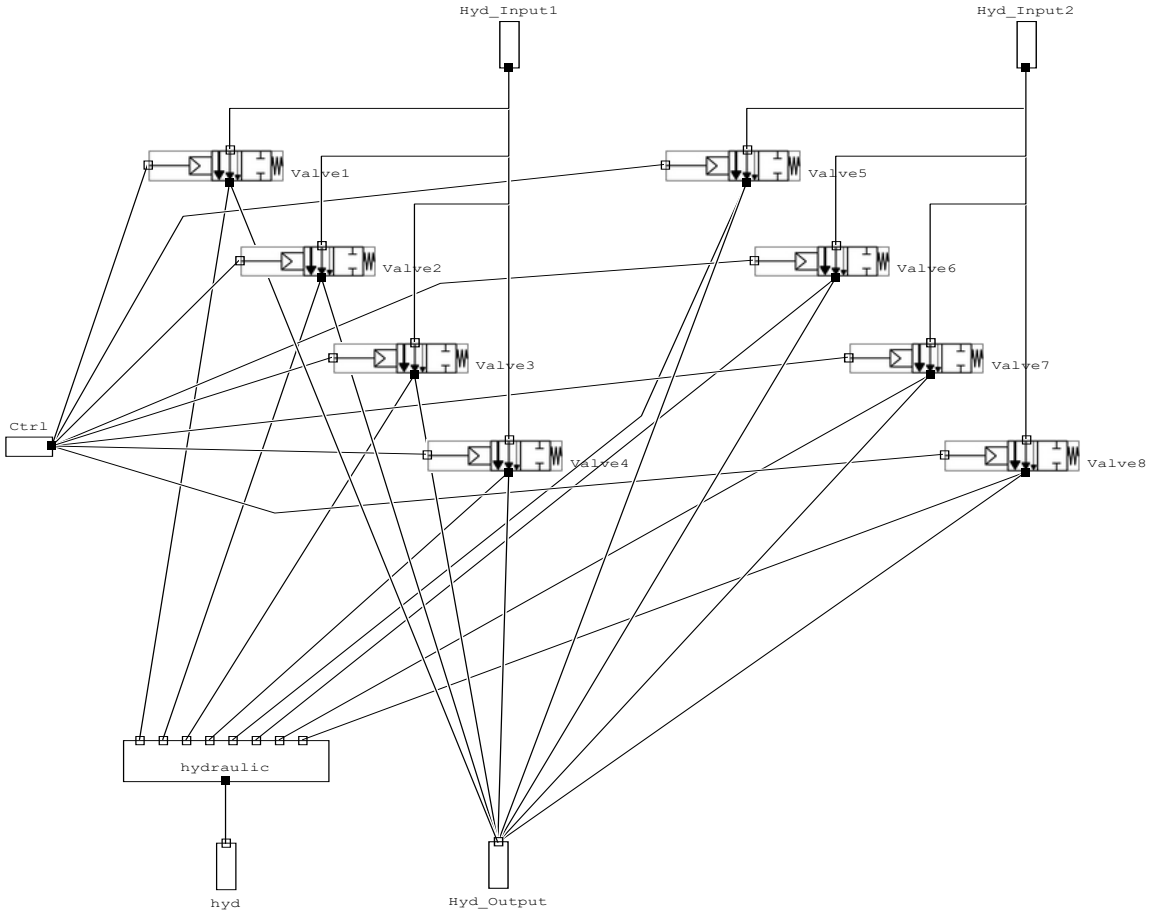
Number	Icon	Path
1		ARP4761/normal_o.jpg;1
2		ARP4761/normal_c.jpg;1
3		ARP4761/normal_ob.jpg;1
4		ARP4761/normal_cb.jpg;1
5		ARP4761/normal_od.jpg;1
6		ARP4761/normal_cd.jpg;1

2.1.2.5 Equipment content

Name	Path	Equipment
Valve1	ARP4761/Hydraulic/NormalValve;1	No
Valve2	ARP4761/Hydraulic/NormalValve;1	No

Valve3	ARP4761/Hydraulic/NormalValve;1	No
Valve4	ARP4761/Hydraulic/NormalValve;1	No
Valve5	ARP4761/Hydraulic/NormalValve;1	No
Valve6	ARP4761/Hydraulic/NormalValve;1	No
Valve7	ARP4761/Hydraulic/NormalValve;1	No
Valve8	ARP4761/Hydraulic/NormalValve;1	No
hydraulic	ARP4761/miscelaneous/hyd1;1	No

2.1.2.6 Description



2.1.2.7 Altarica code

```
assert
/*
if (Valve1.icone =normal_o.jpg) then icone =1
else if (Valve1.icone =normal_c.jpg) then icone =2
else if (Valve1.icone =normal_ob.jpg) then icone =3
else if (Valve1.icone =normal_cb.jpg) then icone =4
else if Ctrl=Not_Braking then icone =6
else icone =5
*/
if (Valve1.States=Nominal and
    Valve2.States=Nominal and
    Valve3.States=Nominal and
    Valve4.States=Nominal and
    Valve5.States=Nominal and
    Valve6.States=Nominal and
    Valve7.States=Nominal and
    Valve8.States=Nominal and Ctrl!=Not_Braking) then (icone =1 and ( if
Valve1.Hyd_Output = Full_Pressure then Hyd_Output^Bus_Color = Full_Pressure
                                          else Hyd_Output^Bus_Color =
Ctrl_Pressure
                                        )
                                    )
```

```
// Ctrl=Not_Braking

else if (Valve1.States=Nominal and

    Valve2.States=Nominal and

    Valve3.States=Nominal and

    Valve4.States=Nominal and

    Valve5.States=Nominal and

    Valve6.States=Nominal and

    Valve7.States=Nominal and

    Valve8.States=Nominal )then (icone =2 and Hyd_Output^Bus_Color =
No_Pressure)

else if (Valve1.States=Failed_On and

    Valve2.States=Failed_On and

    Valve3.States=Failed_On and

    Valve4.States=Failed_On and

    Valve5.States=Failed_On and

    Valve6.States=Failed_On and

    Valve7.States=Failed_On and

    Valve8.States=Failed_On )then (icone =3 and Hyd_Output^Bus_Color =
Full_Pressure)

else if (Valve1.States=Failed_Off and

    Valve2.States=Failed_Off and

    Valve3.States=Failed_Off and

    Valve4.States=Failed_Off and
```

```
    Valve5.States=Failed_Off and

    Valve6.States=Failed_Off and

    Valve7.States=Failed_Off and

    Valve8.States=Failed_Off )then (icone =4 and Hyd_Output^Bus_Color =
No_Pressure)

else if Ctrl=Not_Braking  then (icone =6 and Hyd_Output^Bus_Color =
Mixed_Pressure)

else (icone =5 and Hyd_Output^Bus_Color = Mixed_Pressure)
```

2.1.3 Model of equipment: /ARP4761/Misceleneaous/Wheels

2.1.3.1 Identification

- Path : /ARP4761/Misceleneaous
- Name : Wheels
- Version : 1
- Type : Equipment
- Creation : 6/26/20 1:58 PM by admin
- Modification : 7/9/22 3:32 PM by admin
- Comment :

2.1.3.2 General

- Width : 74
- Height : 74
- Icon file : ARP4761/Wheels.jpg;1
- Draw border : No

2.1.3.3 Ports

Name	Type	Orientation	X	Y
Hyd_Input2	ARP4761/Bus/Hyd_Outputs;1	in	63	0
Hyd_Input1	ARP4761/Bus/Hyd_Outputs;1	in	9	0
Sensors_Braking_Status	bool	out	0	37
Full_Braking_Status	bool	out	27	74
Wheels_Braking_Status	bool	out	37	74
Wheels_Antiskid_Status	bool	out	47	74

2.1.3.4 Icons

Number	Icon	Path
1		ARP4761/Wheels1_8.jpg;1
2		ARP4761/Wheels2_8.jpg;1

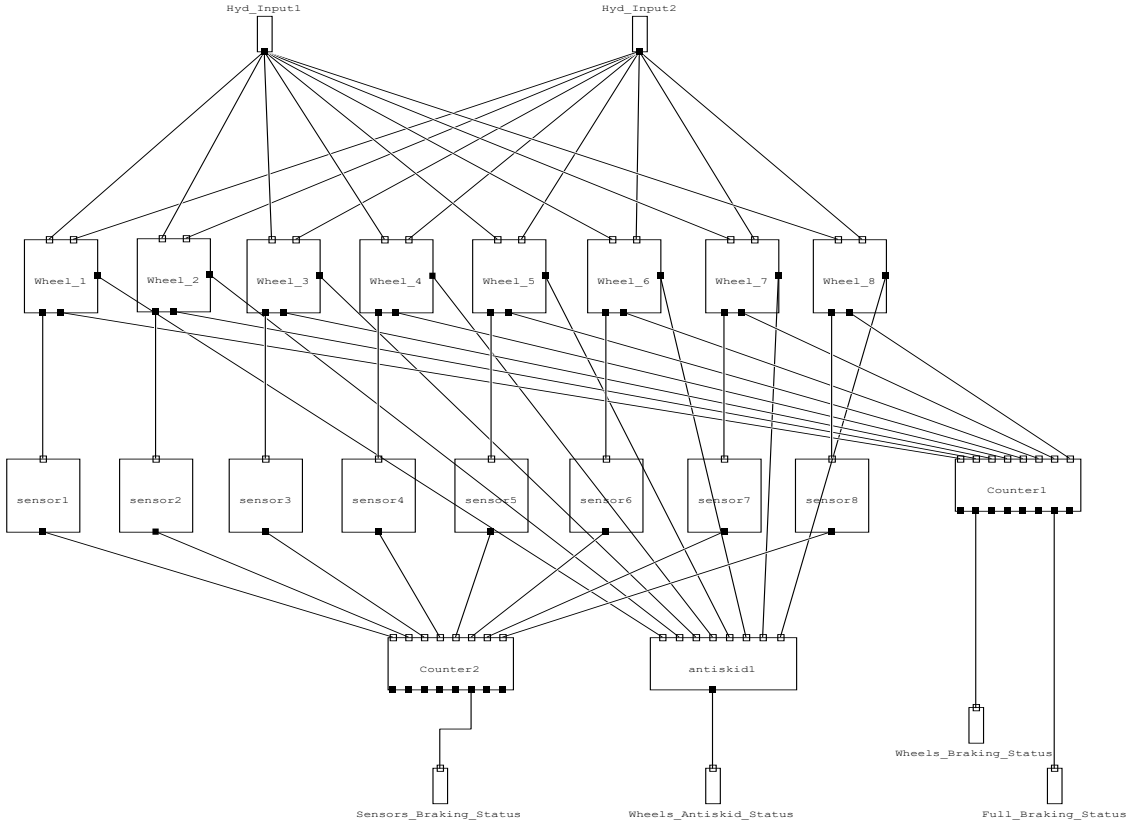
3		ARP4761/Wheels3_8.jpg;1
4		ARP4761/Wheels4_8.jpg;1
5		ARP4761/Wheels5_8.jpg;1
6		ARP4761/Wheels6_8.jpg;1
7		ARP4761/Wheels7_8.jpg;1
8		ARP4761/Wheels8_8.jpg;1
9		ARP4761/Wheels0_8.jpg;1

2.1.3.5 Equipment content

Name	Path	Equipment
Counter1	ARP4761/miscelaneous/Counter;1	No
Counter2	ARP4761/miscelaneous/Counter;1	No
Wheel_1	ARP4761/miscelaneous/Wheel;1	No
Wheel_2	ARP4761/miscelaneous/Wheel;1	No
Wheel_3	ARP4761/miscelaneous/Wheel;1	No
Wheel_4	ARP4761/miscelaneous/Wheel;1	No
Wheel_5	ARP4761/miscelaneous/Wheel;1	No
Wheel_6	ARP4761/miscelaneous/Wheel;1	No
Wheel_7	ARP4761/miscelaneous/Wheel;1	No

Wheel_8	ARP4761/miscelaneous/Wheel;1	No
antiskid1	ARP4761/miscelaneous/antiskid;1	No
sensor1	ARP4761/miscelaneous/speed_sensor;1	No
sensor2	ARP4761/miscelaneous/speed_sensor;1	No
sensor3	ARP4761/miscelaneous/speed_sensor;1	No
sensor4	ARP4761/miscelaneous/speed_sensor;1	No
sensor5	ARP4761/miscelaneous/speed_sensor;1	No
sensor6	ARP4761/miscelaneous/speed_sensor;1	No
sensor7	ARP4761/miscelaneous/speed_sensor;1	No
sensor8	ARP4761/miscelaneous/speed_sensor;1	No

2.1.3.6 Description



2.1.3.7 Altarica code

```
assert

if Counter1.O8by8 = true then icone = 8
```

```
else if Counter1.O7by8 = true then icone = 7
else if Counter1.O6by8 = true then icone = 6
else if Counter1.O5by8 = true then icone = 5
else if Counter1.O4by8 = true then icone = 4
else if Counter1.O3by8 = true then icone = 3
else if Counter1.O2by8 = true then icone = 2
else if Counter1.O1by8 = true then icone = 1
else icone = 9
```

