



Hydraulic Water Cannon RM80-H

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1. Water Cannon - Warning - Hazard to Health

Care needs to be taken operating a water cannon. Water from a cannon is capable of inflicting serious injury to a person in the path of the jet.

Primary injuries would be those from the direct hit to the body by the impact of the jet. These would include bruising of internal organs and damage to the eyes.

Secondary injuries can occur as a result of the acceleration of the body in collision with hard surfaces. These injuries would be largely skeletal, such as broken bone. Other injuries could be caused by debris, accelerated by the force of the water jet striking the person.

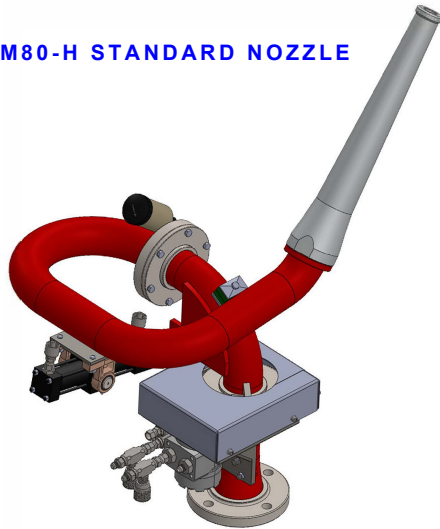
The following should be considered as a minimum level of care required when operating a water cannon:

- Know the direction that the cannon is aiming at. Aim the cannon in a safe direction before turning the water on.
- Keep all personal out of the front of the cannon. Dangerous flow velocities can cause serious injury for quite a distance in front of the cannon.
- The cannon contain moving parts. Keep hands, fingers, and objects away from pinch points when working close to the cannon.
- Do not attempt to modify the equipment in any way. Modifications of the equipment may result in damage and/or malfunction of the equipment which could cause injury to the operator or other. Also, the manufacturer's warranty will be void.
- Follow all the maintenance procedures in the documentation. Failure to do so, can result in damage and/or malfunction of the equipment which could cause injury to the operator or other.

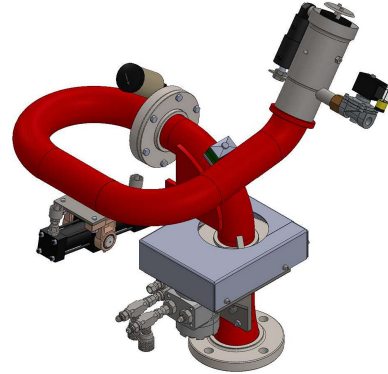


2. RM80-H Brochure

RM80-H STANDARD NOZZLE



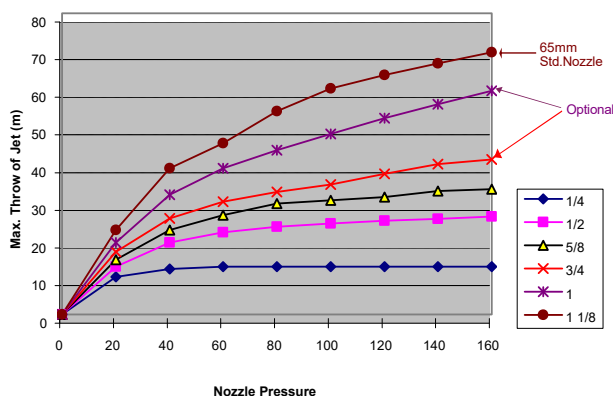
RM80-H FOG/JET NOZZLE



- Easy installation
- Pressure tested to 3000 Kpa
- 80mm (3") ANSI 150lb flanged inlet connection
- Hydraulic slew and elevation control
- Electric joystick cabin control supplied as standard
- Optional radio Frequency (R.F.) joystick control
- Full automation via sequencing or PLC technology
- Can be retro-fitted as optional
- Engineered balanced and compact design
- Direct gear drive offering up to 360° precision slew operation
- Hydraulic cylinder controlling 7 ° angle elevation
- Designed for mobile or fixed mounted applications
- Optional "power pack" system or can control via vehicle hydraulics
- Optional fog/jet nozzle available
- Optional 3% foam induction on fog/jet nozzle available as option
- Patented "non-flog" Magnum Australia swivel bearings
- Automatic grease lubrication fitted
- Director nozzle supplied as standard; 28mm (1 1/8") orifice and 60 m water throw at 7 bar
- All stainless steel fasteners and protective guard fitted
- Fully serviceable

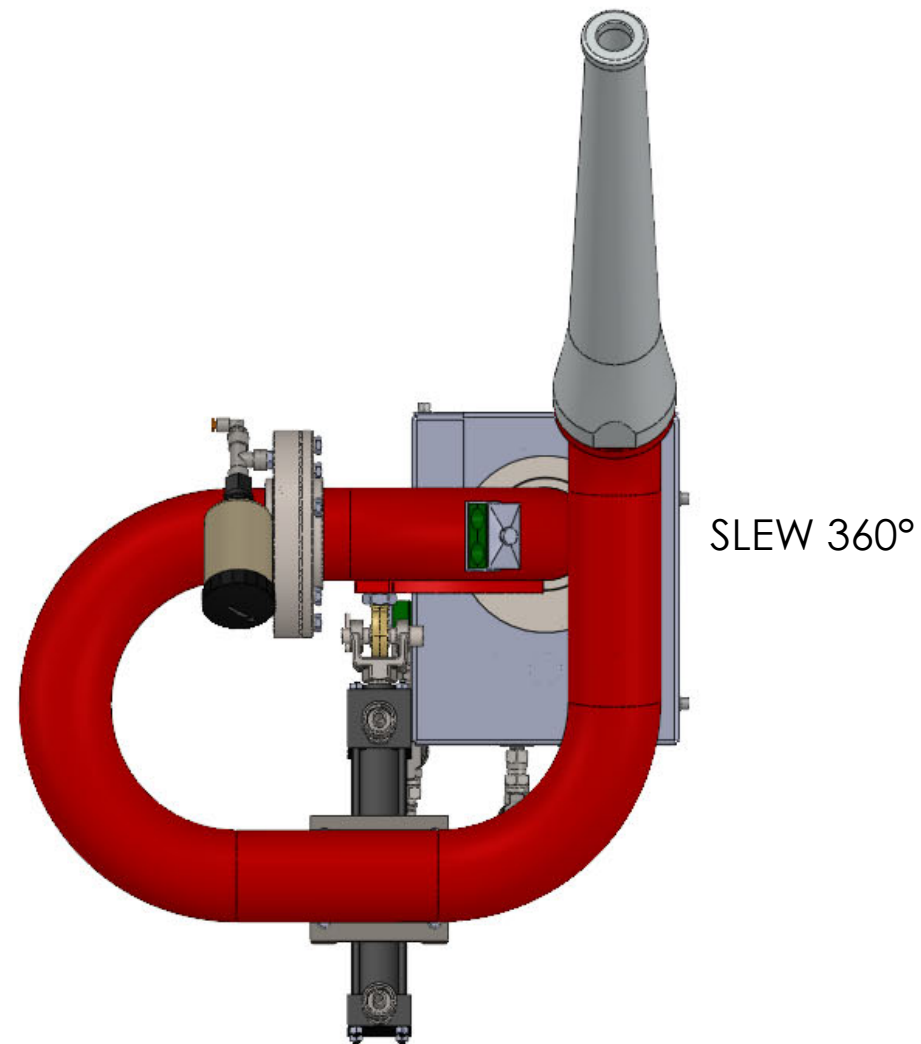
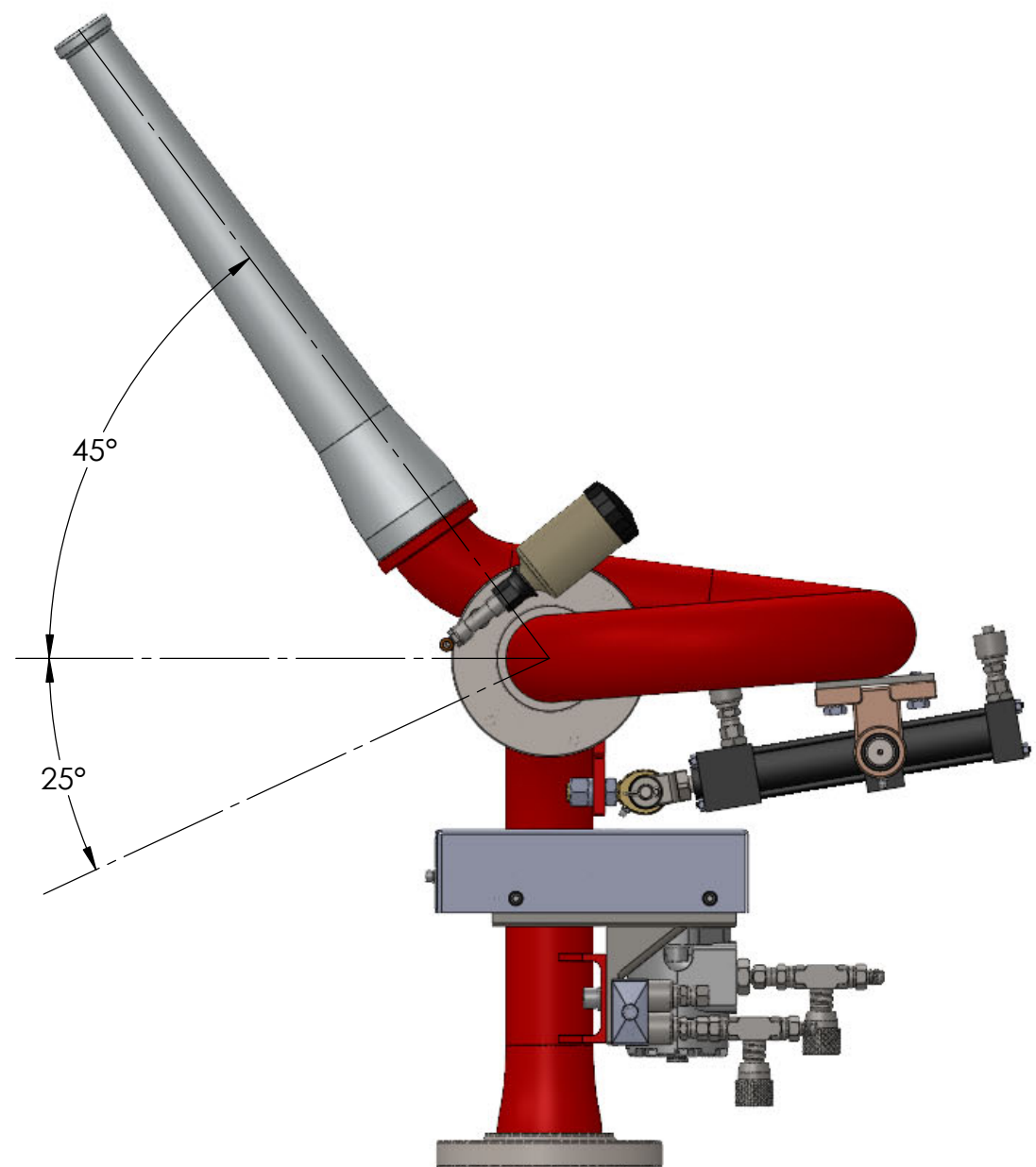



JET THROW FROM NOZZLES



WATER CANNON NOZZLE PERFORMANCE

Pressure bar	Pressure P.S.I.	Flow in Litres per minute									
		Nozzle Diameter in Inches									
		1/16	1/8	1/2	5/8	3/4	1	1 1/8	1 1/4	1 3/8	1 1/2
2.0	30	2	8	134	210	302	538	680	840	1016	958
2.7	40	2	10	155	244	349	622	785	970	1176	1399
3.4	50	3	11	172	273	391	693	878	1084	1315	1562
4.1	60	3	12	189	298	439	760	962	1184	1436	1709
4.8	70	3	13	206	319	462	819	1042	1285	1554	1848
5.4	80	3	14	218	344	491	878	1113	1373	1659	1978
6.1	90	4	15	231	365	521	932	1180	1453	1760	2095
6.8	100	4	15	248	382	550	983	1243	1533	1856	2209
7.5	110	4	16	260	403	584	1029	1302	1613	1945	2314
8.2	120	4	17	269	420	605	1075	1361	1680	2033	2419
8.8	130	4	17	281	437	630	1121	1415	1747	2117	2520
9.5	140	5	18	290	454	655	1163	1470	1814	2197	2612
10.2	150	5	19	302	470	676	1201	1520	1877	2272	2705

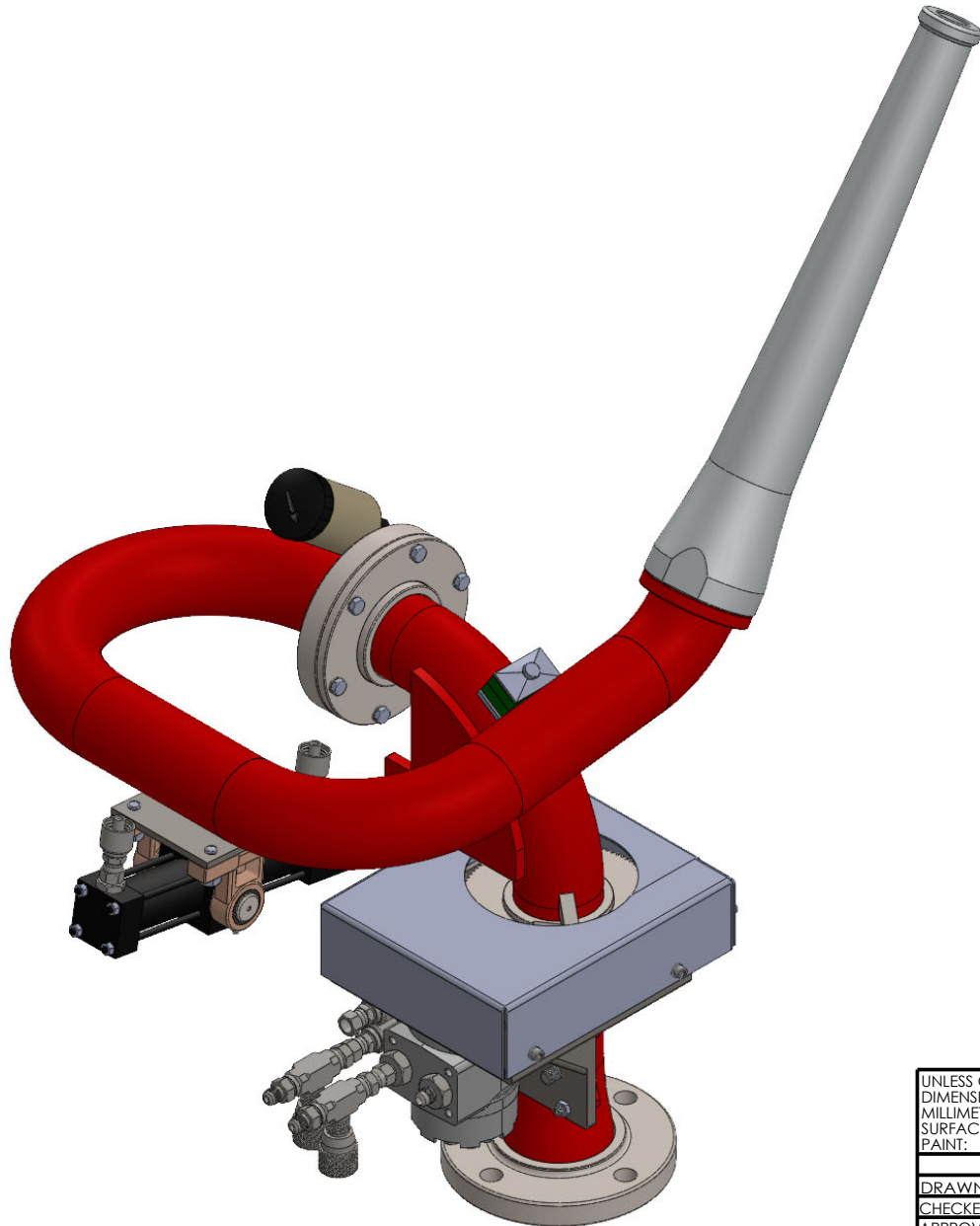



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: PAINT:			TOLERANCES ACCORDING TO ISO 2768		DO NOT SCALE DRAWING	DEBURR AND BREAK SHARP EDGES
					 MAGNUM AUSTRALIA 35 PARKHURST DRIVE KNOXFIELD, VICTORIA 3180 PHONE 98018433	
	NAME	SIGNATURE	DATE	REVISION	TITLE: WATER CANNON RM80-H ANGLES	
DRAWN	Alberto C		21/12/2020			
CHECKED	Rocky		21/12/2020			
APPROVED						
					DWG NO. RM80-H	
					SCALE: N/A	
					SHEET 1 OF 1	

