



# CITY MULTI

## **S & Y Series Commissioning & Maintenance Log**

## **METHOD STATEMENT 1**

### **Pressure Testing Method Statement**

1. When pressure testing, pipe work must not be connected to outdoor unit service valves.
2. 3 steps
  - . 50 PSI (No)           MINIMUM 3 MINUTES
  - . 200 PSI (No)        MINIMUM 3 MINUTES
  - . 300 PSI (No)        MINIMUM 24 HOURS (if R407C)

## **METHOD STATEMENT 2**

### **Triple Evacuation Method Statement - 6 Steps**

1. Evacuate the system to 300 Micron from both service valves. System manifold gauges must not be used to measure vacuum. A Vacuum gauge must be used at all times.
2. Break the vacuum with OFN (oxygen free nitrogen) into "discharge" service valve to 1 bar.
3. Evacuate the system to 500 microns from "suction valve".
4. Repeat step 2 once.
5. Then Evacuate to lowest pressure the pump will achieve.
6. Rise test must then be carried out for a minimum of 30 minutes.

## City Multi Commissioning Report S, Y, SERIES SYSTEMS.

Site Address			
Installing Contractor			
Commissioning Mechanic Commissioning Date			
System Reference Location			

### Before running the system, carry out a full commissioning check of the following points

- 1/ Refrigeration pipework has been pressure tested & evacuated as per method statements 1 & 2 on the inside cover of this book.
- 2/  Correct refrigeration trim charge has been added & service valves open.
- 3/ All Units, remote controllers and centralized controllers in the system have correct address setting before turning on power to outdoor unit.
- 4/ Power supply to all units must be checked prior to switching on. Voltage must be 208-230 volt single phase at indoor units and 208-230 volt 3Phase at outdoor unit. Do not switch the unit on if the voltage is not correct. Once the unit has been switched on the crankcase heater must be left on for a 12 hour period prior to start up. Do not connect M Net (communications) terminals at the outdoor unit during this period. After this 12 hour period has elapsed, turn off isolator for at least 10 minutes, reconnect M Net terminals and then turn isolator back on.
- 5/ All Control cable installation is complete using 16AWG screened (shielded) cable. Screened section of cable is earthed at the outdoor unit only to the unit chassis. (not to the "S" terminal).
6. All condensate drain pipe work must be complete.

Pressure Test Details		Evacuation Details	
Test Pressure		Vacuum Period	
Test Period		Vacuum Achieved	
		Pressure Rise Test	

Commissioning Mechanic comments & points for attention:

Commissioning Mechanic Signature \_\_\_\_\_

## **CERTIFICATE OF CONFORMITY**

We.....

hereby confirm that the system below has been pressure tested and evacuated in accordance with the Mitsubishi Electric Method Statements 1 & 2.

Site Name:-.....

Model Number:-.....

Serial Number:-.....

Unit Location:-.....

Unit Reference:-.....

Pressure Tested to:-.....psi                      for .....Hours

Evacuated to:-.....Microns                      for .....Hours

Mechanic Name:-.....

Mechanic Signature:-.....

Witnessed By:- (Print) .....

Witnessed By:- (Sign) □.....



### System and Installation Status (S and Y Series)

INDOOR UNITS				REMARKS
Model	Unit Address No.			
Serial No.	S W 1 2      S W 1 1      S W 1 4   			
Location	10's      1      R2 ONLY			
Remocon Address No.	Control Volt.			
Inlet	Clg Temp.      DB° C	HTG Temp.      DB° C		
Outlet	Clg Temp.      DB° C	Htg Temp.      DB° C		

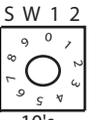
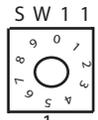
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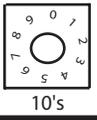
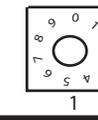
10's

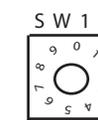
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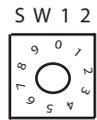
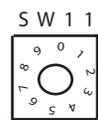
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## System and Installation Status (S and Y Series)

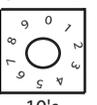
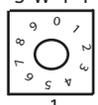
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Voltage	Control Volt.			
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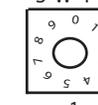
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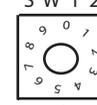
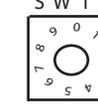
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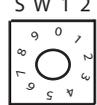
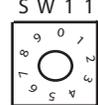
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Serial No.	S W 1 2    S W 1 1    S W 1 4   			
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Inlet	Clg Temp.	DB° C	HTG Temp.		DB° C
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Unit Address No.