2.2 Components

2.2.1 Model of component: /ARP4761/BSCU/Command

2.2.1.1 Identification

- Path : /ARP4761/BSCU
- Name : Command
- Version : 1
- Type : Component
- Creation : 6/17/20 4:44 PM by admin

- Modification : 7/22/22 2:14 PM by admin
- Comment : remark: the output oNotbraking is used to send the NotBraking value to the MON the COM failure modes does not have any impact on this value

2.2.1.2 General

- Width : 160
- Height : 120
- Icon file : ARP4761/COM_MON.jpg;1
- Draw border : Yes

2.2.1.3 Ports

Name	Type	Orientation	X	Y
Power_Input	ARP4761/Flow/Elec;1	in	0	30
Pos2	ARP4761/Flow/CTRL;1	in	0	100
Pos1	ARP4761/Flow/CTRL;1	in	0	80
Enable	ARP4761/Flow/CMD;1	out	120	0
Normal	ARP4761/Flow/CTRL;1	out	140	0
Alt_Emer	ARP4761/Flow/CTRL;1	out	160	0
o_isBraking	bool	out	30	0

isBraking	bool	in	30	120
Validity	bool	out	160	60
BrakingSt	bool	local	0	16

2.2.1.4 States

Name	Type	Value
States	{Nominal,CMD_Loss,CMD_Incorrect}	Nominal

2.2.1.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested
Incorrect_Behavior		-	exponential 1.0E-6	-	-
Loss		-	exponential 5.0E-6	-	-

2.2.1.6 Icons

Number	Icon	Path
1		ARP4761/COM_MON_nom_nom.jpg;1
2		ARP4761/COM_MON_nom_loss.jpg;1
3		ARP4761/COM_MON_nom_inc.jpg;1
4		ARP4761/COM_MON_loss_nom.jpg;1
5		ARP4761/COM_MON_loss_loss.jpg;1

6		ARP4761/COM_MON_loss_inc.jpg;1
7		ARP4761/COM_MON_deg_nom.jpg;1
8		ARP4761/COM_MON_deg_loss.jpg;1
9		ARP4761/COM_MON_deg_inc.jpg;1

2.2.1.7 Altarica code

```
node ARP4761_BSCU_Command
 flow
  icone : [1,9] : local ;
  Power_Input : ARP4761_Flow_Elec : in;
  Pos2 : ARP4761_Flow_CTRL : in;
  Pos1 : ARP4761_Flow_CTRL : in;
  Enable : ARP4761_Flow_CMD : out;
  Normal : ARP4761_Flow_CTRL : out;
  Alt_Emer : ARP4761_Flow_CTRL : out;
  o_isBraking : bool : out;
  isBraking : bool : in;
  Validity : bool : out;
  BrakingSt : bool : local;
 state
  States : {Nominal,CMD_Loss,CMD_Incorrect};
```

```
 event
  Incorrect_Behavior;
  Loss;
 init
  States := Nominal;
trans
States=Nominal |- Loss -> States :=CMD_Loss ;
States=Nominal |- Incorrect_Behavior -> States :=CMD_Incorrect ;
assert
BrakingSt = isBraking;
o_isBraking = isBraking;
// States= Nominal
if (States= Nominal) then
  (
    // Power_input = Power
    if (Power_Input=Power)then
    (
         (Validity =true and icone=1) and
         (if (Pos1=Braking and Pos2=Braking) then
           (
                if (BrakingSt) then  (Enable=On and Normal=Braking_With_AS
and Alt_Emer=Not_Braking)
                else (Enable=Off and Normal=Not_Braking and
```

```
Alt_Emer=Braking_With_AS)
           )
           else
           (
             if (BrakingSt) then (Enable=Off and Normal=Not_Braking and
Alt_Emer=Not_Braking)
             else (Enable = On and Normal=Not_Braking and
Alt_Emer=Not_Braking)
           )
         )
    )
    // Power_Input=Degraded_Power
    else if (Power_Input=Degraded_Power)then
      (
        (Validity =true and icone=7) and
        (if ( Pos1=Braking and Pos2=Braking)then
          (
            Enable = On  and Normal=Not_Braking and Alt_Emer=Not_Braking
          )
          else
          (
            Enable = On  and Normal=Braking and Alt_Emer=Not_Braking
          )
```

```
        )
      )
      else
      // Power_Input=No_Power
      (
        (Validity =false and icone=4) and Enable=Off and Normal=Not_Braking
and Alt_Emer=Not_Braking
      )
  )


else
 // States= CMD_Loss
  if (States= CMD_Loss) then
    (
         Validity = false and Enable=Off and Normal=Not_Braking and
Alt_Emer=Not_Braking and (
      if Power_Input=Power then icone=2 // Power_input = Power
      else if Power_Input=No_Power  then icone=5 // Power_input = Power
      else icone=8 )   // Power_Input=Degraded_Power
    )
else
 // States= CMD_Incorrect
    (
```

```
// Power_input = Power
if (Power_Input=Power)then
(
   (Enable=On) and (Validity =true) and icone=3 and
   (
     if (Pos1=Braking and Pos2=Braking ) then
      (
         Normal=Not_Braking and Alt_Emer=Not_Braking
       )
       else
       (
         Normal=Braking and Alt_Emer=Braking
       )
    )
)
else
  // Power_Input=Degraded_Power
  if (Power_Input=Degraded_Power)then
  (
    (Enable = On) and (Validity =true)and icone=9 and
    (
      if (Pos1=Braking)and (Pos2=Braking) then
```

```
          (
             Normal=Not_Braking and Alt_Emer=Not_Braking
          )
          else
          (
            Normal=Braking and Alt_Emer=Braking
          )
        )
      )
      else // Power_Input=No_Power
      (
       Validity =false and  Enable=Off and Normal=Not_Braking and
Alt_Emer=Not_Braking and icone=6
      )
    )
 extern
  law <event Incorrect_Behavior> = exponential(1.0E-6) ;
  law <event Loss> = exponential(5.0E-6) ;
edon
```

2.2.2 Model of component: /ARP4761/BSCU/InternalPower

2.2.2.1 Identification

- Path : /ARP4761/BSCU
- Name : InternalPower
- Version : 1
- Type : Component
- Creation : 6/17/20 4:44 PM by admin
- Modification : 7/9/22 3:33 PM by admin
- Comment :

2.2.2.2 General

- Width : 40
- Height : 35
- Icon file : ARP4761/small_power_white.jpg;1
- Draw border : No

2.2.2.3 Ports

Name	Type	Orientation	X	Y
Pwr_Input	ARP4761/Flow/Elec;1	in	20	0
Pwr_Output	ARP4761/Flow/Elec;1	out	20	35

2.2.2.4 States

Name	Type	Value
States	{Nominal,Pwr_Loss,Pwr_Degraded}	Nominal

2.2.2.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested
Degraded		-	exponential 1.06E-5	-	-
Loss		-	exponential 2.0E-5	-	-

2.2.2.6 Icons

Number	Icon	Path
1		ARP4761/small_power_green.jpg;1
2		ARP4761/small_power_red.jpg;1
3		ARP4761/small_power_blue.jpg;1

2.2.2.7 Altarica code

```
node ARP4761_BSCU_InternalPower
 flow
  icone : [1,3] : local ;
  Pwr_Input : ARP4761_Flow_Elec : in;
  Pwr_Output : ARP4761_Flow_Elec : out;
 state
  States : {Nominal,Pwr_Loss,Pwr_Degraded};
 event
  Degraded;
  Loss;
 init
  States := Nominal;
trans
States=Nominal |- Loss -> States :=Pwr_Loss ;
States=Nominal |- Degraded -> States :=Pwr_Degraded ;
assert
if (States= Nominal) then
  (
     if (Pwr_Input = No_Power) then (Pwr_Output=No_Power and icone =2)
     else if (Pwr_Input = Degraded_Power) then (Pwr_Output=Degraded_Power
and icone =3)
```

```
     else (Pwr_Output=Power and icone =1)
  )
else
    if (States= Pwr_Loss) then
       (Pwr_Output=No_Power and icone =2)
   else
     if (Pwr_Input = No_Power) then (Pwr_Output=No_Power and icone =2) else
        (Pwr_Output=Degraded_Power and icone =3)
 extern
  law <event Degraded> = exponential(1.06E-5) ;
  law <event Loss> = exponential(2.0E-5) ;
edon
```

2.2.3 Model of component: /ARP4761/BSCU/Monitor

2.2.3.1 Identification

- Path : /ARP4761/BSCU
- Name : Monitor
- Version : 1
- Type : Component

- Creation : 6/17/20 4:44 PM by admin
- Modification : 7/9/22 3:33 PM by admin
- Comment :

2.2.3.2 General

- Width : 160
- Height : 120
- Icon file : ARP4761/COM_MON.jpg;1
- Draw border : Yes

2.2.3.3 Ports

Name	Type	Orientation	X	Y
Power_Input	ARP4761/Flow/Elec;1	in	0	30
Pos2	ARP4761/Flow/CTRL;1	in	0	100
Pos1	ARP4761/Flow/CTRL;1	in	0	80
Enable_Cmd	ARP4761/Flow/CMD;1	in	120	120
Enable	ARP4761/Flow/CMD;1	local	128	120
Normal_Cmd	ARP4761/Flow/CTRL;1	in	140	120

Normal	ARP4761/Flow/CTRL;1	local	80	56
Alt_Emer_Cmd	ARP4761/Flow/CTRL;1	in	160	120
Alt_Emer	ARP4761/Flow/CTRL;1	local	160	112
isBraking	bool	in	30	120
Validity	bool	out	160	60
BrakingSt	bool	local	0	0

2.2.3.4 States

Name	Type	Value
States	{Nominal,MON_Loss,MON_Incorrect}	Nominal

2.2.3.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested
Incorrect_Behavior	covers Incorrect and Loss undetected	-	exponential 6.0E-6	-	-
Loss		-	exponential 5.0E-6	100.0	-

2.2.3.6 Icons

Number	Icon	Path
1		ARP4761/COM_MON_nom_nom.jpg;1
2		ARP4761/COM_MON_nom_loss.jpg;1

3		ARP4761/COM_MON_nom_inc.jpg;1
4		ARP4761/COM_MON_loss_nom.jpg;1
5		ARP4761/COM_MON_loss_loss.jpg;1
6		ARP4761/COM_MON_loss_inc.jpg;1
7		ARP4761/COM_MON_deg_nom.jpg;1
8		ARP4761/COM_MON_deg_loss.jpg;1
9		ARP4761/COM_MON_deg_inc.jpg;1

2.2.3.7 Altarica code

```
node ARP4761_BSCU_Monitor
 flow
  icone : [1,9] : local ;
  Power_Input : ARP4761_Flow_Elec : in;
  Pos2 : ARP4761_Flow_CTRL : in;
  Pos1 : ARP4761_Flow_CTRL : in;
  Enable_Cmd : ARP4761_Flow_CMD : in;
  Enable : ARP4761_Flow_CMD : local;
  Normal_Cmd : ARP4761_Flow_CTRL : in;
  Normal : ARP4761_Flow_CTRL : local;
  Alt_Emer_Cmd : ARP4761_Flow_CTRL : in;
```

```
  Alt_Emer : ARP4761_Flow_CTRL : local;
  isBraking : bool : in;
  Validity : bool : out;
  BrakingSt : bool : local;
 state
  States : {Nominal,MON_Loss,MON_Incorrect};
 event
  Incorrect_Behavior;
  Loss;
 init
  States := Nominal;
trans
States=Nominal |- Loss -> States := MON_Loss ;
States=Nominal |- Incorrect_Behavior -> States := MON_Incorrect ;
assert
BrakingSt =isBraking;
// States= Nominal
if (States= Nominal) then
  (
    // Power_input = Power
    if (Power_Input=Power)then
    (
```

```
          (icone=1) and

          (if (Pos1=Braking and Pos2=Braking) then

            (

                 if (BrakingSt) then  (Enable=On and Normal=Braking_With_AS
and Alt_Emer=Not_Braking)

                 else (Enable=Off and Normal=Not_Braking and
Alt_Emer=Braking_With_AS )

            )

            else

            (

              if (BrakingSt) then (Enable=Off and Normal=Not_Braking and
Alt_Emer=Not_Braking)

              else (Enable = On and Normal=Not_Braking and
Alt_Emer=Not_Braking)

            )

          )

    )  and Validity = ((Enable=Enable_Cmd)and (Normal=Normal_Cmd) and
(Alt_Emer=Alt_Emer_Cmd))

    // Power_Input=Degraded_Power

    else if (Power_Input=Degraded_Power)then

      (

        (icone=7) and

        (if ( Pos1=Braking and Pos2=Braking)then

          (
```

```
            Enable = On  and Normal=Not_Braking and Alt_Emer=Not_Braking
          )
          else
          (
            Enable = On  and Normal=Braking and Alt_Emer=Not_Braking
          )
        )
      ) and Validity = true
      else
      // Power_Input=No_Power
      (
        (icone=4) and Enable=Off and Normal=Not_Braking and
Alt_Emer=Not_Braking
        and Validity = false
      )
  )
else
 // States= MON_Loss
  if (States= MON_Loss) then
    (
         Enable=Off and Normal=Not_Braking and Alt_Emer=Not_Braking and
Validity = false and (
      if Power_Input=Power then icone=2 // Power_input = Power
```

```
      else if Power_Input=No_Power  then icone=5 // Power_input = Power
      else icone=8 )   // Power_Input=Degraded_Power
    )
else
 // States= MON_Incorrect
    (
    // Power_input = Power
    if (Power_Input=Power)then
    (
       (Enable=On) and icone=3 and
       (
         if (Pos1=Braking and Pos2=Braking ) then
          (
             Normal=Not_Braking and Alt_Emer=Not_Braking
          )
          else
          (
            Normal=Braking and Alt_Emer=Braking
          )
        )
    ) and Validity = true
    else
```

```
      // Power_Input=Degraded_Power
      if (Power_Input=Degraded_Power)then
      (
        (Enable = On) and icone=9 and
        (
          if (Pos1=Braking)and (Pos2=Braking) then
          (
             Normal=Not_Braking and Alt_Emer=Not_Braking
          )
          else
          (
            Normal=Braking and Alt_Emer=Braking
          )
        )
      ) and Validity = true
      else // Power_Input=No_Power
      (
        Enable=Off and Normal=Not_Braking and Alt_Emer=Not_Braking and
icone=6 and  Validity = false
      )
    )
 extern
```

```
  law <event Incorrect_Behavior> = exponential(6.0E-6) ;

  remark <event Incorrect_Behavior> = "covers Incorrect and Loss
undetected";

  attribute DassaultSpecialRemark( <event Incorrect_Behavior> ) = "covers
Incorrect and Loss undetected";

  law <event Loss> = exponential(5.0E-6) ;

  attribute DassaultSpecialLawModifier( <event Loss> ) =
"inspected(100.0)";

edon
```