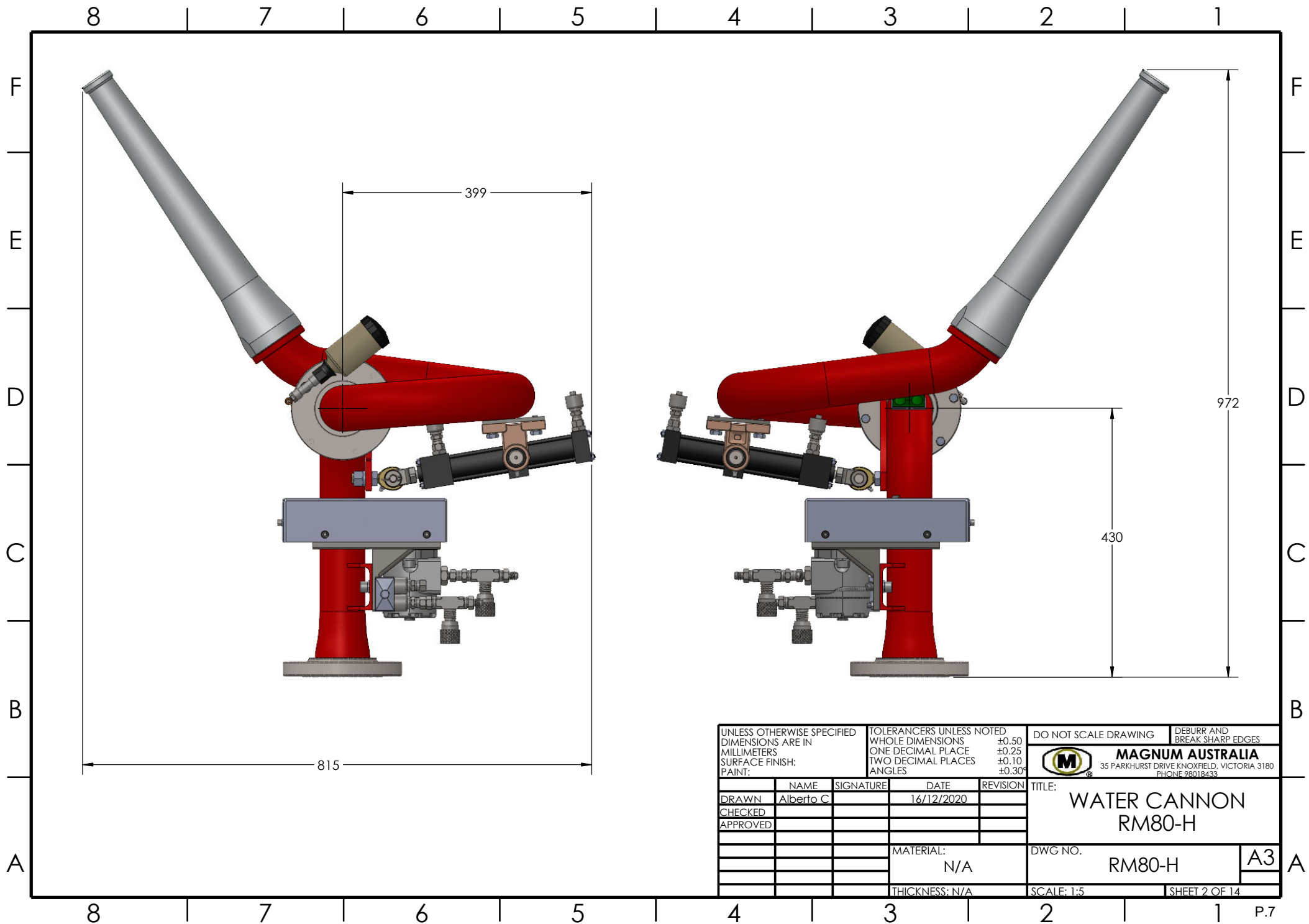
A3

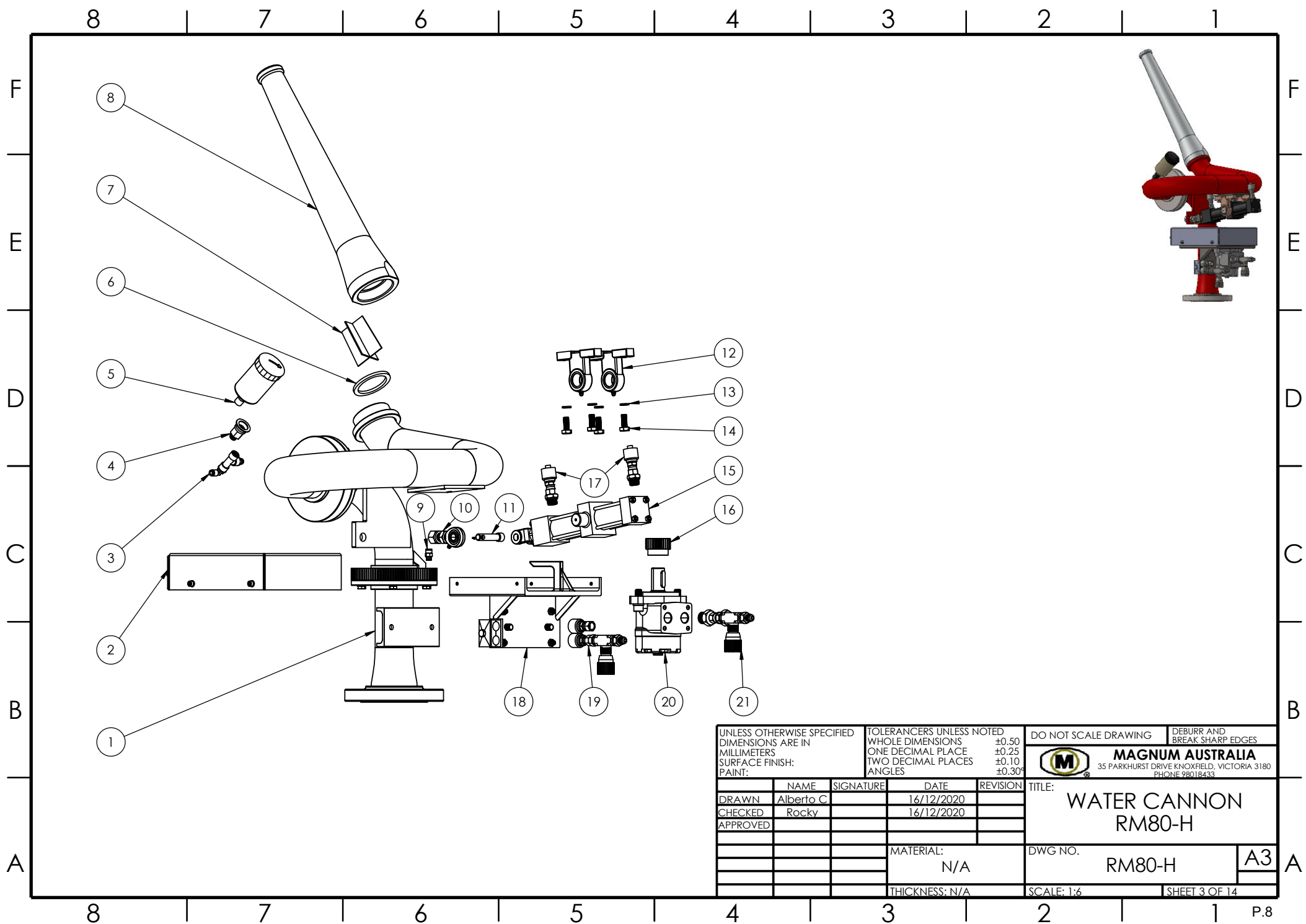



3. Outline Drawing of Cannon & Exploded View / Spare Parts

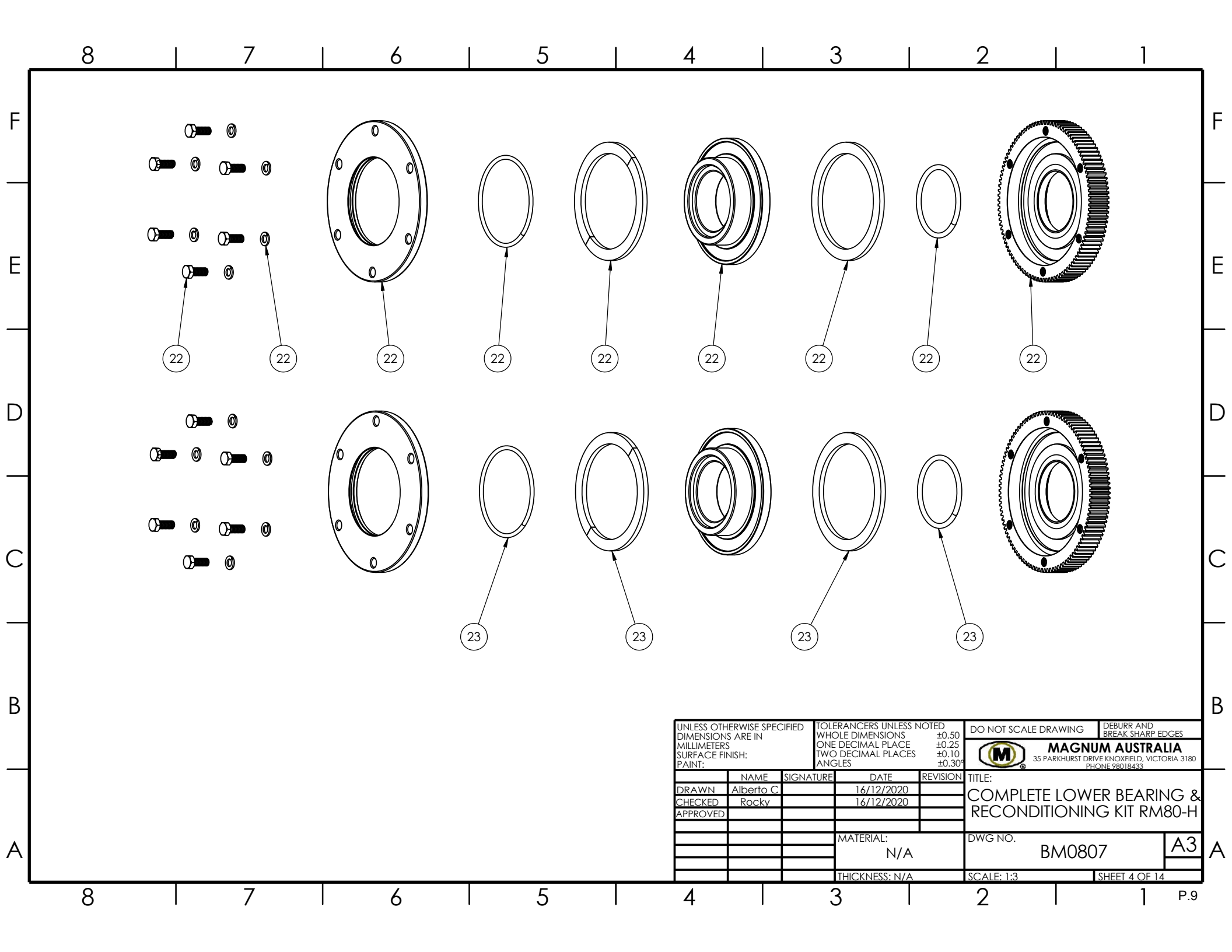



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: PAINT:		TOLERANCES UNLESS NOTED WHOLE DIMENSIONS ONE DECIMAL PLACE TWO DECIMAL PLACES ANGLES		±0.50 ±0.25 ±0.10 ±0.30°	 MAGNUM AUSTRALIA 35 PARKHURST DRIVE KNOXFIELD, VICTORIA 3180 PHONE 98018433	DO NOT SCALE DRAWING		DEBURR AND BREAK SHARP EDGES			
				TITLE: WATER CANNON RM80-H							
	NAME	SIGNATURE	DATE	REVISION	DWG NO. RM80-H					A3	
DRAWN	Alberto C.		16/12/2020								
CHECKED											
APPROVED					THICKNESS: N/A					SCALE: 1:4	SHEET 1 OF 14
MATERIAL: N/A											

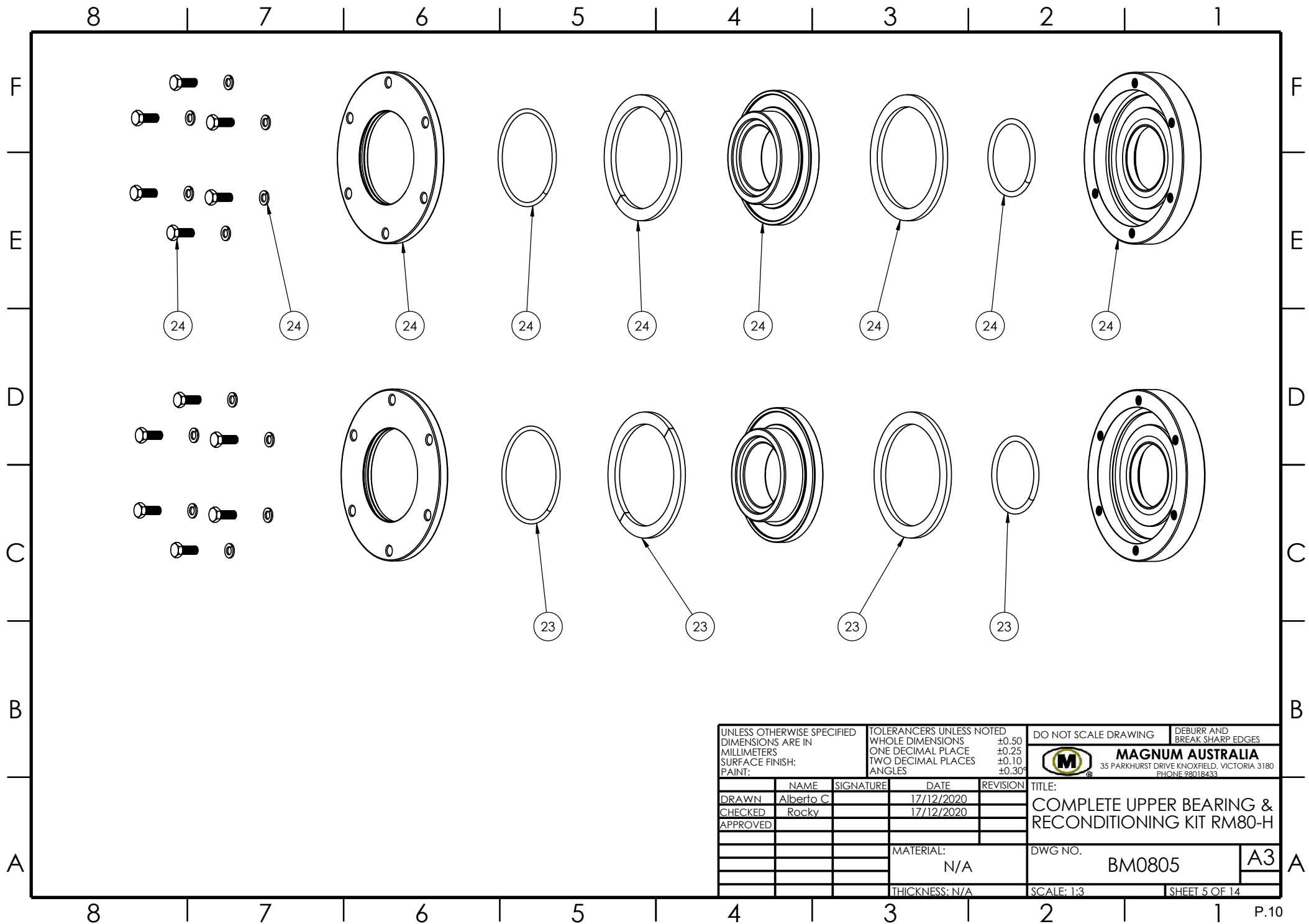





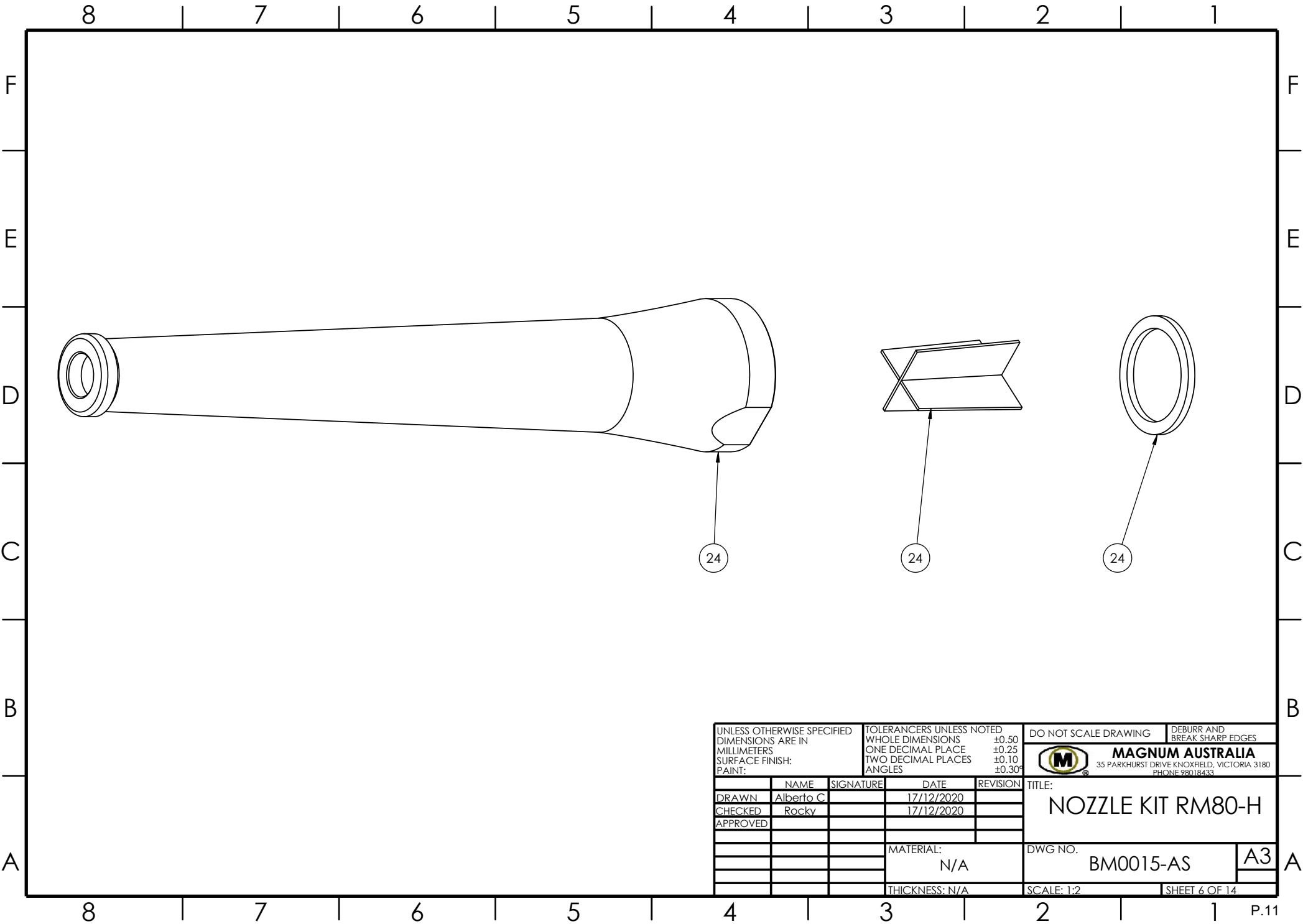
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						 MAGNUM AUSTRALIA 35 PARKHURST DRIVE KNOXFIELD, VICTORIA 3180 PHONE 98018433			
	NAME	SIGNATURE	DATE	REVISION	TITLE: WATER CANNON RM80-H				
DRAWN	Alberto C		16/12/2020						
CHECKED	Rocky		16/12/2020		DWG NO. RM80-H				
APPROVED									
					A3				
			MATERIAL:		SCALE: 1:6				
			N/A						
			THICKNESS: N/A		SHEET 3 OF 14				