SW 1 2    SW 1 1    SW 1 4





10's                  1                  R2 ONLY

INDOOR UNITS				REMARKS	
Model					
Serial No.					
Location					
Remocon Address No.					
Voltage					
Inlet	Clg Temp.	DB° C	HTG Temp.		DB° C
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Unit Address No.

SW 1 2    SW 1 1    SW 1 4





10's                  1                  R2 ONLY

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Serial No.					
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Inlet	Clg Temp.	DB° C	HTG Temp.		DB° C
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Unit Address No.

SW 1 2    SW 1 1    SW 1 4





10's                  1                  R2 ONLY

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Unit Address No.

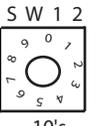
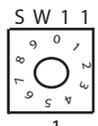
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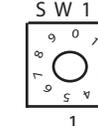


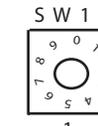


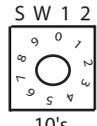
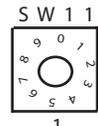
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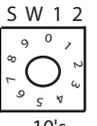
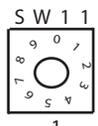
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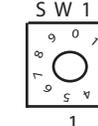
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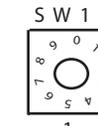
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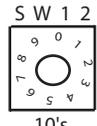
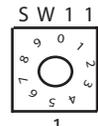
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### Additional Refrigerant Charge and Total Pipe Run for Y series

**Note: Calculate by using the liquid line lengths only**

Liquid pipe length (m) Totals	
<input type="checkbox"/>	
<input type="checkbox"/>	
<b>L<sub>1</sub> (1/2")</b> <input type="checkbox"/>	<b>Metres</b>
<b>L<sub>2</sub> (3/8")</b> <input type="checkbox"/>	<b>Metres</b>
<b>L<sub>3</sub> (1/4")</b> <input type="checkbox"/>	<b>Metres</b>

Total System Pipe Length
<b>L<sub>1</sub> + L<sub>2</sub> + L<sub>3</sub> + L<sub>4</sub> + L<sub>5</sub></b>
_____ Metres

Additional amount (kg)  $0.12 \times L_1$   $0.06 \times L_2$   $0.024 \times L_2$

=  +  +

Total capacity of indoor units connected	Additional
- 160	1.5 kg
161 - 330	2.0 kg

### Index Capacity Calculation

Indoor Unit	Unit Size	Indoor Unit	Unit Size
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
<b>Total</b>		<b>Total</b>	

Total System Index =  $\frac{\text{Total of Unit model} \times 100}{\text{Outdoor Unit model}}$  =  %

**Additional Refrigerant Charge and Total (Liquid line) Pipe Run for PUMY-125VM2**  
**Note: No additional charge is needed up to 50 meters of pipe run for PUMY-125.**  
**Use the following formule to calculate additional charge, do not charge any additional refrigerant if the answer is negative.**

Liquid pipe length (m) Totals		Total System Pipe Length
L <sub>1</sub> (3/8")	Metres	L <sub>1</sub> + L <sub>2</sub>
L <sub>2</sub> (1/4")	Metres	_____ Metres