2.2.4 Model of component: /ARP4761/BSCU/PowerMonitor

2.2.4.1 Identification

- Path : /ARP4761/BSCU
- Name : PowerMonitor
- Version : 1
- Type : Component
- Creation : 6/17/20 4:44 PM by admin
- Modification : 7/9/22 3:33 PM by admin

- Comment :

2.2.4.2 General

- Width : 40
- Height : 35
- Icon file : ARP4761/small_power_white.jpg;1
- Draw border : No

2.2.4.3 Ports

Name	Type	Orientation	X	Y
Pwr_Input	ARP4761/Flow/Elec;1	in	20	0
Pwr_Validity	bool	out	20	35

2.2.4.4 States

Name	Type	Value
States	{Nominal,MON_Loss,MON_Incorrect}	Nominal

2.2.4.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested

Loss		-	exponential 1.429E-7	100.0	-
Incorrect		-	exponential 2.0E-7	-	-

2.2.4.6 Icons

Number	Icon	Path
1		ARP4761/small_power_green.jpg;1
2		ARP4761/small_power_red.jpg;1
3		ARP4761/small_power_blue.jpg;1

2.2.4.7 Altarica code

```
node ARP4761_BSCU_PowerMonitor
 flow
  icone : [1,3] : local ;
  Pwr_Input : ARP4761_Flow_Elec : in;
  Pwr_Validity : bool : out;
 state
  States : {Nominal,MON_Loss,MON_Incorrect};
 event
  Loss;
  Incorrect;
 init
```

```
  States := Nominal;

trans

States=Nominal |- Loss -> States :=MON_Loss ;

States=Nominal |- Incorrect -> States :=MON_Incorrect ;

assert

if (States= Nominal) then

  (if Pwr_Input=Power then Pwr_Validity=true else Pwr_Validity=false)and
icone =1

else if (States=MON_Incorrect) then

  (if Pwr_Input=Power then Pwr_Validity=false else Pwr_Validity=true)and
icone =3

else

  (Pwr_Validity=false and icone =2)

 extern

  law <event Loss> = exponential(1.429E-7) ;

  attribute DassaultSpecialLawModifier( <event Loss> ) =
"inspected(100.0)";

  law <event Incorrect> = exponential(2.0E-7) ;

edon
```

2.2.5 Model of component: /ARP4761/BSCU/SelectionManagement

2.2.5.1 Identification

- Path : /ARP4761/BSCU
- Name : SelectionManagement
- Version : 1
- Type : Component
- Creation : 6/17/20 4:44 PM by admin
- Modification : 7/9/22 3:33 PM by admin
- Comment :

2.2.5.2 General

- Width : 90
- Height : 120
- Icon file : ARP4761/selection_mgt.jpg;1
- Draw border : Yes

2.2.5.3 Ports

Name	Type	Orientation	X	Y
Channel1	bool	out	39	120
Channel2	bool	out	51	120
Channel1_Validity	bool	in	0	15
Channel2_Validity	bool	in	0	5
Enable1	ARP4761/Flow/CMD;1	in	0	40
Enable2	ARP4761/Flow/CMD;1	in	0	50
Enable	ARP4761/Flow/CMD;1	out	90	45
Normal1	ARP4761/Flow/CTRL;1	in	0	70
Normal2	ARP4761/Flow/CTRL;1	in	0	80
Normal	ARP4761/Flow/CTRL;1	out	90	75
Alt_Emer1	ARP4761/Flow/CTRL;1	in	0	100
Alt_Emer2	ARP4761/Flow/CTRL;1	in	0	110
Alt_Emer	ARP4761/Flow/CTRL;1	out	90	105

2.2.5.4 States

Name	Type	Value
States	{Nominal,Unt_Sel_Cmd1,Unt_Sel_Cmd2,Loss}	Nominal

2.2.5.5 Events

Name	Comment	FRB	Law	Inspected	In-flight

					tested
Cmd1_Untimely_sel		-	exponential 1.0E-6	100.0	-
Cmd2_Untimely_sel		-	exponential 1.0E-6	-	-
Loss		-	exponential 1.0E-6	100.0	-

2.2.5.6 Icons

Number	Icon	Path
1		ARP4761/selection_mgt_c1n.jpg;1
2		ARP4761/selection_mgt_c2n.jpg;1
3		ARP4761/selection_mgt_c1f.jpg;1
4		ARP4761/selection_mgt_c2f.jpg;1
5		ARP4761/selection_mgt_nonen.jpg;1
6		ARP4761/selection_mgt_none.jpg;1

2.2.5.7 Altarica code

```
node ARP4761_BSCU_SelectionManagement

 flow
```

```
 icone : [1,6] : local ;
 Channel1 : bool : out;
 Channel2 : bool : out;
 Channel1_Validity : bool : in;
 Channel2_Validity : bool : in;
 Enable1 : ARP4761_Flow_CMD : in;
 Enable2 : ARP4761_Flow_CMD : in;
 Enable : ARP4761_Flow_CMD : out;
 Normal1 : ARP4761_Flow_CTRL : in;
 Normal2 : ARP4761_Flow_CTRL : in;
 Normal : ARP4761_Flow_CTRL : out;
 Alt_Emer1 : ARP4761_Flow_CTRL : in;
 Alt_Emer2 : ARP4761_Flow_CTRL : in;
 Alt_Emer : ARP4761_Flow_CTRL : out;
state
 States : {Nominal,Unt_Sel_Cmd1,Unt_Sel_Cmd2,Loss};
event
 Cmd1_Untimely_sel;
 Cmd2_Untimely_sel;
 Loss;
init
 States := Nominal;
```

```
trans

States=Nominal |- Cmd1_Untimely_sel -> States :=Unt_Sel_Cmd1 ;

States=Nominal |- Cmd2_Untimely_sel -> States :=Unt_Sel_Cmd2 ;

States=Nominal |- Loss -> States := Loss ;

assert

if (States= Nominal) then

(

  if (not Channel1_Validity and not Channel2_Validity) then

     (Enable=Off and (Normal=Not_Braking) and (Alt_Emer=Braking)and
(Channel1=false) and (Channel2=false) and icone=5)

  else if (Channel1_Validity) then

        (Enable=Enable1 and (Normal=Normal1) and (Alt_Emer=Alt_Emer1)and
(Channel1=true) and (Channel2=false)and icone=1)

     else if (Channel2_Validity) then

        (Enable=Enable2 and (Normal=Normal2) and (Alt_Emer=Alt_Emer2)and
(Channel1=false)and (Channel2=true) and icone=2)

)

else if (States= Unt_Sel_Cmd1) then

  (Enable=Enable1 and (Normal=Normal1) and (Alt_Emer=Alt_Emer1) and
(Channel1=true) and (Channel2=false)and icone=3)

else if (States= Unt_Sel_Cmd2) then

    (Enable=Enable2 and (Normal=Normal2) and (Alt_Emer=Alt_Emer2) and
(Channel1=false)and (Channel2=true)and icone=4)
```

```
else // States=Loss

Enable=Off and (Normal=Not_Braking) and (Alt_Emer=Braking)and
(Channel1=false) and (Channel2=false)  and icone=6

 extern

  law <event Cmd1_Untimely_sel> = exponential(1.0E-6) ;

  attribute DassaultSpecialLawModifier( <event Cmd1_Untimely_sel> ) =
"inspected(100.0)";

  law <event Cmd2_Untimely_sel> = exponential(1.0E-6) ;

  law <event Loss> = exponential(1.0E-6) ;

  attribute DassaultSpecialLawModifier( <event Loss> ) =
"inspected(100.0)";

edon
```

2.2.6 Model of component: /ARP4761/ElectricalPower/Electrical_Power

2.2.6.1 Identification

- Path : /ARP4761/ElectricalPower
- Name : Electrical_Power
- Version : 1
- Type : Component
- Creation : 6/17/20 4:44 PM by admin

- Modification : 7/9/22 3:33 PM by admin
- Comment :

2.2.6.2 General

- Width : 100
- Height : 87
- Icon file : ARP4761/power_white.jpg;1
- Draw border : No

2.2.6.3 Ports

Name	Type	Orientation	X	Y
Power_Output	ARP4761/Flow/Elec;1	out	48	87

2.2.6.4 States

Name	Type	Value
States	{PowerOn,PowerOff,PowerDegraded}	PowerOn

2.2.6.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested

Degraded		-	exponential 1.0E-5	-	-
Loss		-	exponential 1.0E-4	-	-

2.2.6.6 Icons

Number	Icon	Path
1		ARP4761/power_green.jpg;1
2		ARP4761/power_red.jpg;1
3		ARP4761/power_blue.jpg;1

2.2.6.7 Altarica code

```
node ARP4761_ElectricalPower_Electrical_Power
 flow
  icone : [1,3] : local ;
  Power_Output : ARP4761_Flow_Elec : out;
 state
  States : {PowerOn,PowerOff,PowerDegraded};
 event
  Degraded;
  Loss;
 init
  States := PowerOn;
```

```
trans
States=PowerOn |- Loss -> States :=PowerOff ;
States=PowerOn |- Degraded -> States :=PowerDegraded ;
assert
if (States= PowerOn) then
  (Power_Output=Power and icone =1) else
    if (States= PowerOff) then
       (Power_Output=No_Power and icone =2) else
       (Power_Output=Degraded_Power and icone =3)
 extern
  law <event Degraded> = exponential(1.0E-5) ;
  law <event Loss> = exponential(1.0E-4) ;
edon
```

2.2.7 Model of component: /ARP4761/Hydraulic/Alt_Emer_Meter_Valve

2.2.7.1 Identification

- Path : /ARP4761/Hydraulic
- Name : Alt_Emer_Meter_Valve
- Version : 1

- Type : Component
- Creation : 6/17/20 4:44 PM by admin
- Modification : 7/9/22 3:33 PM by admin
- Comment :

2.2.7.2 General

- Width : 100
- Height : 24
- Icon file : ARP4761/normal2.jpg;1
- Draw border : No

2.2.7.3 Ports

Name	Type	Orientation	X	Y
CMD	ARP4761/Flow/CTRL;1	in	0	11
Hyd_Input	ARP4761/Flow/Hyd;1	in	59	0
Hyd_Output	ARP4761/Flow/Hyd;1	out	59	24

2.2.7.4 States

Name	Type	Value
States	{Nominal,Failed_On,Failed_Off}	Nominal

2.2.7.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested
Untimely_Off		-	exponential 2.0E-6	-	-
Untimely_On		-	exponential 1.0E-6	-	-

2.2.7.6 Icons

Number	Icon	Path
1		ARP4761/normal_o.jpg;1
2		ARP4761/normal_c.jpg;1
3		ARP4761/normal_ob.jpg;1
4		ARP4761/normal_cb.jpg;1