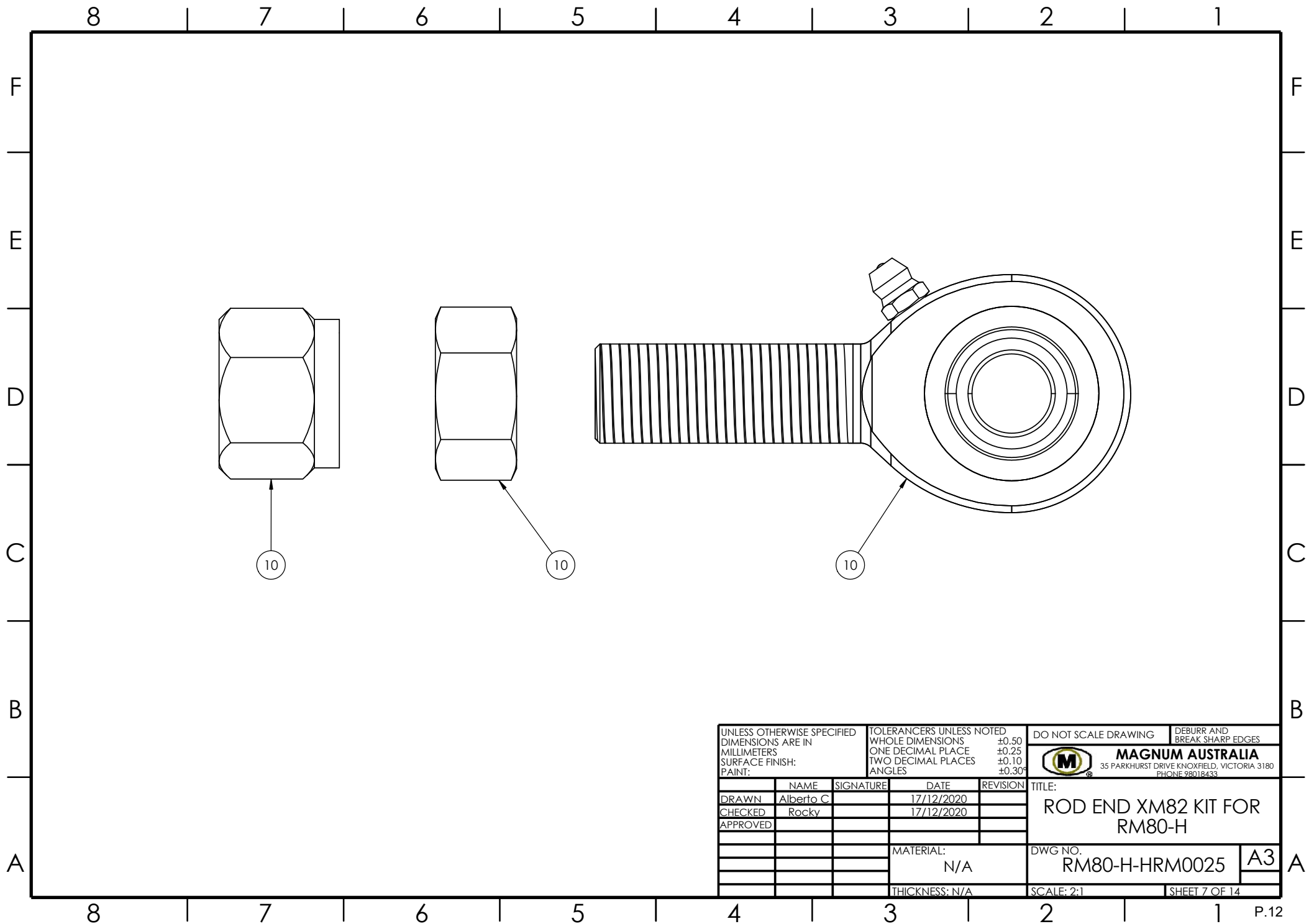
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					 MAGNUM AUSTRALIA 35 PARKHURST DRIVE KNOXFIELD, VICTORIA 3180 PHONE 98018433	
DRAWN	NAME	SIGNATURE	DATE	REVISION	TITLE: COMPLETE LOWER BEARING & RECONDITIONING KIT RM80-H	
CHECKED	Alberto C		16/12/2020			
APPROVED	Rocky		16/12/2020			
					DWG NO. BM0807	
					A3	
					THICKNESS: N/A	
					SCALE: 1:3	
					SHEET 4 OF 14	




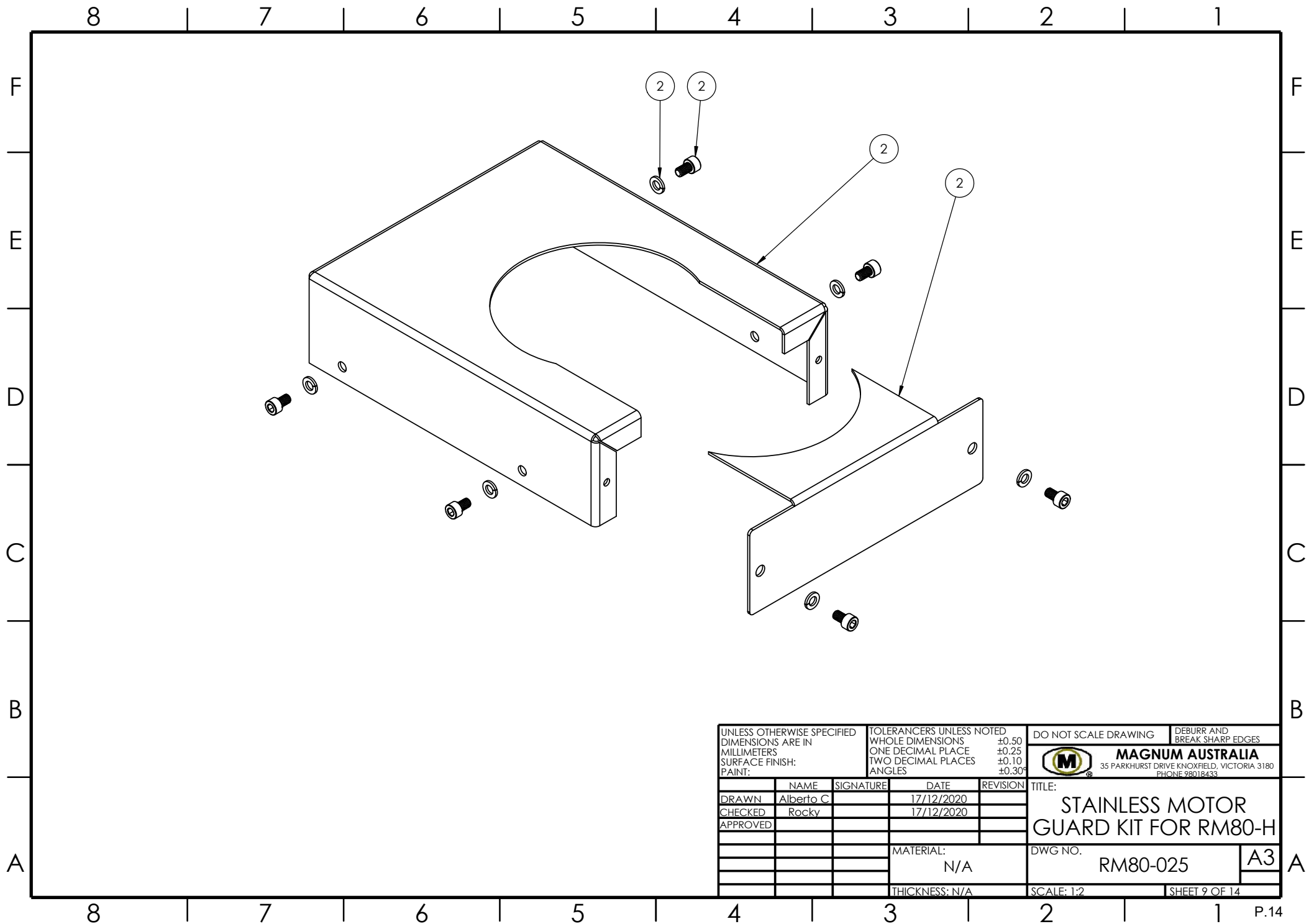
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: PAINT:			TOLERANCES UNLESS NOTED WHOLE DIMENSIONS ±0.50 ONE DECIMAL PLACE ±0.25 TWO DECIMAL PLACES ±0.10 ANGLES ±0.30°		DO NOT SCALE DRAWING	DEBURR AND BREAK SHARP EDGES
					 MAGNUM AUSTRALIA 35 PARKHURST DRIVE KNOXFIELD, VICTORIA 3180 PHONE 28018433	
DRAWN	NAME	SIGNATURE	DATE	REVISION	TITLE: COMPLETE UPPER BEARING & RECONDITIONING KIT RM80-H	
CHECKED	Alberto C		17/12/2020			
APPROVED	Rocky		17/12/2020			
					DWG NO. BM0805	
					SCALE: 1:3	
					SHEET 5 OF 14	




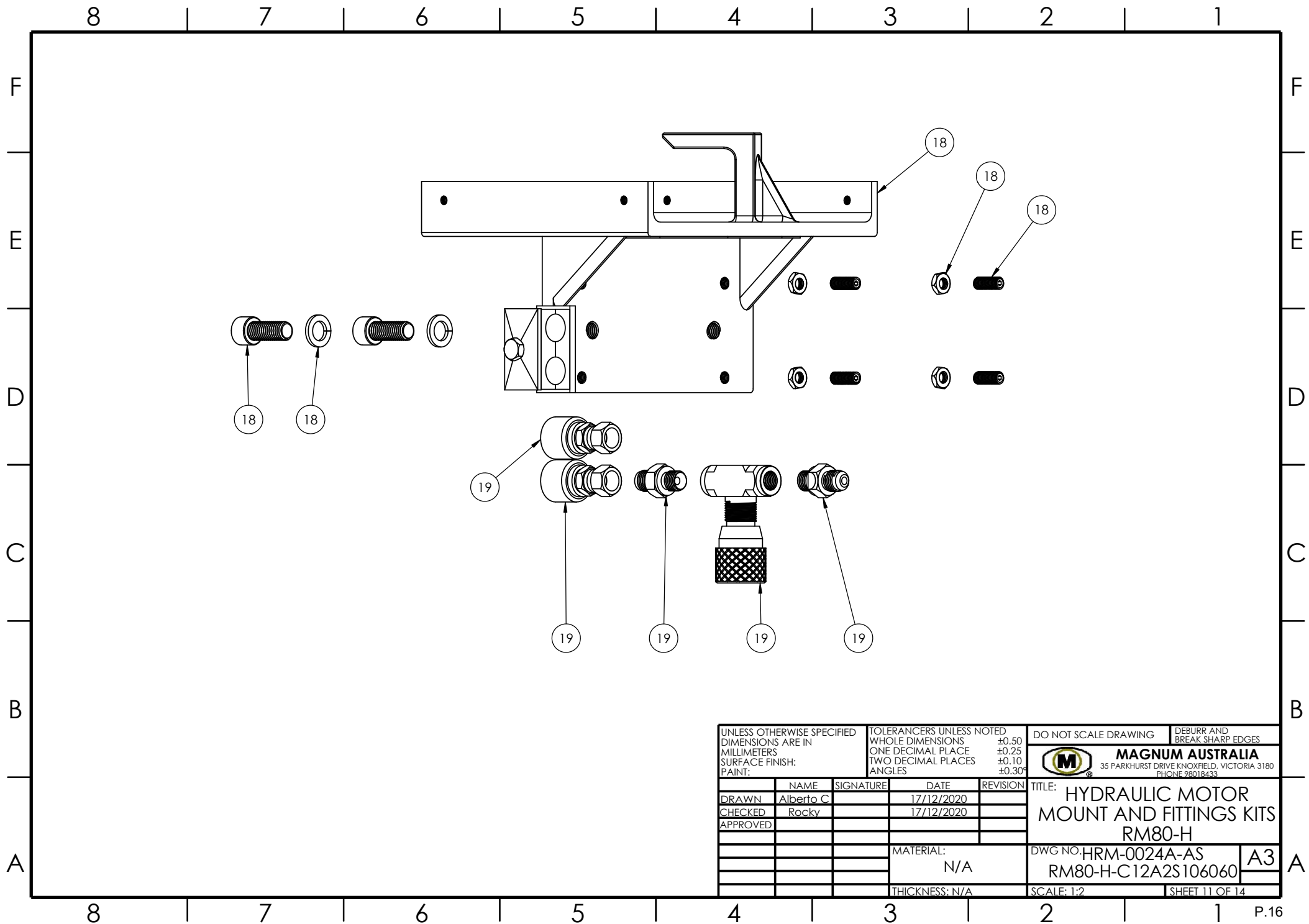
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					 MAGNUM AUSTRALIA 35 PARKHURST DRIVE KNOXFIELD, VICTORIA 3180 PHONE 98018433	
	NAME	SIGNATURE	DATE	REVISION	TITLE:	
DRAWN	Alberto C		17/12/2020		NOZZLE KIT RM80-H	
CHECKED	Rocky		17/12/2020			
APPROVED						
					DWG NO.	
					BM0015-AS	
						A3
					THICKNESS: N/A	
					SCALE: 1:2	
					SHEET 6 OF 14	




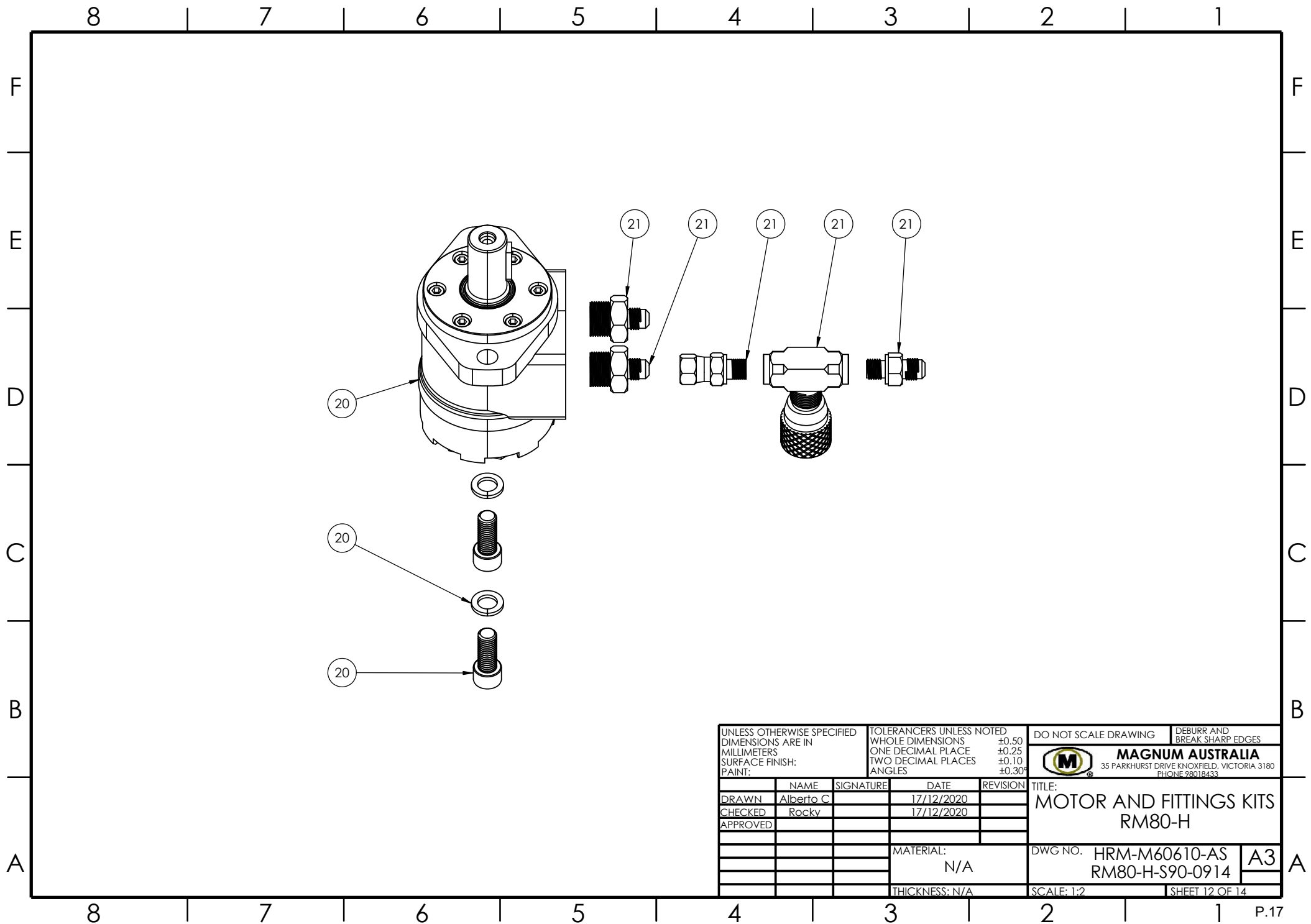
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						MAGNUM AUSTRALIA 35 PARKHURST DRIVE KNOXFIELD, VICTORIA 3180 PHONE 98018433
DRAWN	Alberto C	SIGNATURE	DATE	REVISION	TITLE: ROD END XM82 KIT FOR RM80-H	
CHECKED	Rocky		17/12/2020			
APPROVED						
					DWG NO. RM80-H-HRM0025	
						A3
					THICKNESS: N/A	SHEET 7 OF 14

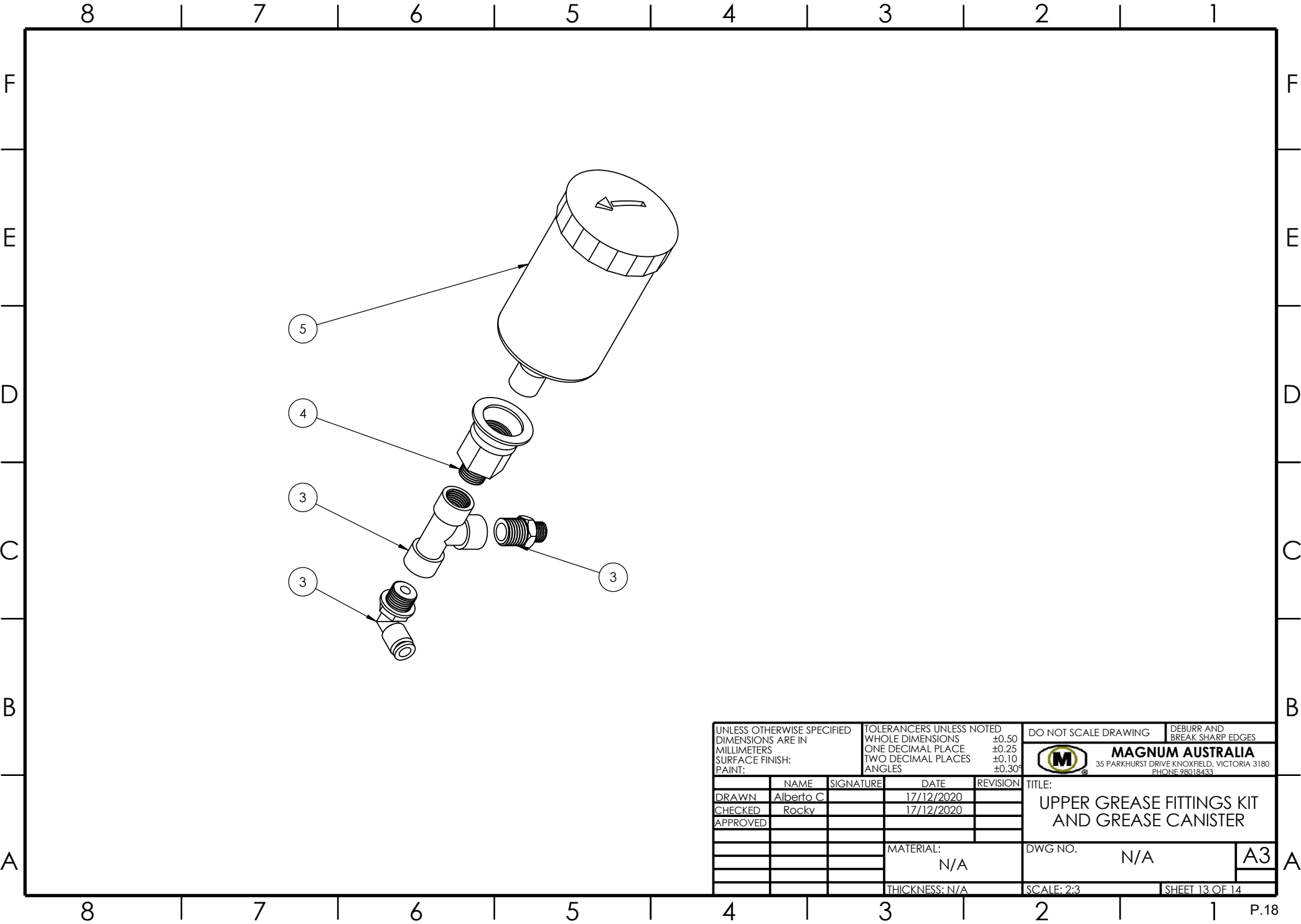



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: PAINT:		TOLERANCES UNLESS NOTED WHOLE DIMENSIONS ONE DECIMAL PLACE TWO DECIMAL PLACES ANGLES		±0.50 ±0.25 ±0.10 ±0.30°	DO NOT SCALE DRAWING	DEBURR AND BREAK SHARP EDGES	
					MAGNUM AUSTRALIA 35 PARKHURST DRIVE KNOXFIELD, VICTORIA 3180 PHONE 98018433		
	NAME	SIGNATURE	DATE	REVISION	TITLE: STAINLESS MOTOR GUARD KIT FOR RM80-H		
DRAWN	Alberto C.		17/12/2020				
CHECKED	Rocky		17/12/2020				
APPROVED					DWG NO. RM80-025		
			MATERIAL: N/A		A3		
THICKNESS: N/A				SCALE: 1:2	SHEET 9 OF 14		