Additional amount (kg) =  $0.06 \times L_1$  +  $0.024 \times L_2$  - 3.0 KG

	=		+		-	3.0 KG
--	---	--	---	--	---	--------

### Index Capacity Calculation

Indoor Unit	Unit Size
1	
2	
3	
4	
5	
6	
7	
8	
<b>Total</b>	

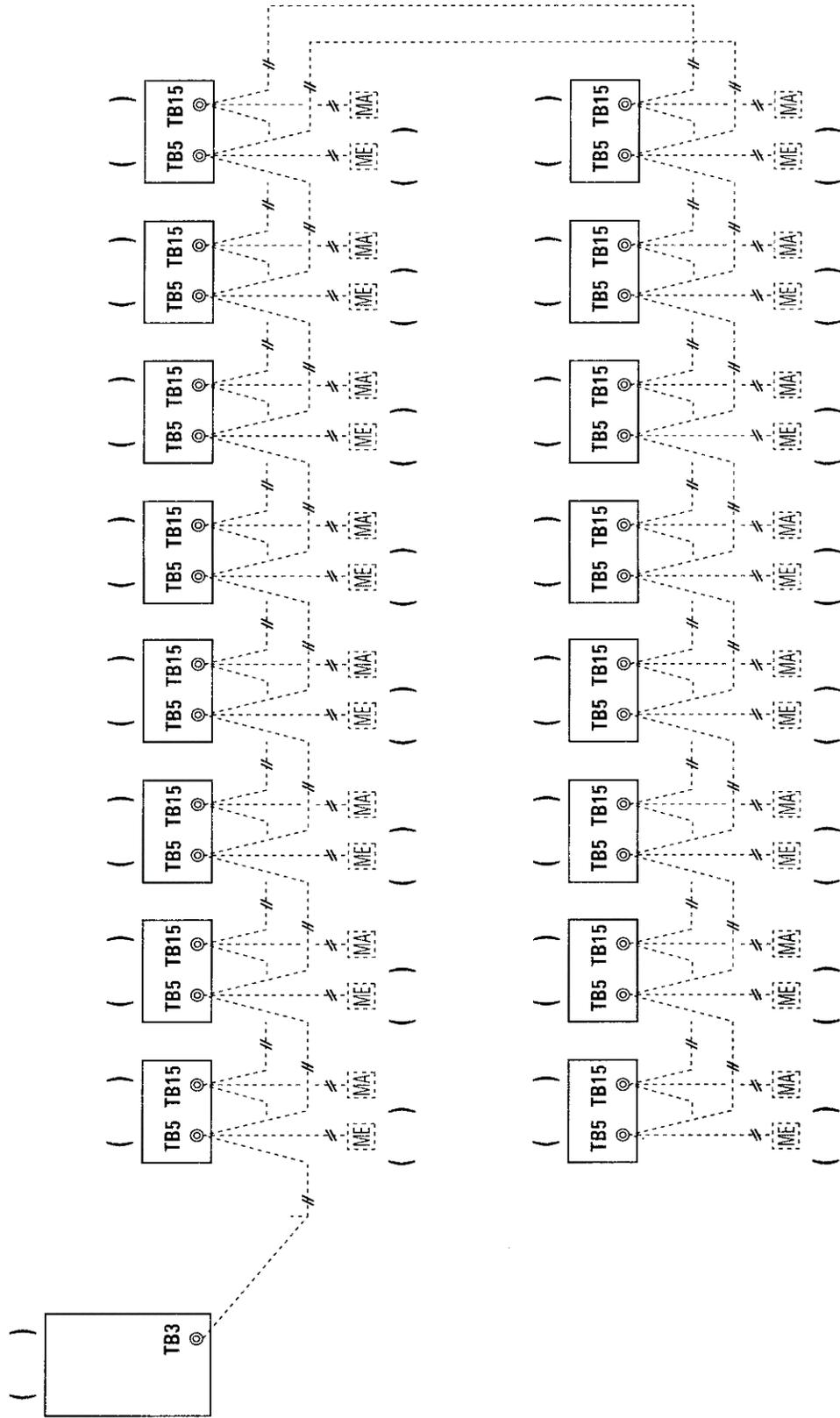
**Total System Index =  $\frac{\text{Total of Unit Sizes}}{\text{Outdoor Unit Size}} \times 100 =$**     %

**System Wiring Diagram**

Complete this System Wiring Diagram with drawing lines between units and remote controllers as actual wiring and filling in unit address in the brackets