2.2.7.7 Altarica code

```
node ARP4761_Hydraulic_Alt_Emer_Meter_Valve
 flow
  icone : [1,4] : local ;
  CMD : ARP4761_Flow_CTRL : in;
```

```
  Hyd_Input : ARP4761_Flow_Hyd : in;
  Hyd_Output : ARP4761_Flow_Hyd : out;
 state
  States : {Nominal,Failed_On,Failed_Off};
 event
  Untimely_Off;
  Untimely_On;
 init
  States := Nominal;
trans
States=Nominal |- Untimely_On -> States :=Failed_On ;
States=Nominal |- Untimely_Off -> States :=Failed_Off ;
assert
if (States= Nominal) then
  (if (CMD=Braking) then
    (Hyd_Output= Hyd_Input and icone =1)
   else
    (Hyd_Output= No_Pressure and icone =2)
  )
else
(  if (States= Failed_On) then
      (Hyd_Output= Hyd_Input and icone =3)
```

```
   else
    // States = Failed_Off
    (Hyd_Output= No_Pressure and icone =4)
)
 extern
  law <event Untimely_Off> = exponential(2.0E-6) ;
  law <event Untimely_On> = exponential(1.0E-6) ;
edon
```

2.2.8 Model of component: /ARP4761/Hydraulic/AntiSkidValve

2.2.8.1 Identification

- Path : /ARP4761/Hydraulic
- Name : AntiSkidValve
- Version : 1
- Type : Component
- Creation : 6/17/20 4:44 PM by admin
- Modification : 7/9/22 3:34 PM by admin

- Comment :

2.2.8.2 General

- Width : 100
- Height : 24
- Icon file : ARP4761/shutoff2.jpg;1
- Draw border : No

2.2.8.3 Ports

Name	Type	Orientation	X	Y
Hyd_Input	ARP4761/Flow/Hyd;1	in	57	0
Hyd_Output	ARP4761/Flow/Hyd;1	out	57	24
CMD	ARP4761/Flow/CTRL;1	in	0	11

2.2.8.4 States

Name	Type	Value
States	{Nominal,Failed_On,Failed_Off}	Nominal

2.2.8.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested

Untimely_On		-	exponential 1.0E-6	-	-
Untimely_Off		-	exponential 1.0E-6	-	-

2.2.8.6 Icons

Number	Icon	Path
1		ARP4761/shutoff_o.jpg;1
2		ARP4761/shutoff_c.jpg;1
3		ARP4761/shutoff_ob.jpg;1
4		ARP4761/shutoff_cb.jpg;1

2.2.8.7 Altarica code

```
node ARP4761_Hydraulic_AntiSkidValve
 flow
  icone : [1,4] : local ;
  Hyd_Input : ARP4761_Flow_Hyd : in;
  Hyd_Output : ARP4761_Flow_Hyd : out;
  CMD : ARP4761_Flow_CTRL : in;
 state
  States : {Nominal,Failed_On,Failed_Off};
 event
  Untimely_On;
```

```
  Untimely_Off;
 init
  States := Nominal;
trans
States=Nominal |- Untimely_On -> States :=Failed_On ;
States=Nominal |- Untimely_Off -> States :=Failed_Off ;
assert
if (States= Nominal) then
  (if (Hyd_Input=No_Pressure) then
    (Hyd_Output= No_Pressure and icone =2)
   else // Hyd_Input = Full_Pressure
    (if (CMD=Braking)
     then (Hyd_Output= Full_Pressure and icone =1)
     else
     if (CMD=Braking_With_AS)
     then (Hyd_Output= Ctrl_Pressure and icone =1)
     else // CMD = Not_Braking
          (Hyd_Output= No_Pressure and icone =2)
     )
  )
else
(  if (States= Failed_On) then
```

```
      (Hyd_Output= Hyd_Input and icone =3)
   else
    // States = Failed_Off
    ( Hyd_Output= No_Pressure and icone =4)
)
 extern
  law <event Untimely_On> = exponential(1.0E-6) ;
  law <event Untimely_Off> = exponential(1.0E-6) ;
edon
```

2.2.9 Model of component: /ARP4761/Hydraulic/EmergencyAccumulator

2.2.9.1 Identification

- Path : /ARP4761/Hydraulic
- Name : EmergencyAccumulator
- Version : 1
- Type : Component
- Creation : 6/17/20 4:44 PM by admin
- Modification : 7/9/22 3:34 PM by admin

- Comment :

2.2.9.2 General

- Width : 67
- Height : 29
- Icon file : ARP4761/Accu.jpg;1
- Draw border : No

2.2.9.3 Ports

Name	Type	Orientation	X	Y
Isol	bool	in	52	0
HydOut	ARP4761/Flow/Hyd;1	out	0	14
HydIn	ARP4761/Flow/Hyd;1	in	10	0
Sel_Pos	ARP4761/Flow/Sel_Pos;1	in	21	0

2.2.9.4 States

Name	Type	Value
States	{Nominal,Failed}	Nominal
HydActive	bool	true

2.2.9.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested
Failure		-	exponential 1.0E-5	100.0	-
FirstTrans		-	Dirac 0.0	-	-

2.2.9.6 Icons

Number	Icon	Path
1		ARP4761/Accu_full.jpg;1
2		ARP4761/Accu_empty.jpg;1

2.2.9.7 Altarica code

```
node ARP4761_Hydraulic_EmergencyAccumulator
 flow
  icone : [1,2] : local ;
  Isol : bool : in;
  HydOut : ARP4761_Flow_Hyd : out;
  HydIn : ARP4761_Flow_Hyd : in;
  Sel_Pos : ARP4761_Flow_Sel_Pos : in;
 state
  States : {Nominal,Failed};
  HydActive : bool;
```

```
 event
  Failure;
  FirstTrans;
 init
  States := Nominal;
  HydActive := true;
trans
States=Nominal |- Failure -> States :=Failed ;
(Sel_Pos=Alternate) & HydActive  |- FirstTrans -> HydActive :=false ;
assert
if (States= Nominal) then
  (if (HydIn=No_Pressure and (Isol = false) and Sel_Pos=Alternate )then
    ( HydOut= No_Pressure and icone =2)
// Accumulator will empty in Hyd2 consumers
   else
     ( HydOut =Full_Pressure and icone =1)
  )
else
(
   HydOut= No_Pressure and icone =2
)
 extern
```

```
  law <event Failure> = exponential(1.0E-5) ;

  attribute DassaultSpecialLawModifier( <event Failure> ) =
"inspected(100.0)";

  law <event FirstTrans> = Dirac(0.0) ;

edon
```

2.2.10 Model of component: /ARP4761/Hydraulic/Hyd_Or

2.2.10.1 Identification

- Path : /ARP4761/Hydraulic
- Name : Hyd_Or
- Version : 1
- Type : Component
- Creation : 7/28/20 12:28 PM by admin
- Modification : 7/9/22 3:34 PM by admin
- Comment :

2.2.10.2 General

- Width : 20
- Height : 20
- Icon file : -
- Draw border : Yes

2.2.10.3 Ports

Name	Type	Orientation	X	Y
HydOut	ARP4761/Flow/Hyd;1	out	10	20
HydAccuIn	ARP4761/Flow/Hyd;1	in	20	10
HydIn	ARP4761/Flow/Hyd;1	in	10	0

2.2.10.4 Altarica code

```
node ARP4761_Hydraulic_Hyd_Or
 flow
  HydOut : ARP4761_Flow_Hyd : out;
  HydAccuIn : ARP4761_Flow_Hyd : in;
  HydIn : ARP4761_Flow_Hyd : in;
assert
```

```
  if (HydIn=No_Pressure and HydAccuIn = No_Pressure)
  then HydOut=No_Pressure
  else HydOut=Full_Pressure;
edon
```

2.2.11 Model of component: /ARP4761/Hydraulic/Hydraulic_Power

2.2.11.1 Identification

- Path : /ARP4761/Hydraulic
- Name : Hydraulic_Power
- Version : 1
- Type : Component
- Creation : 6/17/20 4:44 PM by admin
- Modification : 7/9/22 3:34 PM by admin
- Comment :

2.2.11.2 General

- Width : 80
- Height : 80
- Icon file : ARP4761/Hyd_pump.jpg;1
- Draw border : No

2.2.11.3 Ports

Name	Type	Orientation	X	Y
Hyd_Output	ARP4761/Flow/Hyd;1	out	38	80

2.2.11.4 States

Name	Type	Value
States	{SwitchOn,SwitchOff}	SwitchOn

2.2.11.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested
Loss		-	exponential 6.6E-6	-	-

2.2.11.6 Icons

Number	Icon	Path

1		ARP4761/Hyd_pump_green.jpg;1
2		ARP4761/Hyd_pump_red.jpg;1

2.2.11.7 Altarica code

```
node ARP4761_Hydraulic_Hydraulic_Power
 flow
  icone : [1,2] : local ;
  Hyd_Output : ARP4761_Flow_Hyd : out;
 state
  States : {SwitchOn,SwitchOff};
 event
  Loss;
 init
  States := SwitchOn;
trans
States=SwitchOn |- Loss -> States :=SwitchOff ;
assert
if (States= SwitchOn) then
  (Hyd_Output=Full_Pressure and icone =1) else
  (Hyd_Output=No_Pressure and icone =2);
 extern
```

```
  law <event Loss> = exponential(6.6E-6) ;
edon
```

2.2.12 Model of component: /ARP4761/Hydraulic/Isolation_Valve

2.2.12.1 Identification

- Path : /ARP4761/Hydraulic
- Name : Isolation_Valve
- Version : 1
- Type : Component
- Creation : 6/17/20 4:44 PM by admin
- Modification : 7/9/22 3:34 PM by admin
- Comment : Isol variable: if the Isolation valve stops the flow, Isol=true if the Isolation valve does not stop the flow, Isol=false

2.2.12.2 General

- Width : 40
- Height : 64

- Icon file : ARP4761/isolation_valve.jpg;1
- Draw border : No

2.2.12.3 Ports

Name	Type	Orientation	X	Y
Isol	bool	out	40	35
Hyd_Input	ARP4761/Flow/Hyd;1	in	19	0
Hyd_Output	ARP4761/Flow/Hyd;1	out	19	64

2.2.12.4 States

Name	Type	Value
States	{Nominal,Failed_On,Failed_Off}	Nominal

2.2.12.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested
Always_Off		-	exponential 5.0E-9	-	-
Always_On		-	exponential 1.0E-7	100.0	-

2.2.12.6 Icons

Number	Icon	Path

1		ARP4761/isolation_valve_on.jpg;1
2		ARP4761/isolation_valve_off.jpg;1
3		ARP4761/isolation_valve_failed_off.jpg;1
4		ARP4761/isolation_valve_failed_on.jpg;1

2.2.12.7 Altarica code

```
node ARP4761_Hydraulic_Isolation_Valve
 flow
  icone : [1,4] : local ;
  Isol : bool : out;
  Hyd_Input : ARP4761_Flow_Hyd : in;
  Hyd_Output : ARP4761_Flow_Hyd : out;
 state
  States : {Nominal,Failed_On,Failed_Off};
 event
  Always_Off;
  Always_On;
 init
```

```
  States := Nominal;
trans
States=Nominal |- Always_On -> States :=Failed_On;
States=Nominal |- Always_Off -> States :=Failed_Off;
assert
if (States= Nominal) then
  (if (Hyd_Input=Full_Pressure) then
    (Isol=false and  Hyd_Output= Full_Pressure and icone =1)
   else
    (Isol=true  and  Hyd_Output= No_Pressure and icone =2)
  );
if (States= Failed_On) then
    (Isol=false and  Hyd_Output= Hyd_Input and icone =4);
if (States= Failed_Off) then
    (Isol=true  and  Hyd_Output= No_Pressure and icone =3);
 extern
  law <event Always_Off> = exponential(5.0E-9) ;
  law <event Always_On> = exponential(1.0E-7) ;
  attribute DassaultSpecialLawModifier( <event Always_On> ) =
"inspected(100.0)";
edon
```

2.2.13 Model of component: /ARP4761/Hydraulic/NormalValve

2.2.13.1 Identification

- Path : /ARP4761/Hydraulic
- Name : NormalValve
- Version : 1
- Type : Component
- Creation : 6/17/20 4:44 PM by admin
- Modification : 7/9/22 3:34 PM by admin
- Comment :

2.2.13.2 General

- Width : 100
- Height : 24
- Icon file : ARP4761/normal.jpg;1
- Draw border : No

2.2.13.3 Ports

Name	Type	Orientation	X	Y
Hyd_Input	ARP4761/Flow/Hyd;1	in	60	0
Hyd_Output	ARP4761/Flow/Hyd;1	out	60	24
CMD	ARP4761/Flow/CTRL;1	in	0	11

2.2.13.4 States

Name	Type	Value
States	{Nominal,Failed_On,Failed_Off}	Nominal

2.2.13.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested
Untimely_On		-	exponential 2.0E-7	-	-
Untimely_Off		-	exponential 5.0E-6	-	-

2.2.13.6 Icons

Number	Icon	Path
1		ARP4761/normal_o.jpg;1
2		ARP4761/normal_c.jpg;1
3		ARP4761/normal_ob.jpg;1
4		ARP4761/normal_cb.jpg;1