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: PAINT:			TOLERANCES UNLESS NOTED WHOLE DIMENSIONS ±0.50 ONE DECIMAL PLACE ±0.25 TWO DECIMAL PLACES ±0.10 ANGLES ±0.30°		DO NOT SCALE DRAWING	DEBURR AND BREAK SHARP EDGES
					 MAGNUM AUSTRALIA 35 PARKHURST DRIVE KNOXFIELD, VICTORIA 3180 PHONE 98018433	
DRAWN	NAME	SIGNATURE	DATE	REVISION	TITLE: HYDRAULIC MOTOR MOUNT AND FITTINGS KITS RM80-H	
CHECKED	Alberto C		17/12/2020			
APPROVED	Rocky		17/12/2020			
					DWG NO: HRM-0024A-AS	
					RM80-H-C12A2S106060	
					SCALE: 1:2	
					SHEET 11 OF 14	





UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: PAINT:		TOLERANCERS UNLESS NOTED WHOLE DIMENSIONS ONE DECIMAL PLACE TWO DECIMAL PLACES ANGLES		DO NOT SCALE DRAWING		DEBURR AND BREAK SHARP EDGES		
				 MAGNUM AUSTRALIA 35 PARKHURST DRIVE KNOXFIELD, VICTORIA 3180 PHONE 98018433				
	NAME	SIGNATURE	DATE	REVISION	TITLE: UPPER GREASE FITTINGS KIT AND GREASE CANISTER			
DRAWN	Alberto C.		17/12/2020					
CHECKED	Rocky		17/12/2020					
APPROVED								
			MATERIAL:		DWG NO.		A3	
			N/A		N/A			
			THICKNESS: N/A		SCALE: 2:3		SHEET 13 OF 14	

8				7				6				5				4				3				2				1							
ITEM NO.		PART NUMBER				DESCRIPTION								QTY.																					
1		RM80-H-BC				BARE CANNON RM80-H								1																					
2		RM80-025				STAINLESS MOTOR GUARD KIT								1																					
3		RM80-H-P-56430-6-1/8				UPPER GREASE FITTINGS KIT								1																					
4		A620PFLEX				PERMALUBLE SUPPORT FLANGE								1																					
5		BM0007				GREASE CAPSULE								1																					
6		BM-0015C				NOZZLE GASKET								1																					
7		BM-0015B				FLIGHT SET								1																					
8		BM0015				2-1/2 MAGNUM DIRECTOR NOZZLE								1																					
9		S6510-6-1/8				AUTO GREASE LINE BOTTOM BEARING								1																					
10		RM80-H-HRM0025				ROD END XM82 KIT								1																					
11		RM0028-AS				CLEVIS PIN KIT								1																					
12		CA1-S06				TRUNNION MOUNT								2																					
13		M10-SW-SS				M10 SPRING WASHER								8																					
14		M10X25-SS				M10X25X1.5 SOCKET HEAD SCREW								8																					
15		HRMC40-170-AS				HYDRAULIC CYLINDER KIT								1																					
16		HRM0026-AS				GEAR FOR MOTOR								1																					
17		RM80-H-S76-0609				HYD FITTINGS KIT UPPER CYLINDER								1																					
18		HRM-0024A-AS				HYDRAULIC MOTOR MOUNT KIT								1																					
19		RM80-H-C12A2S106060				MOTOR MOUNT FITTINGS KIT								1																					
20		HRM-M60610				MOTOR KIT RM80-H								1																					
21		RM80-H-S90-0914				MOTOR HDY FITTINGS KIT								1																					
22		BM0807				COMPLETE LOWER BEARING RM80-H								1																					
23		WB-RK2				BEARING RECONDITIONING KIT FOR RM80-H								2																					
24		BM0805				COMPLETE UPPER BEARING RM80-H								1																					



4. Installation Instructions

1. Weld the flange supplied in the kit to the water cannon supply pipe.
2. Mount the cannon (monitor) and water on / off valve onto the flange using bolts and nuts supplied in the kit. Stabilisers and gussets may be required to ensure that the mounting is secure and rigid. The water on /off valve should be located between the flanges of the water cannon and the mounting flange welded to supply piping. Ensure the monitor is correctly mounted so it CANNOT direct water at the cabin of the vehicle.
3. Activate the Auto Lube grease capsule located on the Monitor Bearings to 12-month grease injection setting.
4. Screw the nozzle to the threaded end of the water cannon. Director Nozzle is standard supply. Foam induction Fog Nozzle (RFIN) is available as an option.
5. Mount the Joystick Cabin Controller Box (electric) in a position that is ergonomic for operator to use.
6. Mount the hydraulic valve manifold in a desired position (external to vehicle cabin). Note: Generally mounted close to the water cannon monitor to allow for short length of hydraulic hoses between the manifold and the cannon.
7. Run the electrical cable 8 m supplied as standard (optional extension cable is available if required) from the cabin control box to the main control box. Cut the cable to the desired length and connect up the plugs.
8. Connect the cable from the Main Control Box to the hydraulic valves on the manifold. Cut the cable to the desired length allowing for neat installation of the wiring to the solenoids. Connect the electrical cables to the solenoid valves using the Hirschmann Plugs supplied and the electric schematic diagram. Ensure all plugs are properly sealed against moisture ingress.
9. Connect the power wire as per the electric schematic.
10. Ensure the hydraulic pressure reducing valve is fitted into the hydraulic system circuit (refer to the system hydraulic circuit).
11. Connect the hydraulic hoses from supply oil to hydraulic valve manifold using 3/8 hoses. See the hydraulic schematic.
12. Connect the hydraulic hoses from hydraulic valve manifold to the return on the tank. See the hydraulic schematic.
13. Connect the required hydraulic hoses as per the hydraulic schematic from the hydraulic manifold to the water cannon. 2 hoses are required for each function.
14. Your Remote Control Water Cannon is now ready for operations.
15. Turn on the vehicle power and air to the unit.
16. Check that all air fittings are correctly fitted and there are no air leaks evident.
17. Check that all hydraulic hoses and fittings are correctly installed and no hydraulic leaks are evident.
18. Check all bolts are securely tightened and no water leaks are evident.
19. Now test the unit with the water pump operating and passing water through the nozzle.
20. Monitor slew and elevation speed can be adjusted to suit your desired operating speed. The speed adjusters (hydraulic needle valves) are located on the piston end of each hydraulic cylinder fitted to the water cannon. Screw them clockwise (in) to slow the unit, or anti-clockwise (out) to increase the speed of operation.
21. A comprehensive parts book has been supplied for your service assistance.



5. Maintenance Schedule

Initial Service

1. The upper and lower bearings have been filled with Multi-Purpose EP Type Grease in the factory at the time of assembly. 4 pumps of grease from a grease gun should be sufficient if a new bearing has been installed.
2. Set the automatic lubrication canister supplied with the cannon to 12 months. This activates the lubricator.
3. Lubricate the rod ends (mounting for cylinders) using Multi-Purpose EP Type Grease. 1 pump of grease from a grease gun should be sufficient.
4. Smear the gears with grease equivalent to Molybond Opal Pin & Bush.
5. Check the operation of the water cannon; slew and elevation.

Quarterly Service

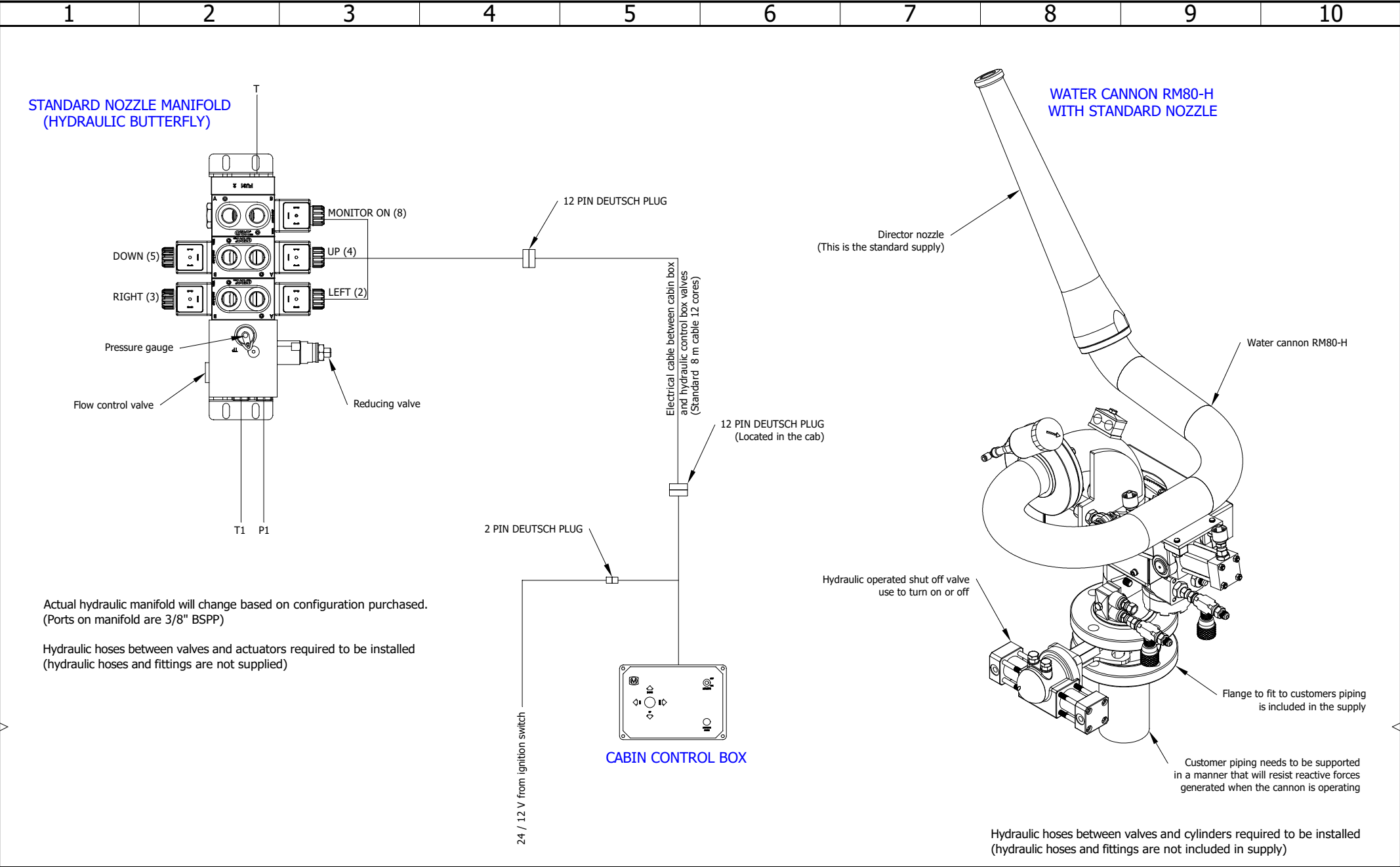
1. Check the condition of the swivel bearings by holding the pipe firmly and shaking it vigorously. There should be no play in the swivel bearing. Replace the seals and wear rings in the swivel bearings if there is any play.
2. Check the waster cannon for leaks. If there is a leak, it will occur at the swivel bearings. Replace the seals and wear rings in the swivel bearings if there is a leak on the water cannon.
3. Lubricate the rod ends (mounting for cylinders) using Multi-Purpose EP Type Grease. 1 pump of grease from a grease gun should be sufficient.
4. Check the automatic lubrication canister. The canister has been initially set up for 12 months. If the ambient temperature is above 40 degrees centigrade, the life of the canister may be reduced. Replace the canister if there is no sign of grease in it. Set the automatic lubrication canister to 12 months. This activates the lubricator.
5. Smear the gears with grease equivalent to Molybond Opal Pin & Bush.
6. Check the operation of the water cannon; slew and elevation.

Annual Service

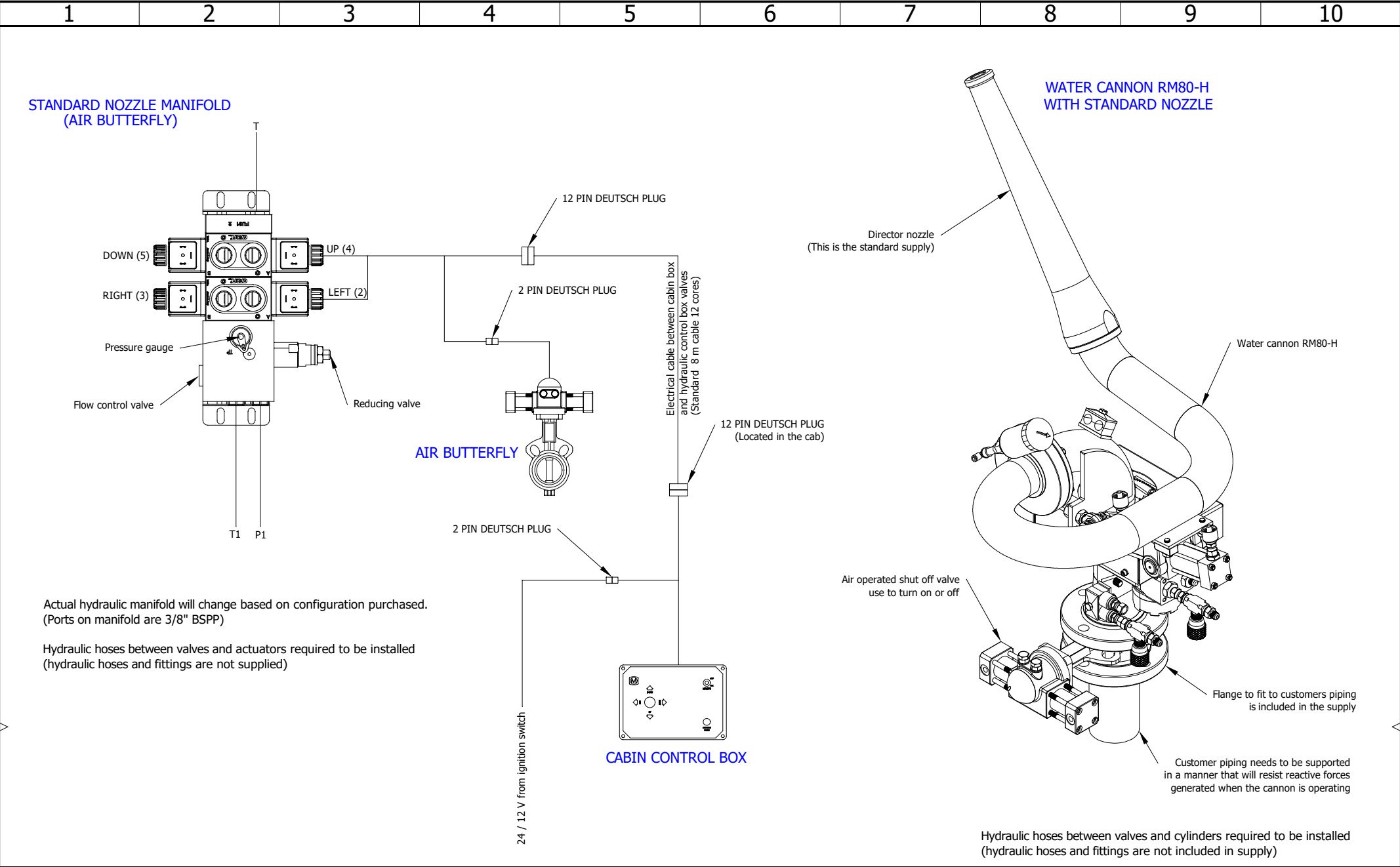
1. Strip and inspect the swivel bearing on the cannon. Replace the wear rings and the seals.
2. Install a new automatic lubrication canister as is indicated in quarterly service.