2.2.13.7 Altarica code

```
node ARP4761_Hydraulic_NormalValve
 flow
  icone : [1,4] : local ;
  Hyd_Input : ARP4761_Flow_Hyd : in;
  Hyd_Output : ARP4761_Flow_Hyd : out;
  CMD : ARP4761_Flow_CTRL : in;
 state
  States : {Nominal,Failed_On,Failed_Off};
 event
  Untimely_On;
  Untimely_Off;
 init
  States := Nominal;
trans
States=Nominal |- Untimely_On -> States :=Failed_On ;
States=Nominal |- Untimely_Off -> States :=Failed_Off ;
assert
if (States= Nominal) then
  (if (Hyd_Input=No_Pressure) then
    (Hyd_Output= No_Pressure and icone =1)
   else // Hyd_Input = Full_Pressure
```

```
    (if (CMD=Braking)
     then (Hyd_Output= Full_Pressure and icone =1)
     else
     if (CMD=Braking_With_AS)
     then (Hyd_Output= Ctrl_Pressure and icone =1)
     else // CMD = Not_Braking
          (Hyd_Output= No_Pressure and icone =2)
     )
  )
else
(  if (States= Failed_On) then
      (Hyd_Output= Hyd_Input and icone =3)
   else
    // States = Failed_Off
    ( Hyd_Output= No_Pressure and icone =4)
)
 extern
  law <event Untimely_On> = exponential(2.0E-7) ;
  law <event Untimely_Off> = exponential(5.0E-6) ;
edon
```

2.2.14 Model of component: /ARP4761/Hydraulic/SelectorValve

2.2.14.1 Identification

- Path : /ARP4761/Hydraulic
- Name : SelectorValve
- Version : 1
- Type : Component
- Creation : 6/17/20 4:44 PM by admin
- Modification : 7/9/22 3:34 PM by admin
- Comment :

2.2.14.2 General

- Width : 200
- Height : 21
- Icon file : ARP4761/SelValve.jpg;1
- Draw border : No

2.2.14.3 Ports

Name	Type	Orientation	X	Y
Hyd_Input1	ARP4761/Flow/Hyd;1	in	38	0
Hyd_Input2	ARP4761/Flow/Hyd;1	in	174	0
Hyd_Output1	ARP4761/Flow/Hyd;1	out	38	21
Hyd_Output2	ARP4761/Flow/Hyd;1	out	174	21
Sel_Pos	ARP4761/Flow/Sel_Pos;1	out	200	13

2.2.14.4 States

Name	Type	Value
States	{Nominal,Stuck_Normal_State,Stuck_Middle_State,Stuck_Alternate_State}	Nominal

2.2.14.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested
Stuck_Normal		-	exponential 1.0E-6	-	-
Stuck_Alternate		-	exponential 1.0E-6	-	-
Stuck_Middle		-	exponential 1.0E-8	-	-

2.2.14.6 Icons

Number	Icon	Path
1		ARP4761/SelValve_n.jpg;1

2		ARP4761/SelValve_a.jpg;1
3		ARP4761/SelValve_nb.jpg;1
4		ARP4761/SelValve_mb.jpg;1
5		ARP4761/SelValve_ab.jpg;1

2.2.14.7 Altarica code

```
node ARP4761_Hydraulic_SelectorValve
 flow
  icone : [1,5] : local ;
  Hyd_Input1 : ARP4761_Flow_Hyd : in;
  Hyd_Input2 : ARP4761_Flow_Hyd : in;
  Hyd_Output1 : ARP4761_Flow_Hyd : out;
  Hyd_Output2 : ARP4761_Flow_Hyd : out;
  Sel_Pos : ARP4761_Flow_Sel_Pos : out;
 state
  States :
{Nominal,Stuck_Normal_State,Stuck_Middle_State,Stuck_Alternate_State};
 event
  Stuck_Normal;
  Stuck_Alternate;
  Stuck_Middle;
 init
```

```
  States := Nominal;

trans

  States=Nominal |- Stuck_Normal -> States :=Stuck_Normal_State ;

  States=Nominal |- Stuck_Alternate -> States :=Stuck_Alternate_State ;

  States=Nominal |- Stuck_Middle -> States :=Stuck_Middle_State ;

assert

if (States= Nominal)

then

  (if (Hyd_Input1=Full_Pressure) then

    (Hyd_Output1= Full_Pressure and Hyd_Output2= No_Pressure and icone =1
and Sel_Pos=Normal)

   else

    (Hyd_Output2= Hyd_Input2 and Hyd_Output1= No_Pressure and icone =2 and
Sel_Pos=Alternate)

  )

else

  (if (States= Stuck_Alternate_State)

   then

      (Hyd_Output1= No_Pressure and Hyd_Output2= Hyd_Input2 and icone =5
and Sel_Pos=Alternate)

  else

    (

    if (States= Stuck_Middle_State)
```

```
    then
     (Hyd_Output1= No_Pressure and Hyd_Output2= No_Pressure and icone =4
and Sel_Pos=Middle)
    else //(States= Stuck_Normal)
     (Hyd_Output1= Hyd_Input1 and Hyd_Output2= No_Pressure and icone =3 and
Sel_Pos=Normal)
    )
  )
 extern
  law <event Stuck_Normal> = exponential(1.0E-6) ;
  law <event Stuck_Alternate> = exponential(1.0E-6) ;
  law <event Stuck_Middle> = exponential(1.0E-8) ;
edon
```

2.2.15 Model of component: /ARP4761/Hydraulic/ShutOffValve

2.2.15.1 Identification

- Path : /ARP4761/Hydraulic
- Name : ShutOffValve
- Version : 1
- Type : Component

- Creation : 6/17/20 4:44 PM by admin
- Modification : 7/9/22 3:35 PM by admin
- Comment :

2.2.15.2 General

- Width : 100
- Height : 24
- Icon file : ARP4761/shutoff.jpg;1
- Draw border : No

2.2.15.3 Ports

Name	Type	Orientation	X	Y
CMD	ARP4761/Flow/CMD;1	in	0	11
Hyd_Input	ARP4761/Flow/Hyd;1	in	58	0
Hyd_Output	ARP4761/Flow/Hyd;1	out	58	24

2.2.15.4 States

Name	Type	Value
States	{Nominal,Failed_On,Failed_Off}	Nominal

2.2.15.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested
Untimely_Off		-	exponential 1.0E-6	-	-
Untimely_On		-	exponential 5.0E-6	-	-

2.2.15.6 Icons

Number	Icon	Path
1		ARP4761/shutoff_o.jpg;1
2		ARP4761/shutoff_c.jpg;1
3		ARP4761/shutoff_ob.jpg;1
4		ARP4761/shutoff_cb.jpg;1

2.2.15.7 Altarica code

```
node ARP4761_Hydraulic_ShutOffValve
 flow
  icone : [1,4] : local ;
  CMD : ARP4761_Flow_CMD : in;
  Hyd_Input : ARP4761_Flow_Hyd : in;
  Hyd_Output : ARP4761_Flow_Hyd : out;
 state
  States : {Nominal,Failed_On,Failed_Off};
```

```
 event
  Untimely_Off;
  Untimely_On;
 init
  States := Nominal;
trans
States=Nominal |- Untimely_On -> States :=Failed_On ;
States=Nominal |- Untimely_Off -> States :=Failed_Off ;
assert
if (States= Nominal) then
  (if (CMD=On) then
    (Hyd_Output= Hyd_Input and icone =1)
   else
    (Hyd_Output= No_Pressure and icone =2)
  )
else
(  if (States= Failed_On) then
      (Hyd_Output= Hyd_Input and icone =3)
   else
    // States = Failed_Off
    (Hyd_Output= No_Pressure and icone =4)
)
```

```
 extern
  law <event Untimely_Off> = exponential(1.0E-6) ;
  law <event Untimely_On> = exponential(5.0E-6) ;
edon
```

2.2.16 Model of component: /ARP4761/PilotCtrl/ElectricalBrakeUnit

2.2.16.1 Identification

- Path : /ARP4761/PilotCtrl
- Name : ElectricalBrakeUnit
- Version : 1
- Type : Component
- Creation : 6/17/20 4:44 PM by admin
- Modification : 7/9/22 3:42 PM by admin
- Comment :

2.2.16.2 General

- Width : 100
- Height : 100
- Icon file : ARP4761/ebu_white.jpg;1
- Draw border : No

2.2.16.3 Ports

Name	Type	Orientation	X	Y
CMD_Input	ARP4761/Flow/CTRL;1	in	100	42
CMD_Output1	ARP4761/Flow/CTRL;1	out	47	100
CMD_Output2	ARP4761/Flow/CTRL;1	out	22	100
CMD_Output3	ARP4761/Flow/CTRL;1	out	0	56

2.2.16.4 States

Name	Type	Value
States	{Nominal,Untimely_Braking,Not_Braking}	Nominal

2.2.16.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested
Intempestive_Braking		-	exponential 1.0E-6	-	-

Not_Braking		-	exponential 1.0E-6	-	-

2.2.16.6 Icons

Number	Icon	Path
1		ARP4761/ebu_green.jpg;1
2		ARP4761/ebu_amber.jpg;1
3		ARP4761/ebu_red.jpg;1

2.2.16.7 Altarica code

```
node ARP4761_PilotCtrl_ElectricalBrakeUnit
 flow
  icone : [1,3] : local ;
  CMD_Input : ARP4761_Flow_CTRL : in;
  CMD_Output1 : ARP4761_Flow_CTRL : out;
  CMD_Output2 : ARP4761_Flow_CTRL : out;
  CMD_Output3 : ARP4761_Flow_CTRL : out;
 state
  States : {Nominal,Untimely_Braking,Not_Braking};
 event
  Intempestive_Braking;
  Not_Braking;
```

```
 init
  States := Nominal;
trans
  States=Nominal |- Intempestive_Braking -> States :=Untimely_Braking ;
  States=Nominal |- Not_Braking -> States :=Not_Braking ;
assert
if (States= Nominal) then
  (CMD_Output1=CMD_Input and CMD_Output2=CMD_Input and
CMD_Output3=CMD_Input and icone =1)
  else
  ( if (States= Untimely_Braking) then
    (CMD_Output1=Braking and CMD_Output2=Braking and CMD_Output3=Braking
and icone =2)
    else //Not_Braking
    (CMD_Output1=Not_Braking and CMD_Output2=Not_Braking and
CMD_Output3=Not_Braking and icone =3)
  )
 extern
  law <event Intempestive_Braking> = exponential(1.0E-6) ;
  law <event Not_Braking> = exponential(1.0E-6) ;
edon
```

2.2.17 Model of component: /ARP4761/PilotCtrl/Pilot

2.2.17.1 Identification

- Path : /ARP4761/PilotCtrl
- Name : Pilot
- Version : 1
- Type : Component
- Creation : 6/17/20 4:44 PM by admin
- Modification : 7/9/22 3:42 PM by admin
- Comment :

2.2.17.2 General

- Width : 100
- Height : 100
- Icon file : ARP4761/Pilot.jpg;1
- Draw border : Yes

2.2.17.3 Ports

Name	Type	Orientation	X	Y
CMD_Output	ARP4761/AppendixQ/CTRL;1	out	51	100

2.2.17.4 States

Name	Type	Value
States	{Braking,Not_Braking}	Braking

2.2.17.5 Icons

Number	Icon	Path
1		ARP4761/PilotBraking.jpg;1
2		ARP4761/PilotNotBraking.jpg;1

2.2.17.6 Altarica code

```
node ARP4761_PilotCtrl_Pilot
 flow
  icone : [1,2] : local ;
  CMD_Output : ARP4761_AppendixQ_CTRL : out;
 state
  States : {Braking,Not_Braking};
 init
```

```
  States := Braking;
assert
if (States= Braking) then
  (CMD_Output=Braking and icone =1)
  else
  (CMD_Output=Not_Braking and icone =2)
edon
```

2.2.18 Model of component: /ARP4761/miscelaneous/AND_3

2.2.18.1 Identification

- Path : /ARP4761/miscelaneous
- Name : AND_3
- Version : 1
- Type : Component
- Creation : 6/30/20 2:15 PM by admin
- Modification : 7/9/22 3:35 PM by admin
- Comment :

2.2.18.2 General

- Width : 55
- Height : 50
- Icon file : Icones/ET_logique.png;1
- Draw border : No

2.2.18.3 Ports

Name	Type	Orientation	X	Y
Out	bool	out	55	25
Input1	bool	in	0	9
Input2	bool	in	0	25
Input3	bool	in	0	41

2.2.18.4 Altarica code

```
node ARP4761_miscelaneous_AND_3
 flow
  Out : bool : out;
  Input1 : bool : in;
  Input2 : bool : in;
  Input3 : bool : in;
```

```
assert

Out = (Input1 and Input2 and Input3)

edon
```

2.2.19 Model of component: /ARP4761/miscelaneous/Counter

2.2.19.1 Identification

- Path : /ARP4761/miscelaneous
- Name : Counter
- Version : 1
- Type : Component
- Creation : 6/26/20 5:23 PM by admin
- Modification : 7/9/22 3:41 PM by admin
- Comment :

2.2.19.2 General

- Width : 120

- Height : 50
- Icon file : -
- Draw border : Yes

2.2.19.3 Ports

Name	Type	Orientation	X	Y
O8by8	bool	out	110	50
O7by8	bool	out	95	50
O6by8	bool	out	80	50
O5by8	bool	out	65	50
O4by8	bool	out	50	50
O3by8	bool	out	35	50
O2by8	bool	out	20	50
O1by8	bool	out	5	50
e8	bool	in	110	0
e7	bool	in	95	0
e6	bool	in	80	0
e5	bool	in	65	0
e4	bool	in	50	0
e3	bool	in	35	0
e2	bool	in	20	0

e1	bool	in	5	0
Compteur	[0,8]	local	0	8

2.2.19.4 Altarica code

```
node ARP4761_miscelaneous_Counter
 flow
  O8by8 : bool : out;
  O7by8 : bool : out;
  O6by8 : bool : out;
  O5by8 : bool : out;
  O4by8 : bool : out;
  O3by8 : bool : out;
  O2by8 : bool : out;
  O1by8 : bool : out;
  e8 : bool : in;
  e7 : bool : in;
  e6 : bool : in;
  e5 : bool : in;
  e4 : bool : in;
  e3 : bool : in;
  e2 : bool : in;
  e1 : bool : in;
```

```
  Compteur : [0,8] : local;
assert
   Compteur = #(e1,e2,e3,e4,e5,e6,e7,e8);
   O1by8 = (Compteur >= 1);
   O2by8 = (Compteur >= 2);
   O3by8 = (Compteur >= 3);
   O4by8 = (Compteur >= 4);
   O5by8 = (Compteur >= 5);
   O6by8 = (Compteur >= 6);
   O7by8 = (Compteur >= 7);
   O8by8 = (Compteur >= 8);
edon
```

2.2.20 Model of component: /ARP4761/miscelaneous/FC_Braking_loss

2.2.20.1 Identification

- Path : /ARP4761/miscelaneous
- Name : FC_Braking_loss
- Version : 1
- Type : Component

- Creation : 7/24/20 1:55 PM by admin
- Modification : 7/9/22 3:41 PM by admin
- Comment :

2.2.20.2 General

- Width : 140
- Height : 40
- Icon file : -
- Draw border : Yes

2.2.20.3 Ports

Name	Type	Orientation	X	Y
WheelBrakingStatus	bool	in	112	0
BrakingCMD	ARP4761/Flow/CTRL;1	in	35	0

2.2.20.4 Icons

Number	Icon	Path
1		ARP4761/rectangle_white.jpg;1

2		ARP4761/rectangle_red.jpg;1

2.2.20.5 Altarica code

```
node ARP4761_miscelaneous_FC_Braking_loss
 flow
  icone : [1,2] : local ;
  WheelBrakingStatus : bool : in;
  BrakingCMD : ARP4761_Flow_CTRL : in;
assert
if (BrakingCMD = Braking) then
   if WheelBrakingStatus then icone=1 else icone=2
else
  icone=1
edon
```

2.2.21 Model of component: /ARP4761/miscelaneous/FC_Untimely_Braking

2.2.21.1 Identification

- Path : /ARP4761/miscelaneous
- Name : FC_Untimely_Braking

- Version : 1
- Type : Component
- Creation : 7/24/20 1:55 PM by admin
- Modification : 7/9/22 3:41 PM by admin
- Comment :

2.2.21.2 General

- Width : 150
- Height : 40
- Icon file : -
- Draw border : Yes

2.2.21.3 Ports

Name	Type	Orientation	X	Y
FullBrakingStatus	bool	in	119	0
BrakingCMD	ARP4761/Flow/CTRL;1	in	38	0

2.2.21.4 Icons

Number	Icon	Path
1		ARP4761/rectangle_white.jpg;1
2		ARP4761/rectangle_red.jpg;1

2.2.21.5 Altarica code

```
node ARP4761_miscelaneous_FC_Untimely_Braking
 flow
  icone : [1,2] : local ;
  FullBrakingStatus : bool : in;
  BrakingCMD : ARP4761_Flow_CTRL : in;
assert
if (BrakingCMD = Not_Braking) then
   if FullBrakingStatus  then icone=2 else icone=1
else
   icone =1
edon
```

2.2.22 Model of component: /ARP4761/miscelaneous/OR_2

2.2.22.1 Identification

- Path : /ARP4761/miscelaneous
- Name : OR_2
- Version : 1
- Type : Component
- Creation : 6/30/20 2:15 PM by admin
- Modification : 7/9/22 3:42 PM by admin
- Comment :

2.2.22.2 General

- Width : 55
- Height : 50
- Icon file : Icones/OU_logique.png;1
- Draw border : No

2.2.22.3 Ports

Name	Type	Orientation	X	Y
Out	bool	out	55	25
Input1	bool	in	0	15
Input2	bool	in	0	35

2.2.22.4 Icons

Number	Icon	Path
1		generic/or_blue.gif;1

2.2.22.5 Altarica code

```
node ARP4761_miscelaneous_OR_2
 flow
  icone : [1,1] : local ;
  Out : bool : out;
  Input1 : bool : in;
  Input2 : bool : in;
assert
Out = (Input1 or Input2)
edon
```

2.2.23 Model of component: /ARP4761/miscelaneous/Stub1

2.2.23.1 Identification

- Path : /ARP4761/miscelaneous
- Name : Stub1
- Version : 1
- Type : Component
- Creation : 9/17/20 11:40 AM by admin
- Modification : 7/9/22 3:42 PM by admin
- Comment :

2.2.23.2 General

- Width : 85
- Height : 24
- Icon file : ARP4761/Cadre_gris.jpg;1
- Draw border : No

2.2.23.3 Ports

Name	Type	Orientation	X	Y
iElecPedalPos2	ARP4761/Flow/CTRL;1	in	30	0
iElecPedalPos1	ARP4761/Flow/CTRL;1	in	55	0
oElecPedalPos2	ARP4761/Flow/CTRL;1	out	30	24
oElecPedalPos1	ARP4761/Flow/CTRL;1	out	55	24

2.2.23.4 Altarica code

```
node ARP4761_miscelaneous_Stub1
 flow
  iElecPedalPos2 : ARP4761_Flow_CTRL : in;
  iElecPedalPos1 : ARP4761_Flow_CTRL : in;
  oElecPedalPos2 : ARP4761_Flow_CTRL : out;
  oElecPedalPos1 : ARP4761_Flow_CTRL : out;
assert
oElecPedalPos1 = iElecPedalPos1;
oElecPedalPos2 = iElecPedalPos2;
edon
```

2.2.24 Model of component: /ARP4761/miscelaneous/Wheel

2.2.24.1 Identification

- Path : /ARP4761/miscelaneous
- Name : Wheel
- Version : 1
- Type : Component
- Creation : 6/19/20 3:24 PM by admin
- Modification : 7/9/22 3:42 PM by admin
- Comment :

2.2.24.2 General

- Width : 70
- Height : 70
- Icon file : -
- Draw border : Yes

2.2.24.3 Ports

Name	Type	Orientation	X	Y
Wheel_Braking_Status_hyd1	bool	out	18	70
Wheel_Braking_Status	bool	out	35	70
Wheel_Status	ARP4761/Flow/CTRL;1	out	70	35
Hyd_Input2	ARP4761/Flow/Hyd;1	in	47	0
Hyd_Input1	ARP4761/Flow/Hyd;1	in	24	0

2.2.24.4 States

Name	Type	Value
States	{Nominal,NeverBraking,AlwaysBraking}	Nominal

2.2.24.5 Altarica code

```
node ARP4761_miscelaneous_Wheel
 flow
  Wheel_Braking_Status_hyd1 : bool : out;
  Wheel_Braking_Status : bool : out;
  Wheel_Status : ARP4761_Flow_CTRL : out;
  Hyd_Input2 : ARP4761_Flow_Hyd : in;
  Hyd_Input1 : ARP4761_Flow_Hyd : in;
 state
  States : {Nominal,NeverBraking,AlwaysBraking};
```

```
 init
  States := Nominal;
assert
if States=Nominal then
(
  (if ((Hyd_Input1 = Full_Pressure) or (Hyd_Input2 = Full_Pressure)) then
    ( Wheel_Status=Braking and Wheel_Braking_Status=true)
  else
     if ((Hyd_Input1 = Ctrl_Pressure) or (Hyd_Input2 = Ctrl_Pressure)) then
       ( Wheel_Status=Braking_With_AS and Wheel_Braking_Status=true)
  else
       (Wheel_Status=Not_Braking and Wheel_Braking_Status=false))
and
  (if ((Hyd_Input1 = Full_Pressure) or Hyd_Input1=Ctrl_Pressure) then
    ( Wheel_Braking_Status_hyd1=true) else (
Wheel_Braking_Status_hyd1=false))
  )
// the following is only used for model validation
else if States=AlwaysBraking then
(Wheel_Status=Braking and Wheel_Braking_Status=true and
Wheel_Braking_Status_hyd1=true )
else // States=NeverBraking
(Wheel_Status=Not_Braking and Wheel_Braking_Status=false and
```

```
Wheel_Braking_Status_hyd1=false)

edon
```

2.2.25 Model of component: /ARP4761/miscelaneous/antiskid

2.2.25.1 Identification

- Path : /ARP4761/miscelaneous
- Name : antiskid
- Version : 1
- Type : Component
- Creation : 10/23/20 4:58 PM by admin
- Modification : 7/9/22 3:35 PM by admin
- Comment :

2.2.25.2 General

- Width : 140
- Height : 50

- Icon file : -
- Draw border : Yes

2.2.25.3 Ports

Name	Type	Orientation	X	Y
Wheel_status8	ARP4761/Flow/CTRL;1	in	125	0
Wheel_status7	ARP4761/Flow/CTRL;1	in	108	0
Wheel_status6	ARP4761/Flow/CTRL;1	in	92	0
Wheel_status5	ARP4761/Flow/CTRL;1	in	76	0
Wheel_status4	ARP4761/Flow/CTRL;1	in	60	0
Wheel_status3	ARP4761/Flow/CTRL;1	in	44	0
Wheel_status2	ARP4761/Flow/CTRL;1	in	28	0
Wheel_status1	ARP4761/Flow/CTRL;1	in	12	0
Antiskid_status	bool	out	60	50

2.2.25.4 Altarica code

```
node ARP4761_miscelaneous_antiskid
 flow
  Wheel_status8 : ARP4761_Flow_CTRL : in;
  Wheel_status7 : ARP4761_Flow_CTRL : in;
  Wheel_status6 : ARP4761_Flow_CTRL : in;
```

```
  Wheel_status5 : ARP4761_Flow_CTRL : in;
  Wheel_status4 : ARP4761_Flow_CTRL : in;
  Wheel_status3 : ARP4761_Flow_CTRL : in;
  Wheel_status2 : ARP4761_Flow_CTRL : in;
  Wheel_status1 : ARP4761_Flow_CTRL : in;
  Antiskid_status : bool : out;
assert
if (
Wheel_status1 = Braking or
Wheel_status2 = Braking or
Wheel_status3 = Braking or
Wheel_status4 = Braking or
Wheel_status5 = Braking or
Wheel_status6 = Braking or
Wheel_status7 = Braking or
Wheel_status8 = Braking)
then Antiskid_status = false
else  Antiskid_status = true
edon
```

2.2.26 Model of component: /ARP4761/miscelaneous/computer_in_control

2.2.26.1 Identification

- Path : /ARP4761/miscelaneous
- Name : computer_in_control
- Version : 1
- Type : Component
- Creation : 10/23/20 5:28 PM by admin
- Modification : 7/9/22 3:35 PM by admin
- Comment :

2.2.26.2 General

- Width : 300
- Height : 30
- Icon file : ARP4761/computer_in_control.jpg;1
- Draw border : Yes

2.2.26.3 Ports

Name	Type	Orientation	X	Y
Channel1	bool	in	44	0
Channel2	bool	in	143	0

2.2.26.4 Icons

Number	Icon	Path
1		ARP4761/computer_in_control1.jpg;1
2		ARP4761/computer_in_control2.jpg;1
3		ARP4761/computer_in_control_none.jpg;1

2.2.26.5 Altarica code

```
node ARP4761_miscelaneous_computer_in_control
 flow
  icone : [1,3] : local ;
  Channel1 : bool : in;
  Channel2 : bool : in;
assert
if Channel1=true then icone=1
else if Channel2=true then icone=2
else icone=3
edon
```

2.2.27 Model of component: /ARP4761/miscelaneous/control_mode

2.2.27.1 Identification

- Path : /ARP4761/miscelaneous
- Name : control_mode
- Version : 1
- Type : Component
- Creation : 10/23/20 5:28 PM by admin
- Modification : 7/9/22 3:41 PM by admin
- Comment :