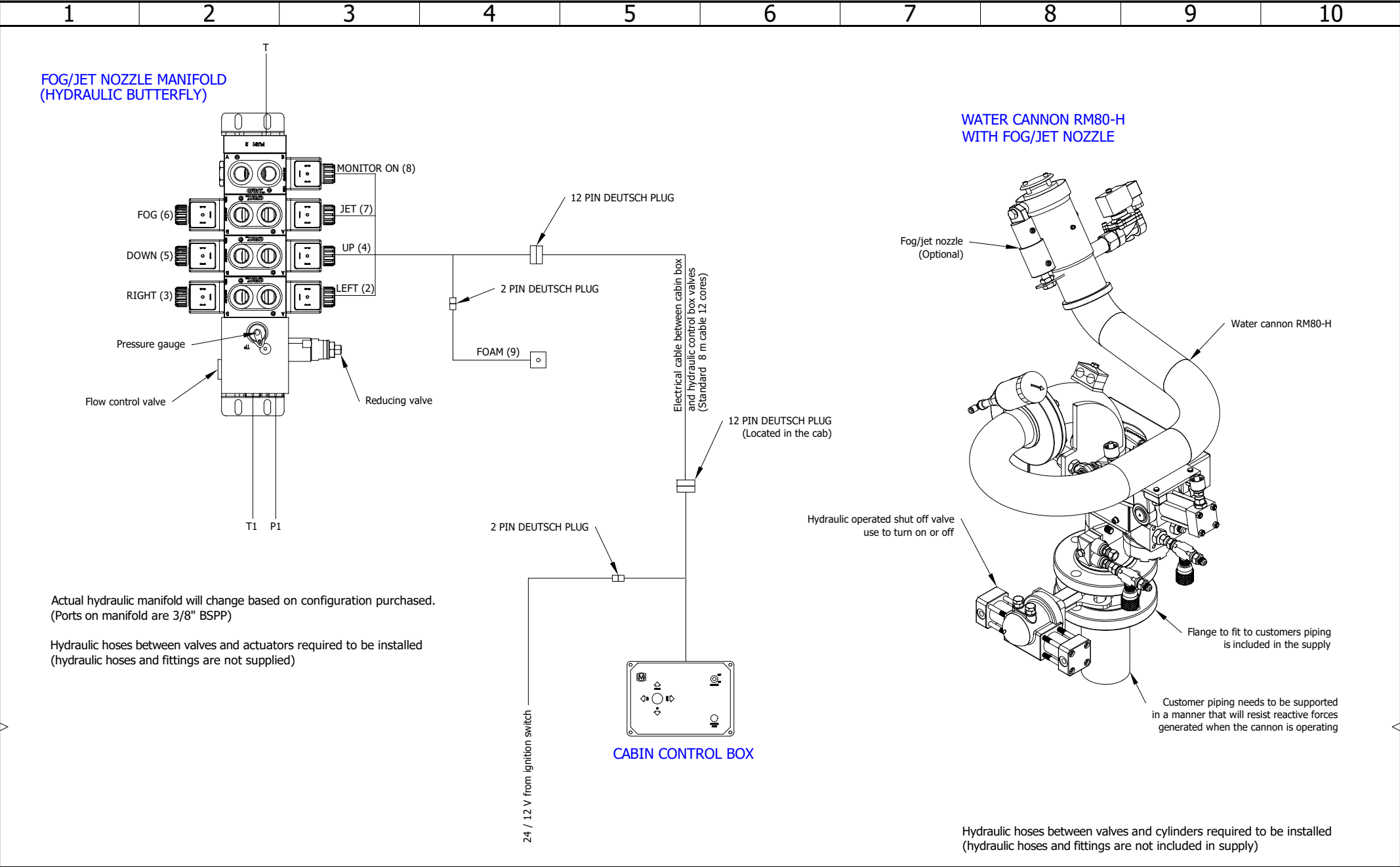
6. Hydraulic Schematic & Hydraulic Information



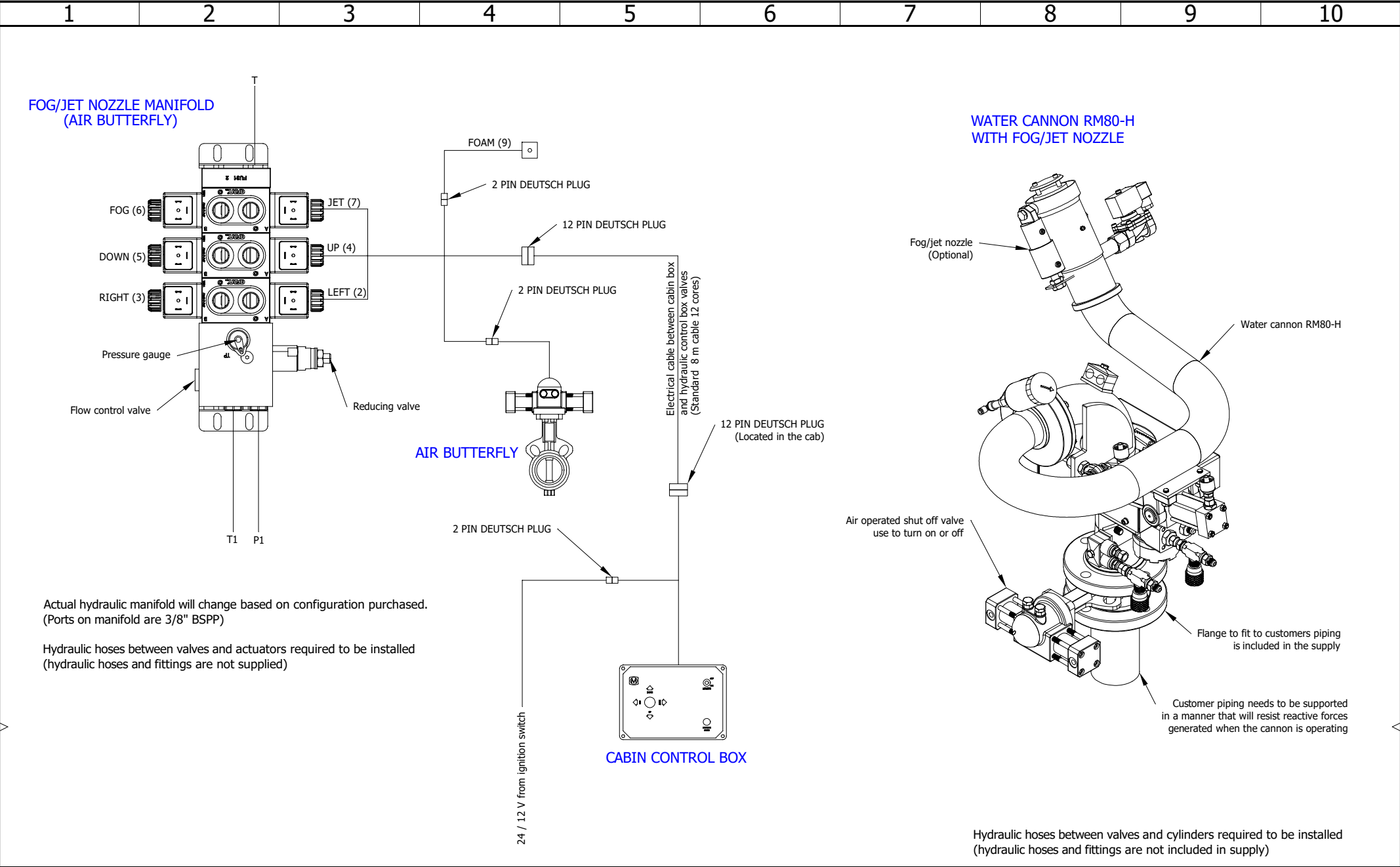
P1 = PRESSURE T / T1 = TANK	RM80-H STANDARD NOZZLE CONFIGURATION HYDRAULIC BUTTERFLY						REVISION	
							0	
			0	17/12/2020	AlbertoC		SCHEME	
			REV.	DATE	NAME	CHANGES		
CONTRACT:	LOCATION:	+L1	Main electrical closet			User data 1	User data 2	01



P1 = PRESSURE T / T1 = TANK	RM80-H STANDARD NOZZLE CONFIGURATION AIR BUTTERFLY						REVISION	
							0	
			0	17/12/2020	AlbertoC			
			REV.	DATE	NAME	CHANGES	SCHEME	
CONTRACT:	LOCATION:	+L1	Main electrical closet	User data 1			User data 2	02



P1 = PRESSURE T / T1 = TANK	RM80-H FOG/JET & FOAM CONFIGURATION HYDRAULIC BUTTERFLY					REVISION 0 <hr/> SCHEME 03	
			0	18/12/2020	AlbertoC		
			REV.	DATE	NAME		CHANGES
CONTRACT:	LOCATION:	+L1	Main electrical closet			User data 1	User data 2



P1 = PRESSURE T / T1 = TANK	RM80-H FOG/JET & FOAM CONFIGURATION AIR BUTTERFLY						REVISION
							0
			0	18/12/2020	AlbertoC		SCHEME
			REV.	DATE	NAME	CHANGES	
CONTRACT:	LOCATION: +L1	Main electrical closet	User data 1			User data 2	

NOTES:
All ports on the manifold are 3/8" BSPP to fit 3/8" hoses
Tank line should be connected directly to the tank by a minimum of 1/2" hose
P1 = PRESSURE T/T1 = TANK

CONTRACT:

LOCATION:

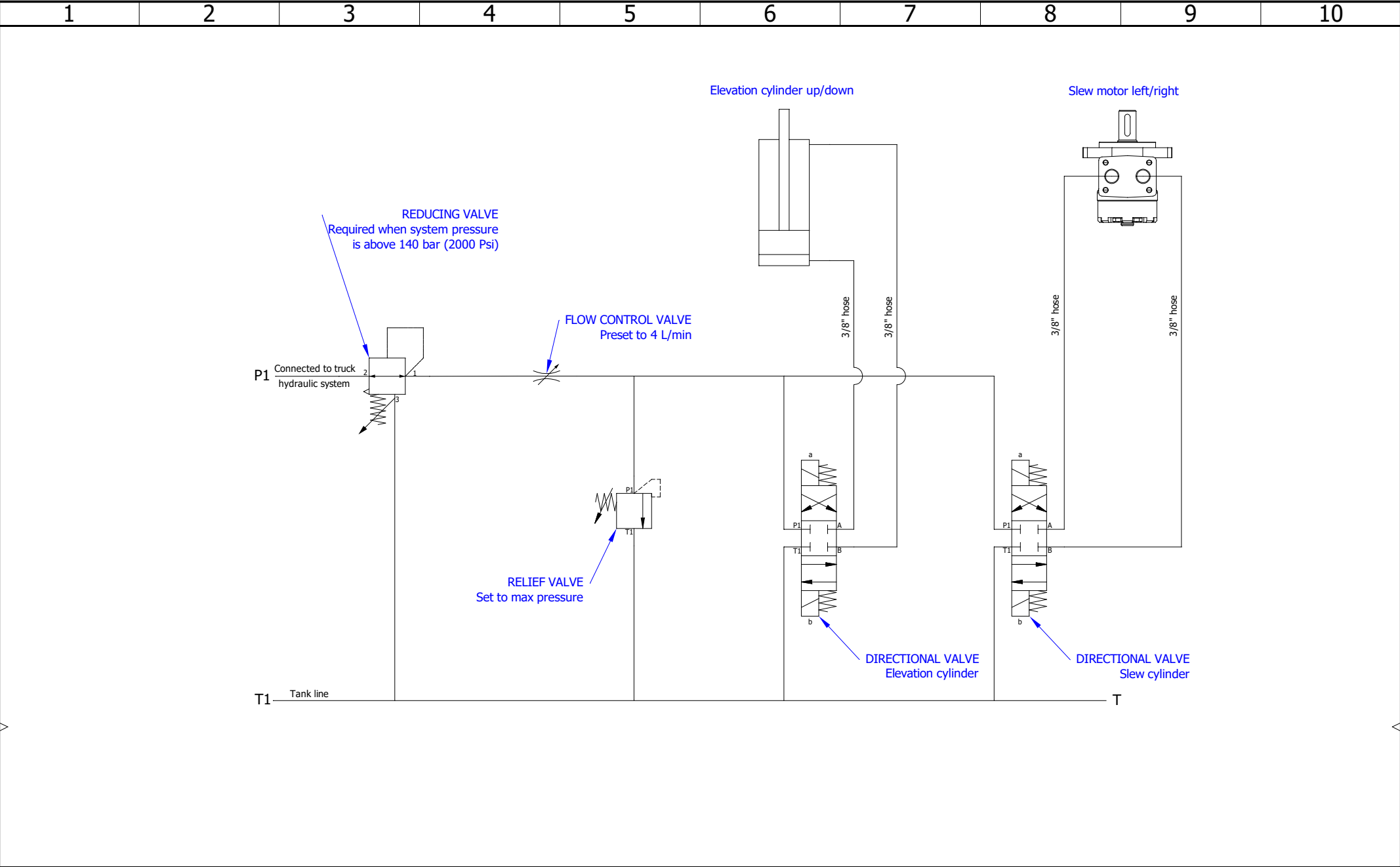
+L1

Main electrical closet

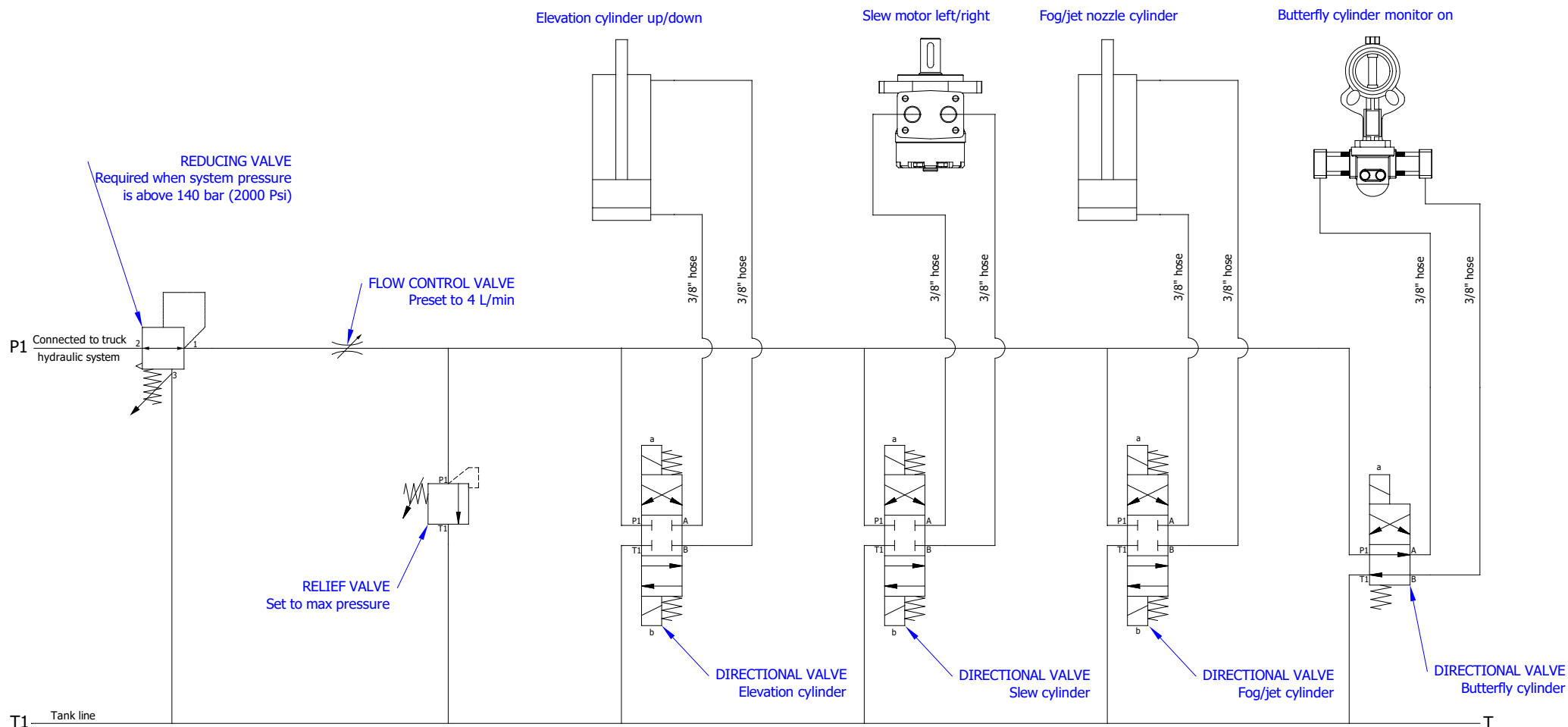
RM80-H

HYDRAULIC SCHEMATIC (HDY BUTTERFLY) STANDARD NOZZLE

				REVISION
				0
0	17/12/2020	AlbertoC		SCHEME
REV.	DATE	NAME	CHANGES	05
User data 1			User data 2	



NOTES: All ports on the manifold are 3/8" BSPP to fit 3/8" hoses Tank line should be connected directly to the tank by a minimum of 1/2" hose P1 = PRESSURE T/T1 = TANK	RM80-H HYDRAULIC SCHEMATIC (AIR BUTTERFLY) STANDARD NOZZLE					REVISION 0	
		0	17/12/2020	AlbertoC			SCHEME 06
		REV.	DATE	NAME	CHANGES		
CONTRACT:	LOCATION: +L1 Main electrical closet	User data 1			User data 2		



NOTES:
All ports on the manifold are 3/8" BSPP to fit 3/8" hoses
Tank line should be connected directly to the tank by a minimum of 1/2" hose
P1 = PRESSURE T/T1 = TANK

CONTRACT:

LOCATION:

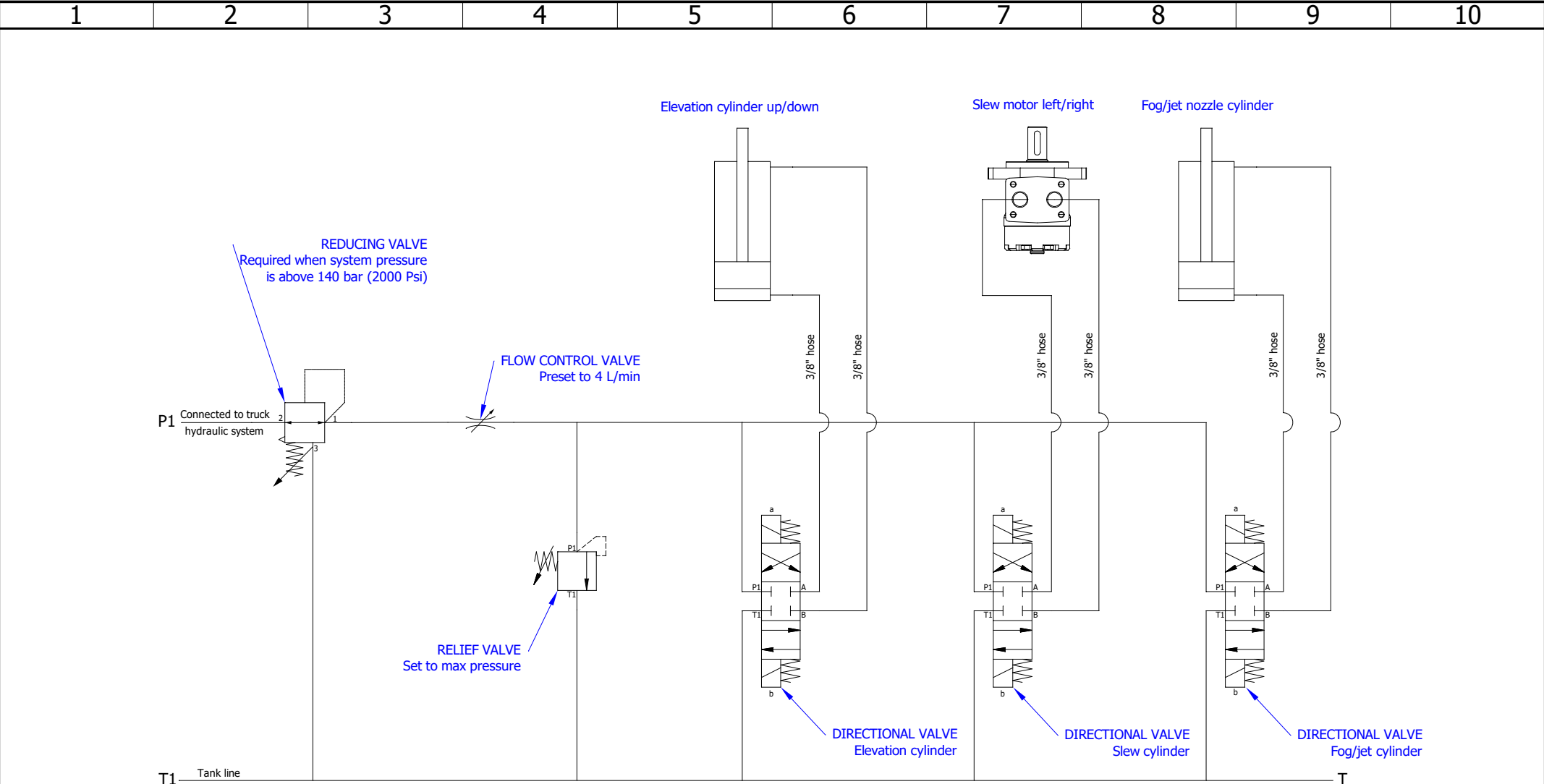
+L1

Main electrical closet

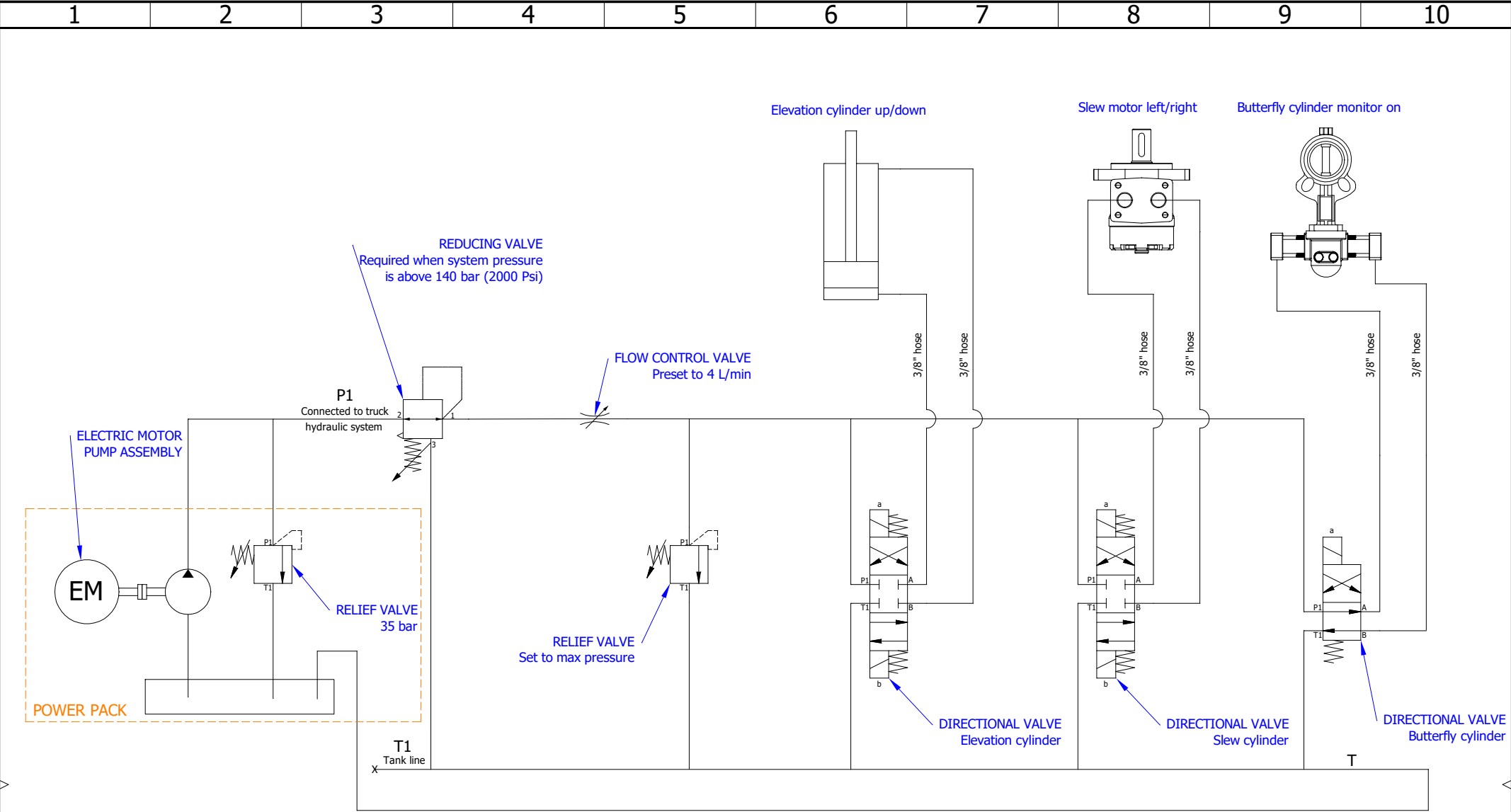
RM80-H

HYDRAULIC SCHEMATIC (HYD BUTTERFLY) FOG/JET NOZZLE

				REVISION
				0
0	18/12/2020	AlbertoC		
REV.	DATE	NAME	CHANGES	SCHEME
User data 1			User data 2	07



NOTES: All ports on the manifold are 3/8" BSPP to fit 3/8" hoses Tank line should be connected directly to the tank by a minimum of 1/2" hose P1 = PRESSURE T/T1 = TANK	RM80-H HYDRAULIC SCHEMATIC (AIR BUTTERFLY) FOG/JET NOZZLE			REVISION	
				0	
				SCHEME	
				08	
CONTRACT:	LOCATION:	+L1	Main electrical closet	User data 1	
				User data 2	

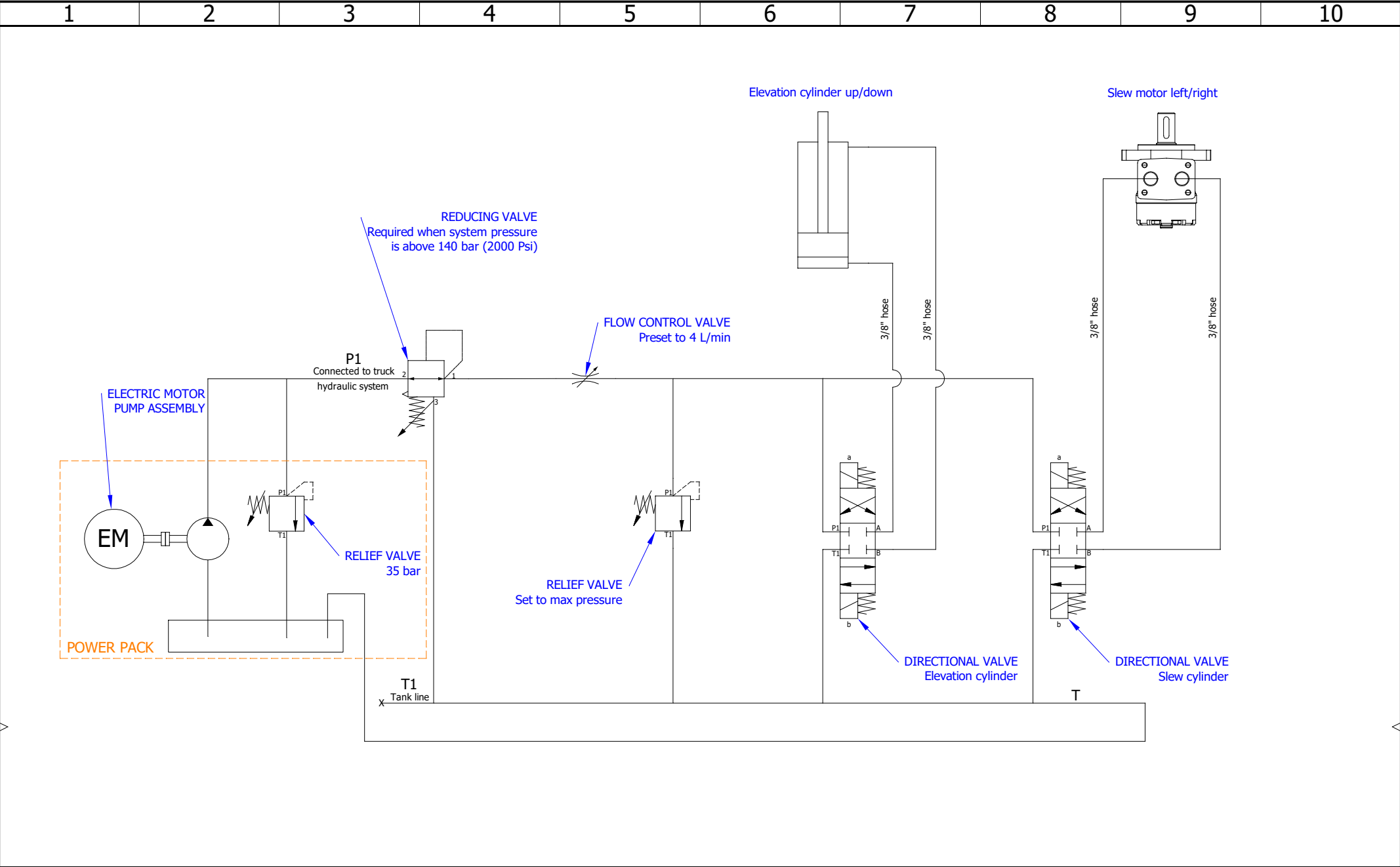


NOTES:
All ports on the manifold are 3/8" BSPP to fit 3/8" hoses
Tank line should be connected directly to the tank by a minimum of 1/2" hose
P1 = PRESSURE T/T1 = TANK

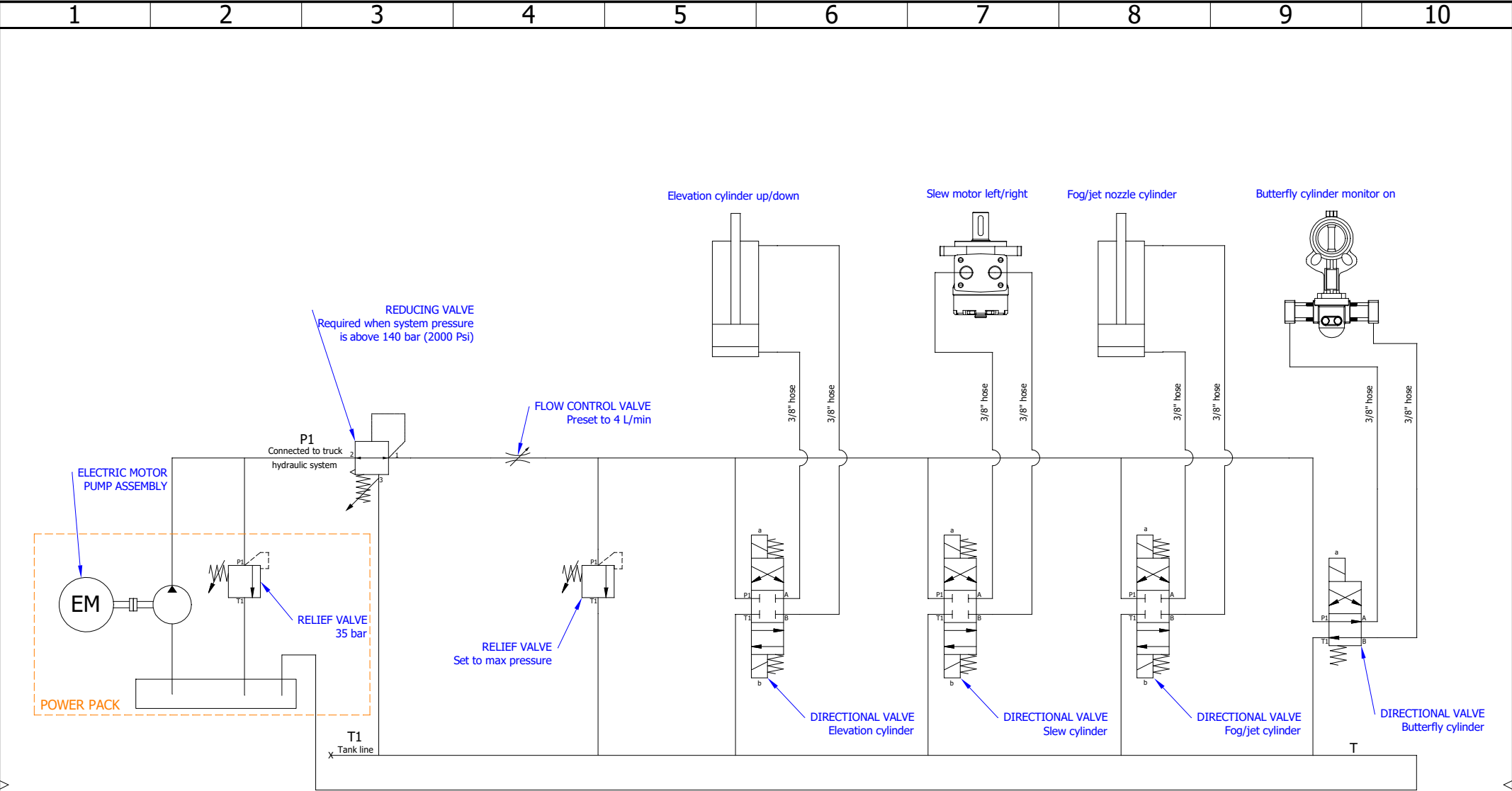
CONTRACT:

RM80-H	
HYD POWER PACK SCHEMATIC (HDY BUTTERFLY)	
STANDARD NOZZLE	
LOCATION:	+L1
Main electrical closet	

				REVISION
				0
0	18/12/2020	AlbertoC		SCHEME
REV.	DATE	NAME	CHANGES	
User data 1			User data 2	09



NOTES: All ports on the manifold are 3/8" BSPP to fit 3/8" hoses Tank line should be connected directly to the tank by a minimum of 1/2" hose P1 = PRESSURE T/T1 = TANK	RM80-H				REVISION	
	HYD POWER PACK SCHEMATIC (AIR BUTTERFLY)				0	
	STANDARD NOZZLE				SCHEME	
					10	
CONTRACT:	LOCATION:	+L1	Main electrical closet	User data 1		User data 2

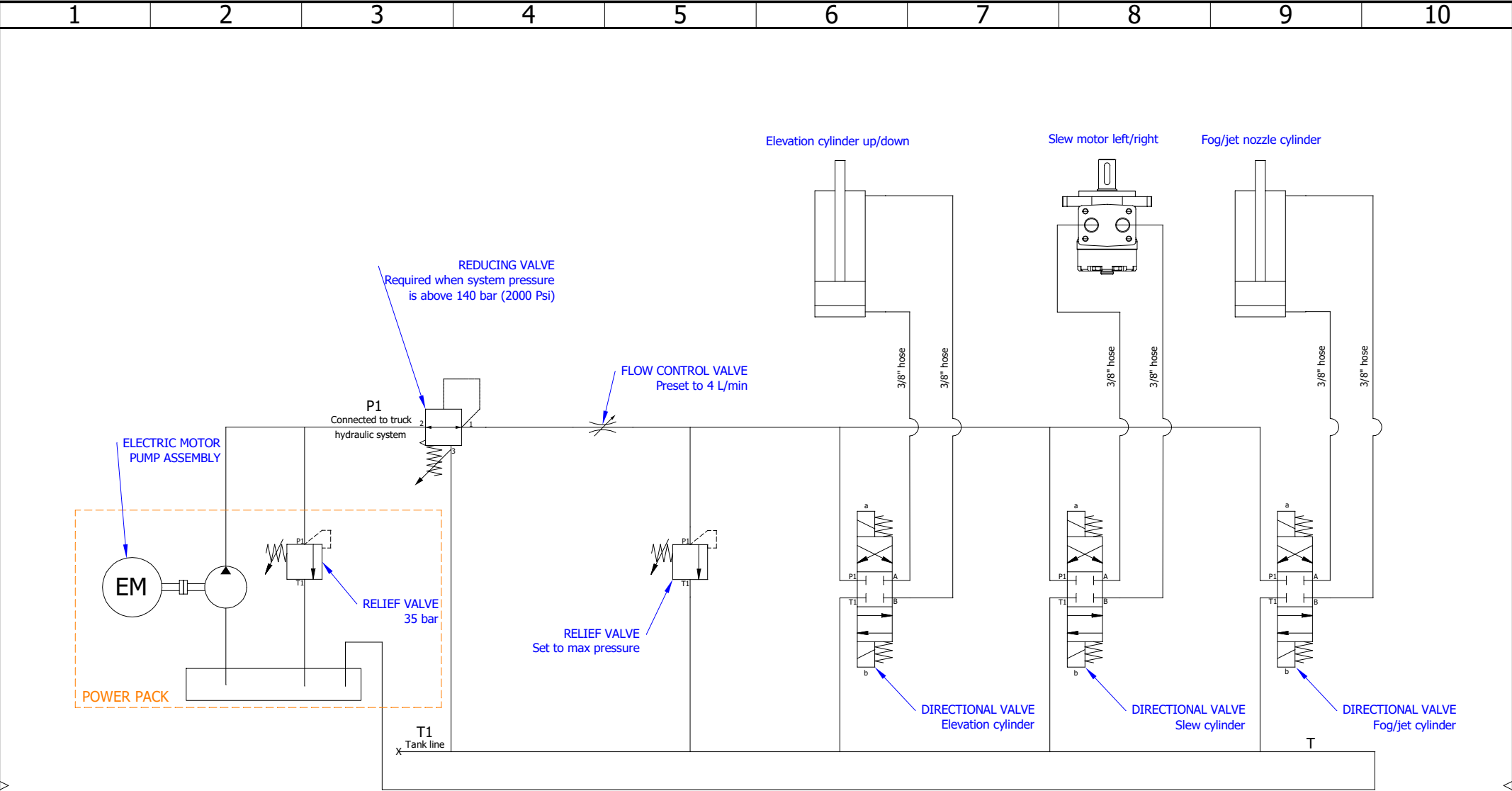


NOTES:
All ports on the manifold are 3/8" BSPP to fit 3/8" hoses
Tank line should be connected directly to the tank by a minimum of 1/2" hose
P1 = PRESSURE T/T1 = TANK

CONTRACT:

RM80-H	
HYD POWER PACK SCHEMATIC (HYD BUTTERFLY) FOG/JET NOZZLE	
LOCATION:	+L1
Main electrical closet	

				REVISION
				0
0	18/12/2020	AlbertoC		SCHEME
REV.	DATE	NAME	CHANGES	
User data 1			User data 2	11



NOTES:
All ports on the manifold are 3/8" BSPP to fit 3/8" hoses
Tank line should be connected directly to the tank by a minimum of 1/2" hose
P1 = PRESSURE T/T1 = TANK

CONTRACT:

RM80-H	
HYD POWER PACK SCHEMATIC (AIR BUTTERFLY)	
FOG/JET NOZZLE	
LOCATION:	+L1
Main electrical closet	

				REVISION
				0
0	18/12/2020	AlbertoC		SCHEME
REV.	DATE	NAME	CHANGES	
User data 1			User data 2	12



Water Cannons (hydraulic information)

It is possible to operate RM80-H at a pressure between 35 bar (500 PSI) and 140 bar (2000 PSI). The hydraulic cylinders, valves and hoses are rated at 140 bar.