2.2.27.2 General

- Width : 300
- Height : 90
- Icon file : ARP4761/control_mode.jpg;1

- Draw border : Yes

2.2.27.3 Ports

Name	Type	Orientation	X	Y
Alt_Emer	ARP4761/Flow/CTRL;1	in	0	60
Normal	ARP4761/Flow/CTRL;1	in	0	15
Hyd2	ARP4761/Flow/Hyd;1	in	0	71
Accu	ARP4761/Flow/Hyd;1	in	0	82

2.2.27.4 Icons

Number	Icon	Path
1		ARP4761/control_mode_n.jpg;1
2		ARP4761/control_mode_nwoa.jpg;1
3		ARP4761/control_mode_aw.jpg;1
4		ARP4761/control_mode_awo.jpg;1
5		ARP4761/control_mode_e.jpg;1
6		ARP4761/control_mode_none.jpg;1

2.2.27.5 Altarica code

```
node ARP4761_miscelaneous_control_mode

 flow
```

```
  icone : [1,6] : local ;
  Alt_Emer : ARP4761_Flow_CTRL : in;
  Normal : ARP4761_Flow_CTRL : in;
  Hyd2 : ARP4761_Flow_Hyd : in;
  Accu : ARP4761_Flow_Hyd : in;
assert
if Normal=Braking_With_AS then icone=1
else if Normal=Braking then icone=2
else if Alt_Emer=Braking_With_AS then icone=3
else if (Alt_Emer=Braking and Hyd2!=No_Pressure) then icone=4
else if (Alt_Emer=Braking and Accu!=No_Pressure) then icone=5
else icone=6
edon
```

2.2.28 Model of component: /ARP4761/miscelaneous/delay4

2.2.28.1 Identification

- Path : /ARP4761/miscelaneous
- Name : delay4
- Version : 1

- Type : Component
- Creation : 6/29/20 6:33 PM by admin
- Modification : 7/9/22 3:41 PM by admin
- Comment :

2.2.28.2 General

- Width : 20
- Height : 20
- Icon file : -
- Draw border : Yes

2.2.28.3 Ports

Name	Type	Orientation	X	Y
Out	bool	out	9	0
In	bool	in	9	20
Braking_val	ARP4761/Flow/CTRL;1	in	0	10

2.2.28.4 States

Name	Type	Value
stat1	bool	true
stat2	bool	false

2.2.28.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested
Ev		-	Dirac 0.0	-	-

2.2.28.6 Altarica code

```
node ARP4761_miscelaneous_delay4
 flow
  Out : bool : out;
  In : bool : in;
  Braking_val : ARP4761_Flow_CTRL : in;
 state
  stat1 : bool;
  stat2 : bool;
 event
  Ev;
 init
  stat1 := true;
```

```
  stat2 := false;

trans

// for braking

In=false and Braking_val = Braking and stat1 = true |- Ev -> stat1 :=
false;

// for not braking

In=true and Braking_val = Not_Braking and stat2 = false |- Ev -> stat2 :=
true;

assert

if Braking_val = Braking then Out =stat1

else Out =stat2

 extern

  law <event Ev> = Dirac(0.0) ;

edon
```

2.2.29 Model of component: /ARP4761/miscelaneous/delay5

2.2.29.1 Identification

- Path : /ARP4761/miscelaneous
- Name : delay5
- Version : 1

- Type : Component
- Creation : 6/29/20 6:33 PM by admin
- Modification : 7/9/22 3:41 PM by admin
- Comment :

2.2.29.2 General

- Width : 20
- Height : 20
- Icon file : -
- Draw border : Yes

2.2.29.3 Ports

Name	Type	Orientation	X	Y
Out	bool	out	9	0
In	bool	in	9	20
Braking_val	ARP4761/Flow/CTRL;1	in	0	10

2.2.29.4 Altarica code

```
node ARP4761_miscelaneous_delay5
 flow
  Out : bool : out;
  In : bool : in;
  Braking_val : ARP4761_Flow_CTRL : in;
assert
if In then Out = (Braking_val = Braking) else Out=In
edon
```

2.2.30 Model of component: /ARP4761/miscelaneous/effect_on_wheels

2.2.30.1 Identification

- Path : /ARP4761/miscelaneous
- Name : effect_on_wheels
- Version : 1
- Type : Component
- Creation : 10/23/20 5:28 PM by admin
- Modification : 7/9/22 3:41 PM by admin

- Comment : We consider that if one wheel is braking without antiskid, then the aircraft is braking without antiskid

2.2.30.2 General

- Width : 300
- Height : 90
- Icon file : ARP4761/effect_on_wheels.jpg;1
- Draw border : Yes

2.2.30.3 Ports

Name	Type	Orientation	X	Y
Full_braking_status	bool	in	0	15
Wheels_braking_status	bool	in	0	60
Wheels_antiskid_status	bool	in	300	45

2.2.30.4 Icons

Number	Icon	Path
1		ARP4761/effect_on_wheels_fba.jpg;1
2		ARP4761/effect_on_wheels_fbwa.jpg;1
3		ARP4761/effect_on_wheels_ba.jpg;1

4		ARP4761/effect_on_wheels_bwa.jpg;1
5		ARP4761/effect_on_wheels_nb.jpg;1

2.2.30.5 Altarica code

```
node ARP4761_miscelaneous_effect_on_wheels

 flow

  icone : [1,5] : local ;

  Full_braking_status : bool : in;

  Wheels_braking_status : bool : in;

  Wheels_antiskid_status : bool : in;

assert

if (Full_braking_status=true and Wheels_antiskid_status=true) then icone=1

else if (Full_braking_status=true and Wheels_antiskid_status=false) then
icone=2

else if (Wheels_braking_status=true and Wheels_antiskid_status=true) then
icone=3

else if (Wheels_braking_status=true and Wheels_antiskid_status=false) then
icone=4

else icone=5 // Not Braking

edon
```

2.2.31 Model of component: /ARP4761/miscelaneous/hyd1

2.2.31.1 Identification

- Path : /ARP4761/miscelaneous
- Name : hyd1
- Version : 1
- Type : Component
- Creation : 10/27/20 10:40 AM by admin
- Modification : 7/9/22 3:41 PM by admin
- Comment :

2.2.31.2 General

- Width : 150
- Height : 30
- Icon file : -
- Draw border : Yes

2.2.31.3 Ports

Name	Type	Orientation	X	Y
v8	ARP4761/Flow/Hyd;1	in	131	0
v7	ARP4761/Flow/Hyd;1	in	114	0
v6	ARP4761/Flow/Hyd;1	in	97	0
v5	ARP4761/Flow/Hyd;1	in	80	0
v4	ARP4761/Flow/Hyd;1	in	63	0
v3	ARP4761/Flow/Hyd;1	in	46	0
v2	ARP4761/Flow/Hyd;1	in	29	0
v1	ARP4761/Flow/Hyd;1	in	12	0
hyd1	bool	out	75	30

2.2.31.4 Altarica code

```
node ARP4761_miscelaneous_hyd1
 flow
  v8 : ARP4761_Flow_Hyd : in;
  v7 : ARP4761_Flow_Hyd : in;
  v6 : ARP4761_Flow_Hyd : in;
  v5 : ARP4761_Flow_Hyd : in;
  v4 : ARP4761_Flow_Hyd : in;
  v3 : ARP4761_Flow_Hyd : in;
  v2 : ARP4761_Flow_Hyd : in;
```

```
  v1 : ARP4761_Flow_Hyd : in;
  hyd1 : bool : out;
assert
if
(v1!=No_Pressure or
v2!=No_Pressure or
v3!=No_Pressure or
v4!=No_Pressure or
v5!=No_Pressure or
v6!=No_Pressure or
v7!=No_Pressure or
v8!=No_Pressure)
then hyd1=true
else hyd1=false
edon
```

2.2.32 Model of component: /ARP4761/miscelaneous/hydraulic_path

2.2.32.1 Identification

- Path : /ARP4761/miscelaneous
- Name : hydraulic_path

- Version : 1
- Type : Component
- Creation : 10/23/20 5:28 PM by admin
- Modification : 7/9/22 3:41 PM by admin
- Comment :

2.2.32.2 General

- Width : 300
- Height : 30
- Icon file : ARP4761/hydraulic_path.jpg;1
- Draw border : Yes

2.2.32.3 Ports

Name	Type	Orientation	X	Y
accu	ARP4761/Flow/Hyd;1	in	241	0
hyd2i	ARP4761/Flow/Hyd;1	in	153	0
hyd2g	bool	in	193	0
hyd1	bool	in	44	0

2.2.32.4 Icons

Number	Icon	Path
1		ARP4761/hydraulic_path1.jpg;1
2		ARP4761/hydraulic_path2.jpg;1
3		ARP4761/hydraulic_path_accu.jpg;1
4		ARP4761/hydraulic_path_none.jpg;1

2.2.32.5 Altarica code

```
node ARP4761_miscelaneous_hydraulic_path
 flow
  icone : [1,4] : local ;
  accu : ARP4761_Flow_Hyd : in;
  hyd2i : ARP4761_Flow_Hyd : in;
  hyd2g : bool : in;
  hyd1 : bool : in;
assert
if hyd1=true then icone=1
else if (hyd2g=true and hyd2i!=No_Pressure)then icone=2
else if (hyd2g=true and accu!=No_Pressure) then icone=3
else icone=4
edon
```

2.2.33 Model of component: /ARP4761/miscelaneous/inhib

2.2.33.1 Identification

- Path : /ARP4761/miscelaneous
- Name : inhib
- Version : 1
- Type : Component
- Creation : 7/3/20 6:01 PM by admin
- Modification : 7/9/22 3:42 PM by admin
- Comment : used to inhib monitoring

2.2.33.2 General

- Width : 20
- Height : 20
- Icon file : -

- Draw border : Yes

2.2.33.3 Ports

Name	Type	Orientation	X	Y
O	bool	out	20	10
I	bool	in	0	10

2.2.33.4 States

Name	Type	Value
inhib_state	{normal,inhib}	normal

2.2.33.5 Altarica code

```
node ARP4761_miscelaneous_inhib
 flow
  O : bool : out;
  I : bool : in;
 state
  inhib_state : {normal,inhib};
 init
  inhib_state := normal;
assert
if inhib_state=normal then O = I
```

```
else

O = true

edon
```

2.2.34 Model of component: /ARP4761/miscelaneous/inv

2.2.34.1 Identification

- Path : /ARP4761/miscelaneous
- Name : inv
- Version : 1
- Type : Component
- Creation : 7/3/20 6:01 PM by admin
- Modification : 7/9/22 3:42 PM by admin
- Comment :

2.2.34.2 General

- Width : 20

- Height : 20
- Icon file : -
- Draw border : Yes

2.2.34.3 Ports

Name	Type	Orientation	X	Y
O	bool	out	20	10
I	bool	in	0	10

2.2.34.4 Altarica code

```
node ARP4761_miscelaneous_inv
 flow
  O : bool : out;
  I : bool : in;
assert
O = not I
edon
```

2.2.35 Model of component: /ARP4761/miscelaneous/speed_sensor

2.2.35.1 Identification

- Path : /ARP4761/miscelaneous
- Name : speed_sensor
- Version : 1
- Type : Component
- Creation : 7/29/20 1:00 PM by admin
- Modification : 7/9/22 3:42 PM by admin
- Comment :

2.2.35.2 General

- Width : 70
- Height : 70
- Icon file : -
- Draw border : Yes

2.2.35.3 Ports

Name	Type	Orientation	X	Y
Out	bool	out	35	70
In	bool	in	35	0

2.2.35.4 States

Name	Type	Value
Status	{consistent,unconsistent}	consistent

2.2.35.5 Events

Name	Comment	FRB	Law	Inspected	In-flight tested
failure		-	exponential 1.0E-7	-	-

2.2.35.6 Altarica code

```
node ARP4761_miscelaneous_speed_sensor
 flow
  Out : bool : out;
  In : bool : in;
 state
  Status : {consistent,unconsistent};
 event
  failure;
```

```
 init
  Status := consistent;
trans
Status = consistent |- failure -> Status := unconsistent;
assert
  if Status = consistent then Out=In else Out= not In;
 extern
  law <event failure> = exponential(1.0E-7) ;
edon
```

2.3 Types [Enumerate]

2.3.1 Model of type: /ARP4761/AppendixQ/CTRL

2.3.1.1 Identification

- Path : /ARP4761/AppendixQ
- Name : CTRL
- Version : 1
- Type : Enumerate

- Creation : 6/17/20 3:44 PM by admin
- Modification : 7/9/22 3:43 PM by admin
- Comment :

2.3.1.2 Definition

Field
Not_Braking
Braking
Braking_With_AS

2.3.2 Model of type: /ARP4761/Flow/Bus_Color

2.3.2.1 Identification

- Path : /ARP4761/Flow
- Name : Bus_Color
- Version : 1
- Type : Enumerate
- Creation : 5/30/20 5:25 PM by admin

- Modification : 7/9/22 3:43 PM by admin
- Comment : Copyright © 2021 Darfeuil-Frazza-Gauthier All rights reserved. Available under the terms of Creative Commons BY-NC-SA 4.0