RM80-H must not be run above 40 bar (600 PSI). The drive gears used on the slew drive of the RM80-H has a limited torque capability.

Needle valves are fitted to control the overall operating speed of a water cannon movement – left / right / up / down. These valves are fitted directly to the operating hydraulic cylinder / hydraulic motor of the water cannon. The needle valve is fitted to control the finite orifice size of the oil inlet – a smaller orifice = less flow = slower speed of movement.

1 Hydraulic Supply is tapped out of an existing system.

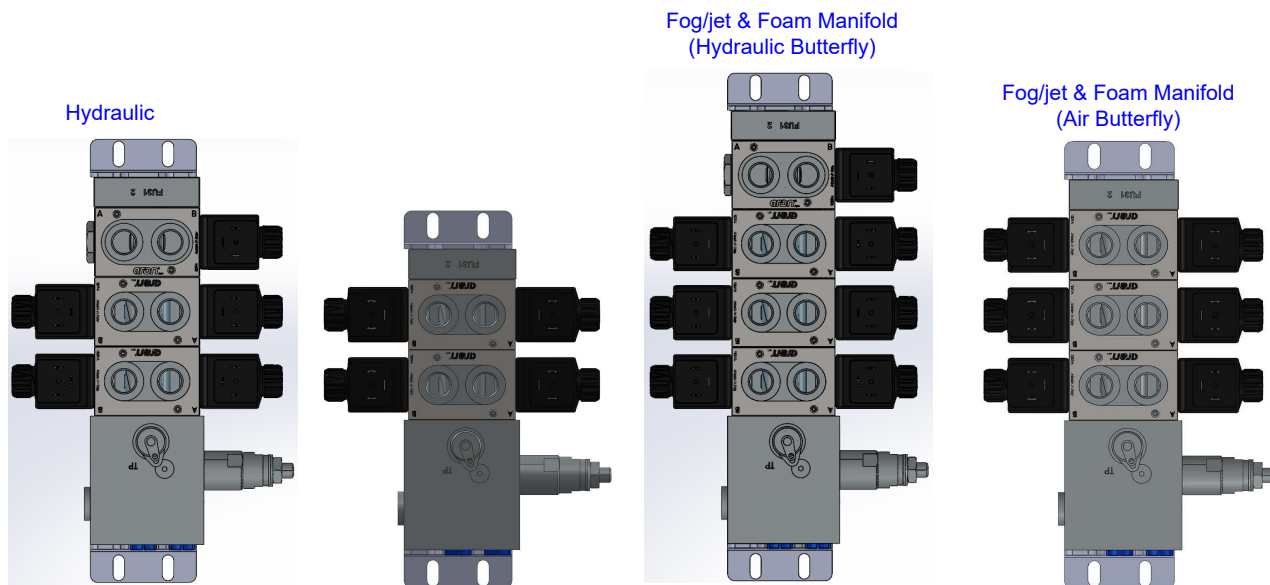
- The pressure must be limited to 35 bar (500 PSI) (See note above).
- Pressure control by a pressure reducing / relieving valve is required if the pressure in the system is going to be above 40 bar.
- Pressure compensated flow control valve is always required to be installed into the system.
- Recommended hose size is 3/8" or larger.
- The tank line from the hydraulic control manifold MUST be piped directly back to the system oil tank separately from the return line of the system. Failure to correctly plumb the return oil hydraulic system MAY result in incorrect operation of the system.

2 Hydraulic Supply is taken from a powerpack supplied by Magnum.

- It is possible to run 1 powerpack with RM80-H and double acting spray valves. Two separate powerpacks will be required if you run double acting spray valves. The reason for this; RM50-H and double acting spray valves can both run at 140 bar (2000 PSI). RM50H is required to run at a maximum pressure of 40 bar and double acting spray valves will require pressure greater than 40 bar. Pressure up to 140 bar may be needed to close the double acting spray valves under certain operating conditions.
- Pressure control will be by means of the relief valve on the powerpack. The relief valve is located inside the oil reservoir.
- Recommended hose size is 3/8" or larger."
- The Tank line from the hydraulic control manifold MUST be piped directly back to the system oil tank separately from the return line of the system. Failure to correctly plumb the return oil hydraulic system MAY result in incorrect operation of the system.



Water Cannon (hydraulic information)



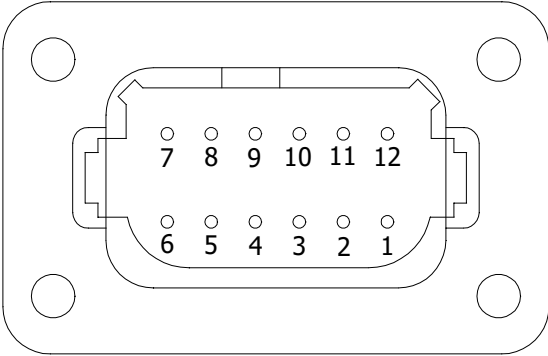
- Double solenoid valves are used on cannon functions and the single solenoid are used to open the butterfly valve.
- It is important when support is required from Magnum that we are supplied with all the part numbers between A & B.
- Magnum uses parallel and series valves. Valves are identified by the part number stamped between the A & B on the valve label. Generally, series valves would be used on a powerpack system and all other systems would use parallel valves. Parallel and series valves must not be used on the same assembly.
- Magnum uses single and double acting valves with 1 or 2 solenoids on them.
- All ports on the manifold assembly are 3/8" BSPP. It is important that the correct parallel fittings are used in the valve ports. If tapered fittings are used, it is possible to distort the valve body resulting in the spool jamming and the valve not working. Part numbers for adapters that suit this style of ports are Ryco S74-0609, Parker Triple-Lok 6-6F40MX-S, Aeroquip GG106-NP0606 or equivalents.
- All valves come standard with manual override. These are located in the centre of the tube holding the solenoid to the valve. It is needed an Allen Key or small star screwdriver in order to operate the valve using the manual override. If a function happens using the manual override and it does not happen with the solenoid, it is quite safe to assume that the coil has failed. Electrical coils are easily tested by a person with electrical knowledge using a multi-meter.
- Contamination can jam a valve. If there is a need to strip and clean a valve, cleanliness is most important. It is recommended that the parts from a valve are cleaned using a suitable solvent and those parts are dried using compressed air. No cloth should be used to dry the valve. The valve should be assembled using clean hydraulic fluid.
- It is important that a torque wrench is used to tighten the tie rods when a manifold bank is assembled. The tightening torque to be used is 5 Nm (44 inch lbs). Over tightening the tie rods will result in the valves jamming and failing to operate.



7. Electric Schematic & Electrical Information

1	2	3	4	5	6	7	8	9	10
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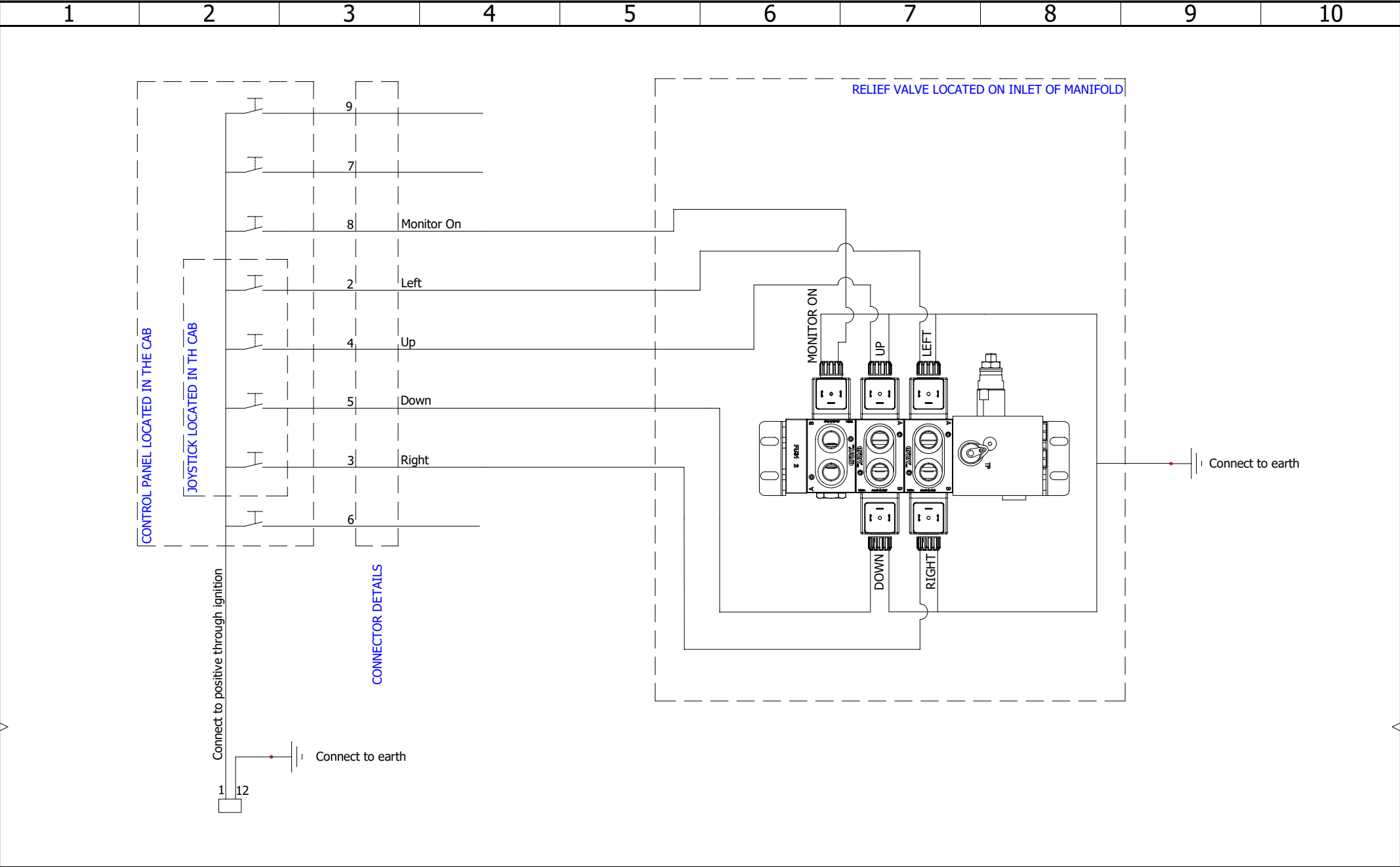
12 PIN DEUSTCH PLUG



OUTPUTS

- Pin 1 Power <+>
- Pin 2 Cannon - Slew Left
- Pin 3 Cannon - Slew Right
- Pin 4 Cannon - Elevation Up
- Pin 5 Cannon - Elevation Down
- Pin 6 Fog (Optional)
- Pin 7 Jet (Optional)
- Pin 8 Monitor Open
- Pin 9 Foam
- Pin 10 Auxiliary
- Pin 11 Auxiliary
- Pin 12 Earth (Yellow / Green)

NOTES: 1. The water cannon is controlled through the Deutsch plug. 2. View is looking onto the plug. The wires from the control box are conected to the back of the plug.	RM80-H 12 PIN DEUTSCH PLUG CONNECTION					REVISION
						0
			0	17/12/2020	AlbertoC	SCHEME
			REV.	DATE	NAME	
CONTRACT:	LOCATION:	+L1	Main electrical closet			13
			User data 1			User data 2



12 core cable between cab and hydraulic valves Typically number 1 wire is connected to number 1 Pin on 12 Pin deustch connector	RM80-H JOYSTICK CONTROL BOX (HDY BUTTERFLY) STANDARD NOZZLE						REVISION	
							0	
				0	17/12/2020	AlbertoC		
				REV.	DATE	NAME	CHANGES	
CONTRACT:	LOCATION:	+L1	Main electrical closet	User data 1			User data 2	SCHEME
								14