2.3.2.2 Definition

Field
Ctrl_Pressure
Full_Pressure
No_Pressure
Mixed_Pressure

2.3.3 Model of type: /ARP4761/Flow/CMD

2.3.3.1 Identification

- Path : /ARP4761/Flow
- Name : CMD
- Version : 1
- Type : Enumerate
- Creation : 5/30/20 6:01 PM by admin
- Modification : 7/9/22 3:43 PM by admin

- Comment : Copyright © 2021 Darfeuil-Frazza-Gauthier All rights reserved. Available under the terms of Creative Commons BY-NC-SA 4.0

2.3.3.2 Definition

Field
On
Off

2.3.4 Model of type: /ARP4761/Flow/CTRL

2.3.4.1 Identification

- Path : /ARP4761/Flow
- Name : CTRL
- Version : 1
- Type : Enumerate
- Creation : 6/17/20 3:44 PM by admin
- Modification : 7/9/22 3:43 PM by admin
- Comment : Copyright © 2021 Darfeuil-Frazza-Gauthier All rights reserved. Available under the terms of Creative Commons BY-NC-SA 4.0

2.3.4.2 Definition

Field
Not_Braking
Braking
Braking_With_AS

2.3.5 Model of type: /ARP4761/Flow/Elec

2.3.5.1 Identification

- Path : /ARP4761/Flow
- Name : Elec
- Version : 1
- Type : Enumerate
- Creation : 6/17/20 4:40 PM by admin
- Modification : 7/9/22 3:43 PM by admin
- Comment :

2.3.5.2 Definition

Field
No_Power
Degraded_Power
Power

2.3.6 Model of type: /ARP4761/Flow/Hyd

2.3.6.1 Identification

- Path : /ARP4761/Flow
- Name : Hyd
- Version : 1
- Type : Enumerate
- Creation : 5/30/20 5:25 PM by admin
- Modification : 7/9/22 3:43 PM by admin
- Comment :

2.3.6.2 Definition

Field
Ctrl_Pressure
Full_Pressure
No_Pressure

2.3.7 Model of type: /ARP4761/Flow/Sel_Pos

2.3.7.1 Identification

- Path : /ARP4761/Flow
- Name : Sel_Pos
- Version : 1
- Type : Enumerate
- Creation : 11/5/20 11:50 AM by admin
- Modification : 7/9/22 3:43 PM by admin
- Enumerate's Comment : represents the selector position
- Version's Comment : represents the selector position

2.3.7.2 Definition

Field
Normal
Middle
Alternate

2.4 Types [Record]

2.4.1 Model of type: /ARP4761/Bus/Hyd_Outputs

2.4.1.1 Identification

- Path : /ARP4761/Bus
- Name : Hyd_Outputs
- Version : 1
- Type : Record
- Creation : 6/25/20 2:38 PM by admin
- Modification : 7/9/22 3:43 PM by admin
- Comment :

2.4.1.2 Definition

Field	Type	Orientation	Cross field
Bus_Color	ARP4761/Flow/Bus_Color;1	Normal	
Hyd_Output1	ARP4761/Flow/Hyd;1	Normal	
Hyd_Output2	ARP4761/Flow/Hyd;1	Normal	
Hyd_Output3	ARP4761/Flow/Hyd;1	Normal	
Hyd_Output4	ARP4761/Flow/Hyd;1	Normal	
Hyd_Output5	ARP4761/Flow/Hyd;1	Normal	
Hyd_Output6	ARP4761/Flow/Hyd;1	Normal	
Hyd_Output7	ARP4761/Flow/Hyd;1	Normal	
Hyd_Output8	ARP4761/Flow/Hyd;1	Normal	

2.5 Attributes

Path	Description	Type	Values
Safety/DAL;1	Development Assurance Level	Enum	A B C D E

3. LIST OF DEPENDENCIES

Type	Path	Name	Version
Icon	/ARP4761	Accu.jpg	1
Icon	/ARP4761	Accu_empty.jpg	1
Icon	/ARP4761	Accu_full.jpg	1
Icon	/ARP4761	COM_MON.jpg	1
Icon	/ARP4761	COM_MON_deg_inc.jpg	1
Icon	/ARP4761	COM_MON_deg_loss.jpg	1
Icon	/ARP4761	COM_MON_deg_nom.jpg	1
Icon	/ARP4761	COM_MON_loss_inc.jpg	1
Icon	/ARP4761	COM_MON_loss_loss.jpg	1
Icon	/ARP4761	COM_MON_loss_nom.jpg	1
Icon	/ARP4761	COM_MON_nom_inc.jpg	1
Icon	/ARP4761	COM_MON_nom_loss.jpg	1
Icon	/ARP4761	COM_MON_nom_nom.jpg	1
Icon	/ARP4761	Cadre_gris.jpg	1
Icon	/ARP4761	Cc-by-nc-sa_icon_200x70.jpg	1
Icon	/ARP4761	Hyd_pump.jpg	1
Icon	/ARP4761	Hyd_pump_green.jpg	1
Icon	/ARP4761	Hyd_pump_red.jpg	1

Icon	/ARP4761	Pilot.jpg	1
Icon	/ARP4761	PilotBraking.jpg	1
Icon	/ARP4761	PilotNotBraking.jpg	1
Icon	/ARP4761	SelValve.jpg	1
Icon	/ARP4761	SelValve_a.jpg	1
Icon	/ARP4761	SelValve_ab.jpg	1
Icon	/ARP4761	SelValve_mb.jpg	1
Icon	/ARP4761	SelValve_n.jpg	1
Icon	/ARP4761	SelValve_nb.jpg	1
Icon	/ARP4761	Wheels.jpg	1
Icon	/ARP4761	Wheels0_8.jpg	1
Icon	/ARP4761	Wheels1_8.jpg	1
Icon	/ARP4761	Wheels2_8.jpg	1
Icon	/ARP4761	Wheels3_8.jpg	1
Icon	/ARP4761	Wheels4_8.jpg	1
Icon	/ARP4761	Wheels5_8.jpg	1
Icon	/ARP4761	Wheels6_8.jpg	1
Icon	/ARP4761	Wheels7_8.jpg	1
Icon	/ARP4761	Wheels8_8.jpg	1
Icon	/ARP4761	computer_in_control.jpg	1
Icon	/ARP4761	computer_in_control1.jpg	1

Icon	/ARP4761	computer_in_control2.jpg	1
Icon	/ARP4761	computer_in_control_none.jpg	1
Icon	/ARP4761	control_mode.jpg	1
Icon	/ARP4761	control_mode_aw.jpg	1
Icon	/ARP4761	control_mode_awo.jpg	1
Icon	/ARP4761	control_mode_e.jpg	1
Icon	/ARP4761	control_mode_n.jpg	1
Icon	/ARP4761	control_mode_none.jpg	1
Icon	/ARP4761	control_mode_nwoa.jpg	1
Icon	/ARP4761	ebu_amber.jpg	1
Icon	/ARP4761	ebu_green.jpg	1
Icon	/ARP4761	ebu_red.jpg	1
Icon	/ARP4761	ebu_white.jpg	1
Icon	/ARP4761	effect_on_wheels.jpg	1
Icon	/ARP4761	effect_on_wheels_ba.jpg	1
Icon	/ARP4761	effect_on_wheels_bwa.jpg	1
Icon	/ARP4761	effect_on_wheels_fba.jpg	1
Icon	/ARP4761	effect_on_wheels_fbwa.jpg	1
Icon	/ARP4761	effect_on_wheels_nb.jpg	1
Icon	/ARP4761	hydraulic_path.jpg	1
Icon	/ARP4761	hydraulic_path1.jpg	1

Icon	/ARP4761	hydraulic_path2.jpg	1
Icon	/ARP4761	hydraulic_path_accu.jpg	1
Icon	/ARP4761	hydraulic_path_none.jpg	1
Icon	/ARP4761	isolation_valve.jpg	1
Icon	/ARP4761	isolation_valve_failed_off.jpg	1
Icon	/ARP4761	isolation_valve_failed_on.jpg	1
Icon	/ARP4761	isolation_valve_off.jpg	1
Icon	/ARP4761	isolation_valve_on.jpg	1
Icon	/ARP4761	normal.jpg	1
Icon	/ARP4761	normal2.jpg	1
Icon	/ARP4761	normal_c.jpg	1
Icon	/ARP4761	normal_cb.jpg	1
Icon	/ARP4761	normal_cd.jpg	1
Icon	/ARP4761	normal_o.jpg	1
Icon	/ARP4761	normal_ob.jpg	1
Icon	/ARP4761	normal_od.jpg	1
Icon	/ARP4761	power_blue.jpg	1
Icon	/ARP4761	power_green.jpg	1
Icon	/ARP4761	power_red.jpg	1
Icon	/ARP4761	power_white.jpg	1
Icon	/ARP4761	rectangle_red.jpg	1

Icon	/ARP4761	rectangle_white.jpg	1
Icon	/ARP4761	selection_mgt.jpg	1
Icon	/ARP4761	selection_mgt_c1f.jpg	1
Icon	/ARP4761	selection_mgt_c1n.jpg	1
Icon	/ARP4761	selection_mgt_c2f.jpg	1
Icon	/ARP4761	selection_mgt_c2n.jpg	1
Icon	/ARP4761	selection_mgt_none.jpg	1
Icon	/ARP4761	selection_mgt_nonen.jpg	1
Icon	/ARP4761	shutoff.jpg	1
Icon	/ARP4761	shutoff2.jpg	1
Icon	/ARP4761	shutoff_c.jpg	1
Icon	/ARP4761	shutoff_cb.jpg	1
Icon	/ARP4761	shutoff_cd.jpg	1
Icon	/ARP4761	shutoff_o.jpg	1
Icon	/ARP4761	shutoff_ob.jpg	1
Icon	/ARP4761	shutoff_od.jpg	1
Icon	/ARP4761	small_power_blue.jpg	1
Icon	/ARP4761	small_power_green.jpg	1
Icon	/ARP4761	small_power_red.jpg	1
Icon	/ARP4761	small_power_white.jpg	1
Icon	/Icones	ET_logique.png	1

Icon	/Icones	OU_logique.png	1
Icon	/generic	or_blue.gif	1
Attribute	/Safety	DAL	1
Enumerate	/ARP4761/AppendixQ	CTRL	1
Record	/ARP4761/Bus	Hyd_Outputs	1
Enumerate	/ARP4761/Flow	Bus_Color	1
Enumerate	/ARP4761/Flow	CMD	1
Enumerate	/ARP4761/Flow	CTRL	1
Enumerate	/ARP4761/Flow	Elec	1
Enumerate	/ARP4761/Flow	Hyd	1
Enumerate	/ARP4761/Flow	Sel_Pos	1
Component	/ARP4761/BSCU	Command	1
Component	/ARP4761/BSCU	InternalPower	1
Component	/ARP4761/BSCU	Monitor	1
Component	/ARP4761/BSCU	PowerMonitor	1
Component	/ARP4761/BSCU	SelectionManagement	1
Component	/ARP4761/ElectricalPower	Electrical_Power	1
Component	/ARP4761/Hydraulic	Alt_Emer_Meter_Valve	1
Component	/ARP4761/Hydraulic	AntiSkidValve	1
Component	/ARP4761/Hydraulic	EmergencyAccumulator	1
Component	/ARP4761/Hydraulic	Hyd_Or	1

Component	/ARP4761/Hydraulic	Hydraulic_Power	1
Component	/ARP4761/Hydraulic	Isolation_Valve	1
Component	/ARP4761/Hydraulic	NormalValve	1
Component	/ARP4761/Hydraulic	SelectorValve	1
Component	/ARP4761/Hydraulic	ShutOffValve	1
Component	/ARP4761/PilotCtrl	ElectricalBrakeUnit	1
Component	/ARP4761/PilotCtrl	Pilot	1
Component	/ARP4761/miscelaneous	AND_3	1
Component	/ARP4761/miscelaneous	Counter	1
Component	/ARP4761/miscelaneous	FC_Braking_loss	1
Component	/ARP4761/miscelaneous	FC_Untimely_Braking	1
Component	/ARP4761/miscelaneous	OR_2	1
Component	/ARP4761/miscelaneous	Stub1	1
Component	/ARP4761/miscelaneous	Wheel	1
Component	/ARP4761/miscelaneous	antiskid	1
Component	/ARP4761/miscelaneous	computer_in_control	1
Component	/ARP4761/miscelaneous	control_mode	1
Component	/ARP4761/miscelaneous	delay4	1
Component	/ARP4761/miscelaneous	delay5	1
Component	/ARP4761/miscelaneous	effect_on_wheels	1
Component	/ARP4761/miscelaneous	hyd1	1

Component	/ARP4761/miscelaneous	hydraulic_path	1
Component	/ARP4761/miscelaneous	inhib	1
Component	/ARP4761/miscelaneous	inv	1
Component	/ARP4761/miscelaneous	speed_sensor	1
Equipment	/ARP4761/Hydraulic	AntiSkid_Valve	1
Equipment	/ARP4761/Hydraulic	Normal_Valve	1
Equipment	/ARP4761/Misceleneaous	Wheels	1