RELIEF VALVE LOCATED ON INLET OF MANIFOLD

CONTROL PANEL LOCATED IN THE CAB

JOYSTICK LOCATED IN TH CAB

CONNECTOR DETAILS

Connect to positive through ignition

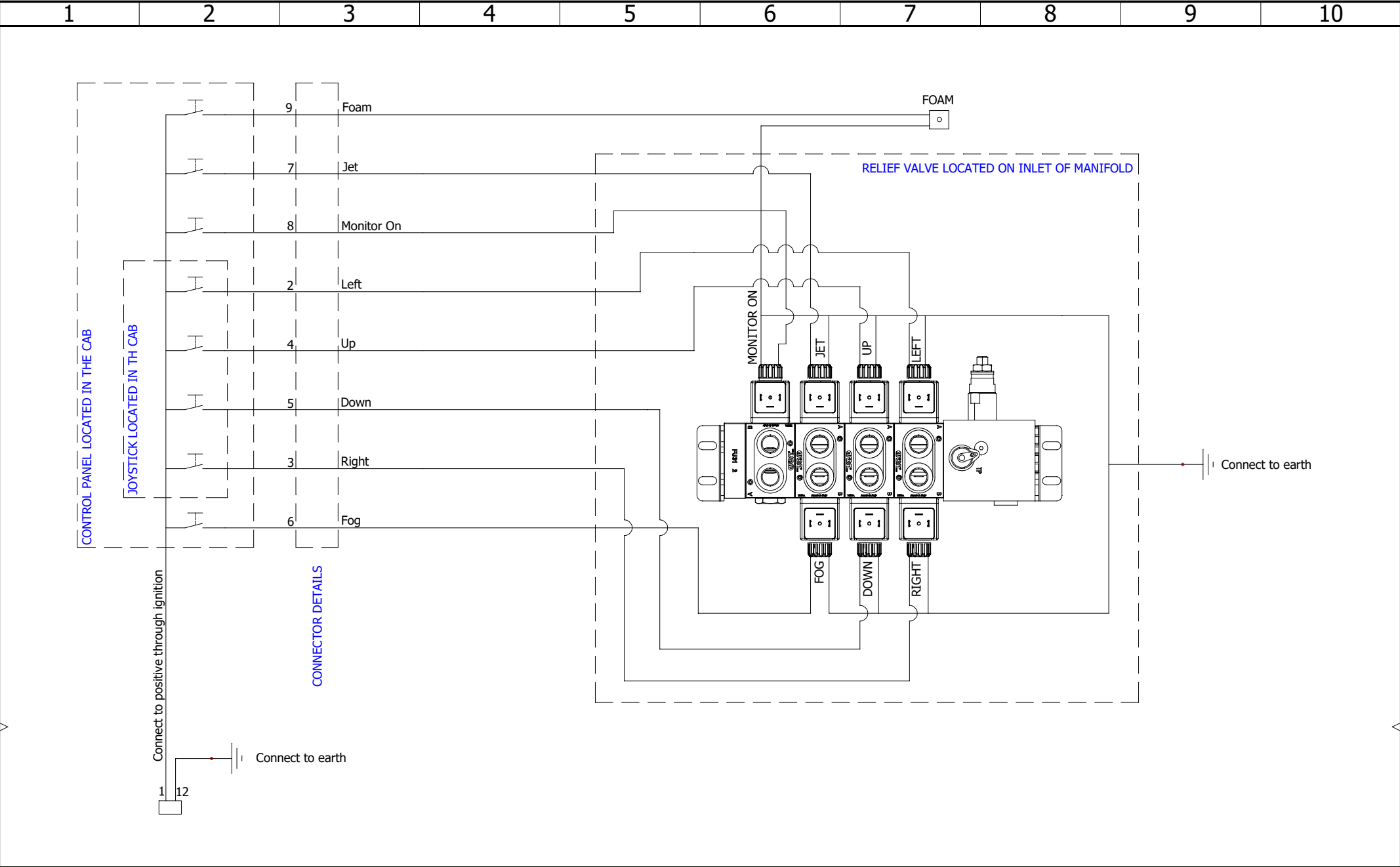
Connect to earth

- Connect to earth

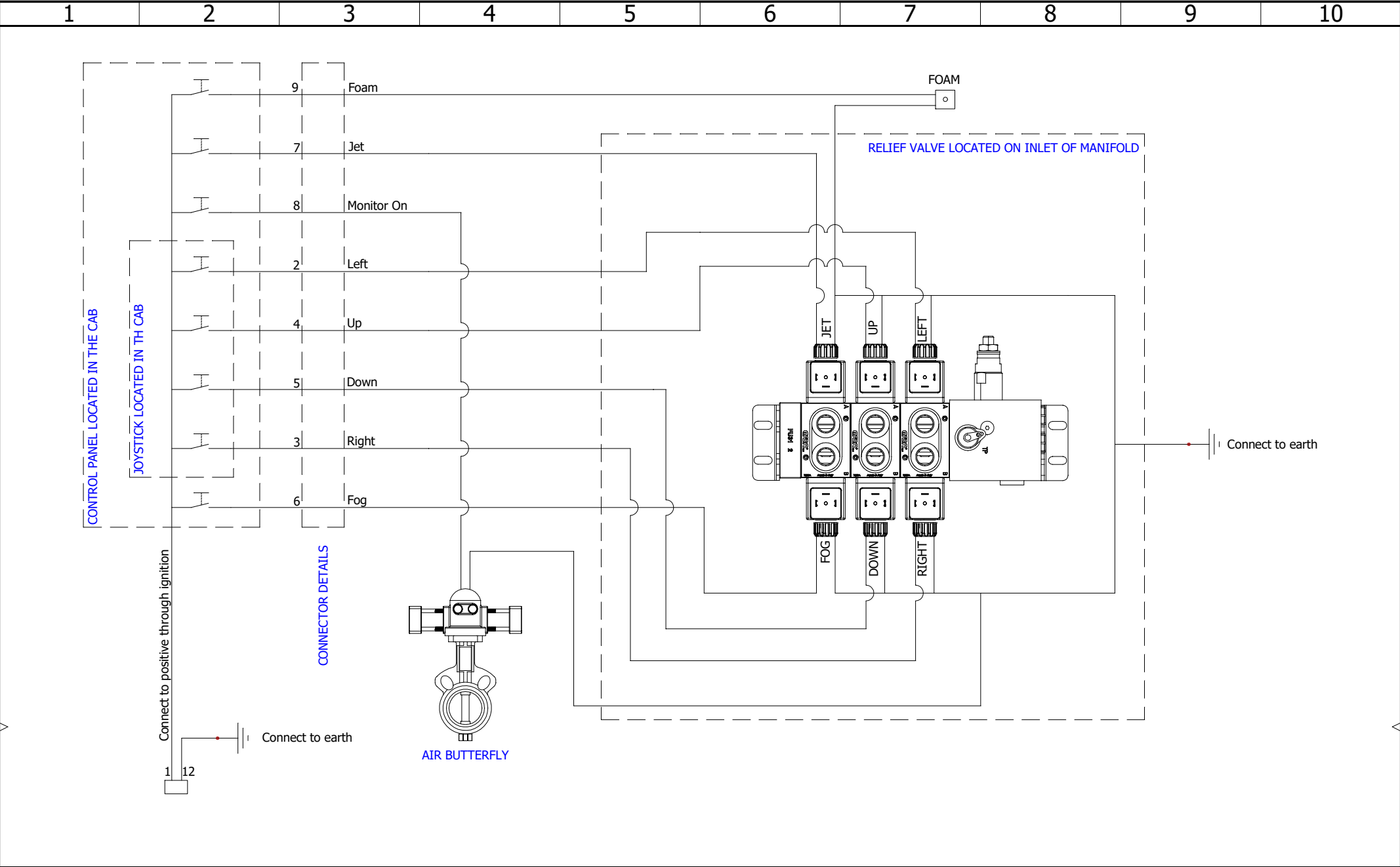
RM80-H
JOYSTICK CONTROL BOX (AIR BUTTERFLY)
STANDARD NOZZLE

Main electrical closet

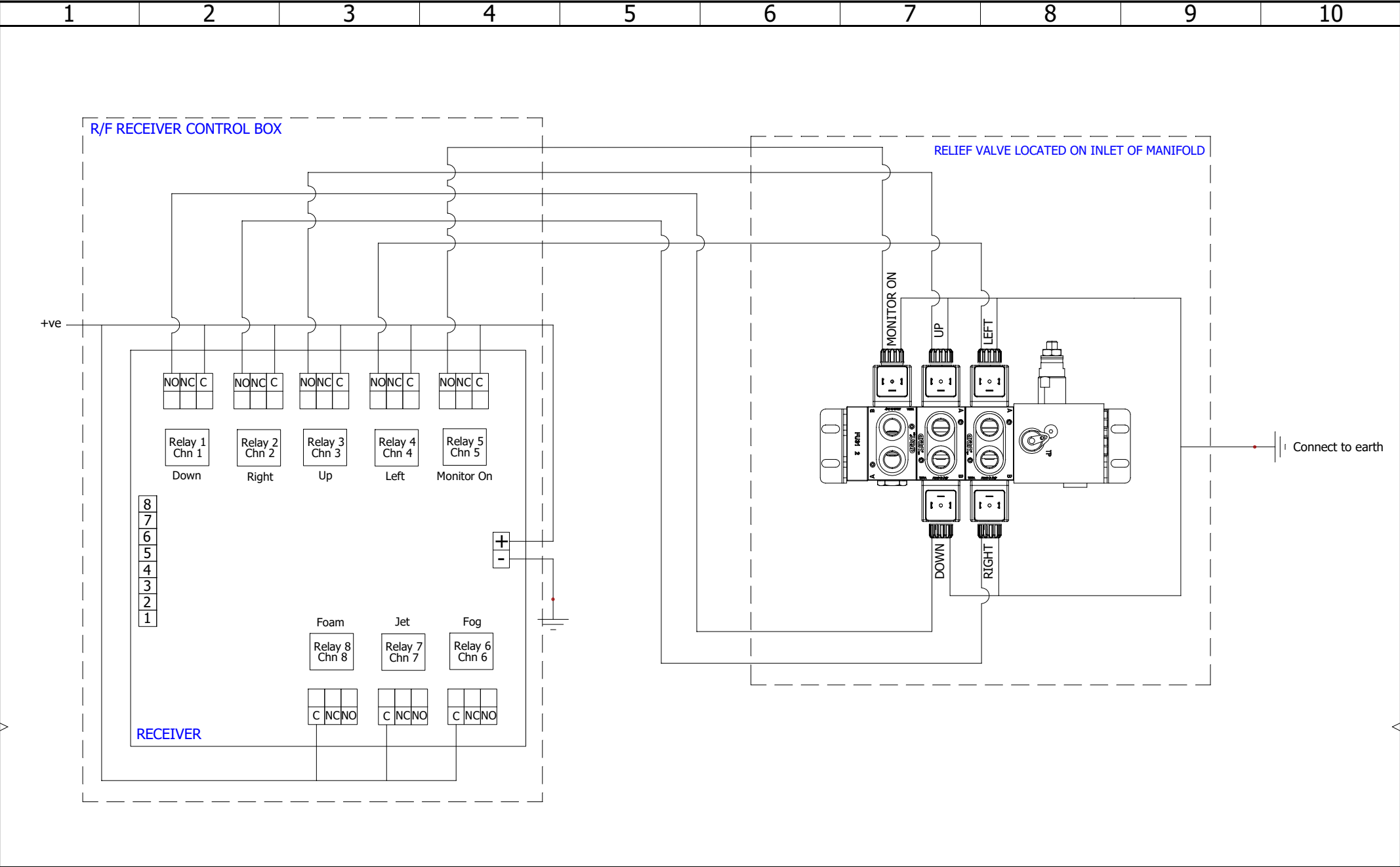
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				0
0	17/12/2020	AlbertoC		
REV.	DATE	NAME	CHANGES	SCHEME
User data 1			User data 2	15



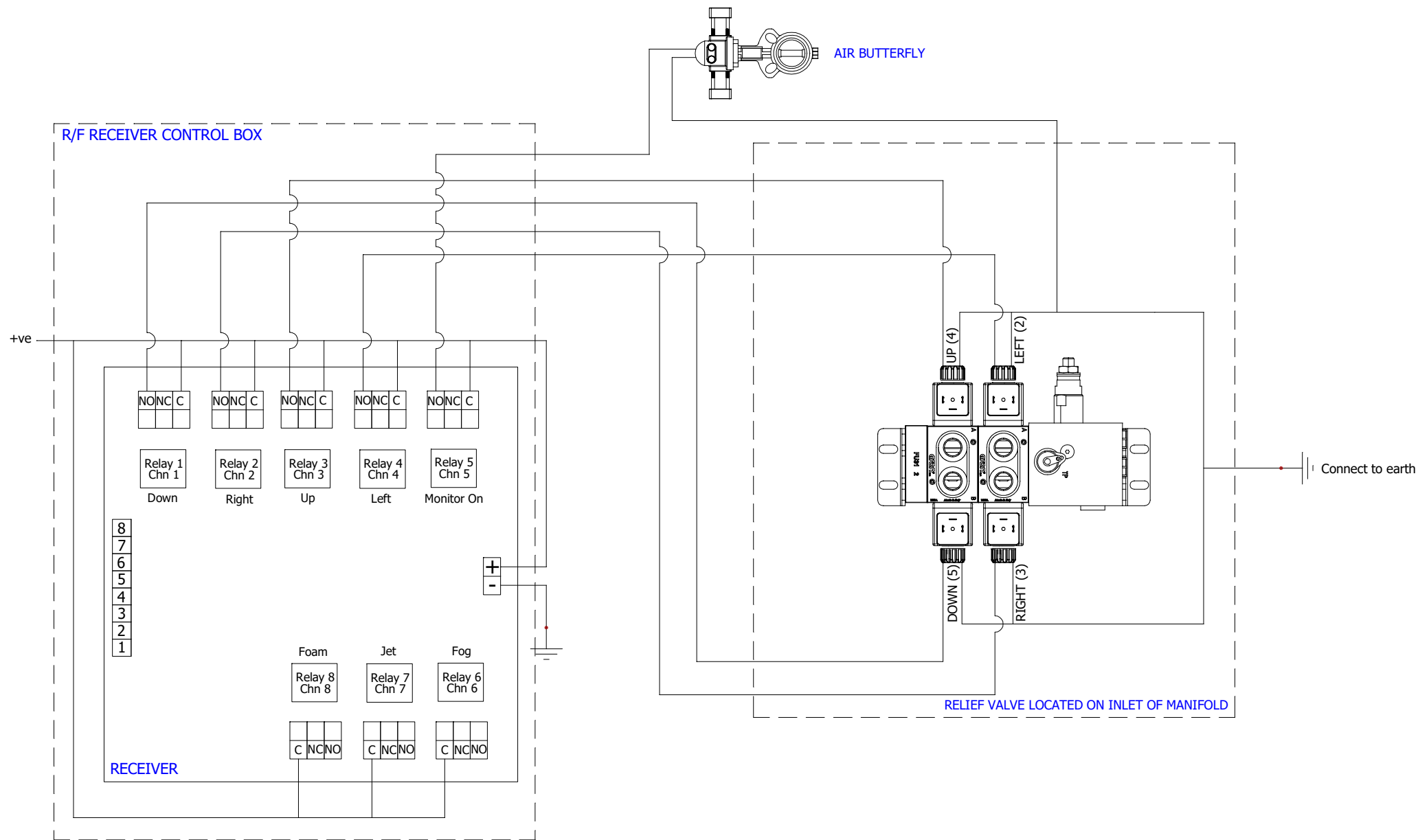
12 core cable between cab and hydraulic valves Typically number 1 wire is connected to number 1 Pin on 12 Pin deustch connector	RM80-H			REVISION	
				0	
	JOYSTICK CONTROL BOX (HYD BUTTERFLY)			SCHEME	
	JOGJET & FOAM			16	
CONTRACT:	LOCATION:	+L1	Main electrical closet	User data 1	
				User data 2	



12 core cable between cab and hydraulic valves Typically number 1 wire is connected to number 1 Pin on 12 Pin deustch connector	RM80-H JOYSTICK CONTROL BOX (AIR BUTTERFLY) JOGJET & FOAM					REVISION 0 SCHEME 17	
			0	18/12/2020	AlbertoC		
			REV.	DATE	NAME		CHANGES
CONTRACT:	LOCATION:	+L1	Main electrical closet			User data 1	User data 2

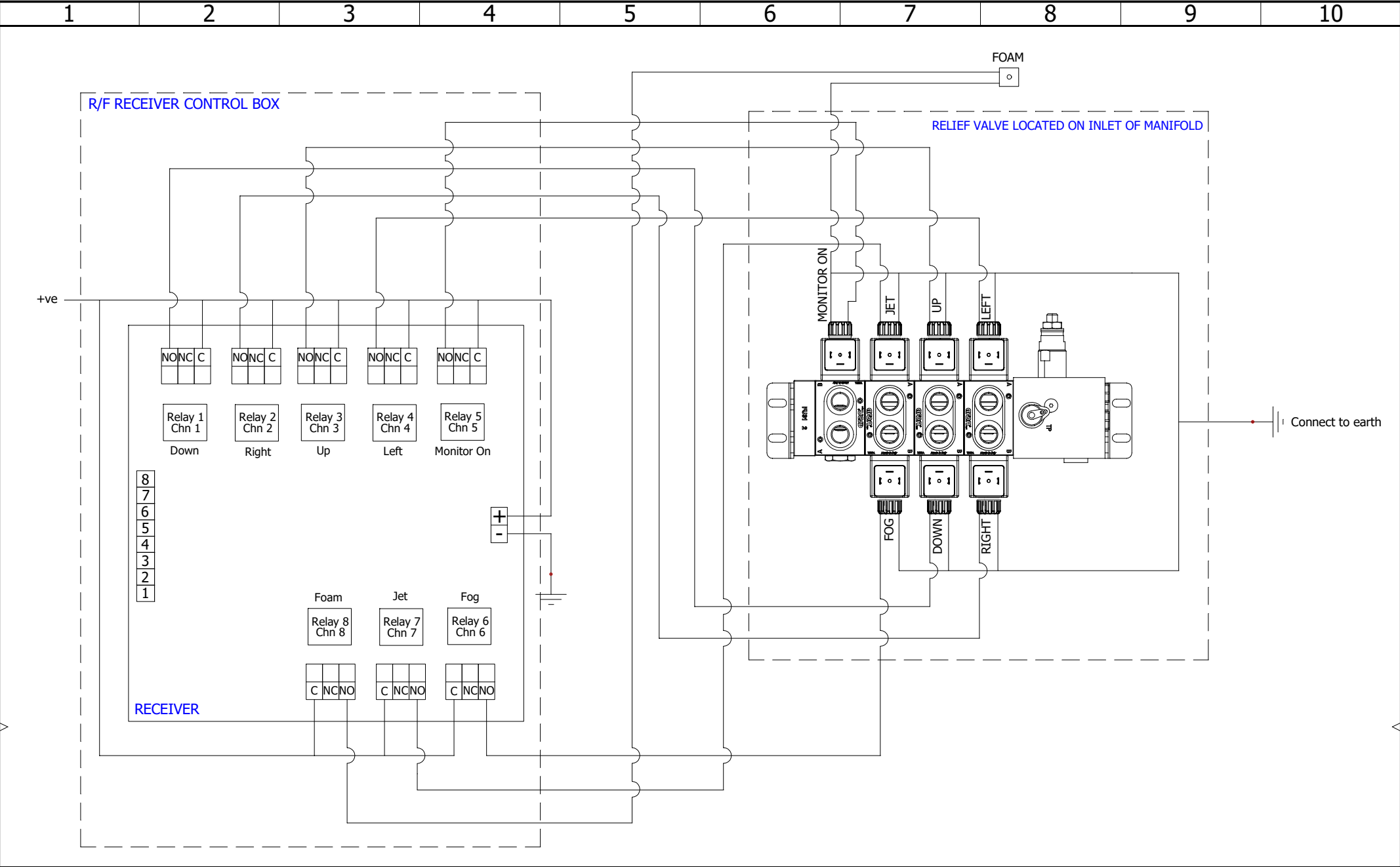


CONTRACT:	RM80-H RF CONTROL (HDY BUTTERFLY) STANDARD NOZZLE			REVISION	
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				SCHEME	
				18	
LOCATION:		+L1		Main electrical closet	
REV.		DATE		NAME	
0		17/12/2020		AlbertoC	
User data 1		User data 2		CHANGES	

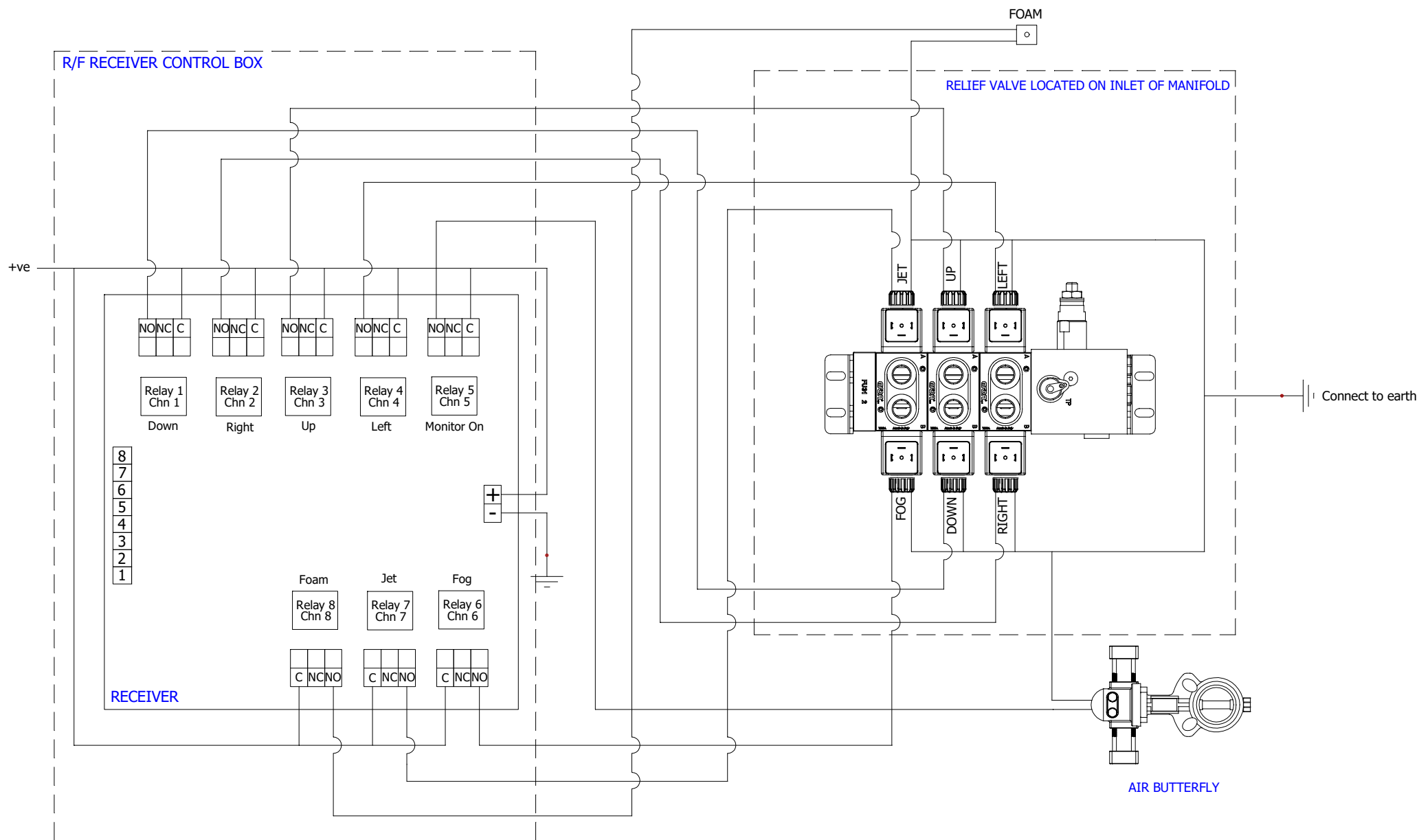


SOLIDWORKS Electrical

	<div> <div>RM80-H</div> <div>RF CONTROL (AIR BUTTERFLY)</div> <div>STANDARD NOZZLE</div> </div>					REVISION
						0
		0	17/12/2020	AlbertoC		SCHEME
		REV.	DATE	NAME	CHANGES	
CONTRACT:	LOCATION: +L1 Main electrical closet	User data 1			User data 2	19



CONTRACT:	RM80-H RF CONTROL JOG/JET (HDY BUTTERFLY)			REVISION	
				0	
				SCHEME	
				20	
LOCATION:	+L1 Main electrical closet			User data 1	
				User data 2	
REV.		DATE	NAME	CHANGES	
0		18/12/2020	AlbertoC		





Date: 21 December 2020

Revision:

Created: Alberto Ceron (Engineer)

Checked: Rocky Di Battista (Operations Manager)

Approved: Sean Haviland (Director)