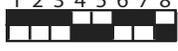
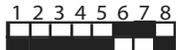
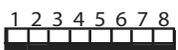
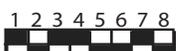
**Model:** \_\_\_\_\_

**Serial No.:** \_\_\_\_\_





**Outdoor Unit operating reading using dipswitch SW1 function )  
(5HP, PUMY - P125VM )**

SYMBOL	LOCATION	STANDARD READING		READING		Dipswitch SW1
	OUTDOOR UNIT	Cooling	Heating	C	H	12345678
<b>63 HS</b>	High Pressure	Faults At 450psig				1 2 3 4 5 6 7 8 
<b>TH1</b>	Compressor Discharge Temperature	95 °C	86 °C			1 2 3 4 5 6 7 8 
<b>TH2</b>	Suction Temperature	3 °C	< -2 °C			1 2 3 4 5 6 7 8 
<b>SHd</b>	Discharge Super Heat Temperature	35 °C	-			1 2 3 4 5 6 7 8 
<b>SC</b>	Outdoor Subcooling	11 °C	-			1 2 3 4 5 6 7 8 
<b>SV1</b>	High Low Bypass Solenoid	LED 4 ON:OPEN    OFF:CLOSE				1 2 3 4 5 6 7 8 
<b>TH6</b>	Ambient Air Temperature	27 °C	-1 °C			1 2 3 4 5 6 7 8 

\* All figures on this page are for reference point only and not actual

## Periodical Inspection (S, Y,)

Equipment	Parts	Service Cycle							Detail of service	Trouble when service is neglected	
		1 mth	6 mth	1 yr	2 yrs	3 yrs	4 yrs	5 yrs			
									<b>Detail of checking</b>	<b>Service methods</b>	
Common Parts	Isolators Printed Circuit Boards								Visual Inspection	Tighten terminals s necessary on isolators and printed circuit boards	Nuisance tripping or failure of components
City Multi Indoor Unit	Casing/Panels (appearance)								Visual check for damage and dust appearance	Clean with neutral detergent solution. Re-paint where required	
	Frame								Visual check for rust/insulation	Repair if rust generation is serious. Repair insulation material	Unit corrosion by rust. Condensation by improper insulation
	Fan								Visual check for run out of balance and dust attached	Clean off dust as necessary to negate possibility of fan running out of balance	Premature failure of fan
	Motor		Ω	Ω	Ω	Ω	Ω	Ω	Visual check on wiring. Insulation resistance check to be carried out annually	Measure insulation resistance - more than 1MΩ	Possible failure of motor
	Heat Exchange								Check for clogging by dust check for leaks	Clean air inlet side as necessary	Lowered cooling/ heating capacity due to low air flow rate
	Drain Pan / Condense Line								Check for obstructions and free flow of water	Clean as necessary to eliminate obstructions and check condition of drain pan	Overflow by clogged drain pipe
Efficient Filter	High								Check for clogging by dust	Replace filter	Lowered cooling / heating capacity due to low air flow rate
	Temperature readings								Measure air on and air off	Place temperature probe in return and supply air of unit	
City Multi Outdoor Unit	Frame								Visual check for rust / insulation	Repair if rust generation is serious. Repair insulation material	Unit corrosion by rust. Condensation by improper insulation
	Fan								Visual check for run out of balance and dust attached	Clean off dust as necessary to negate possibility of fan running out of balance	Premature failure of fan
	Motor	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Visual check on wiring. Insulation resistance check to be carried out annually	Measure insulation resistance - more than 1MΩ	Possible failure of motor
	Heat Exchanger □								Check for clogging by dust □	Clean heat exchange coils	Nuisance tripping and lowered performance
	Compressor	Ω							Check for high / low pressure. Measure insulation resistance Check Audibly Compressor Noise	Measure insulation resistance -more than 1MΩ check Compressor run hours using switch SW1	Generation of abnormal sound. Compressor burnout / lock
	Operational Readings								Make note of operational readings in Test Cool/Heat	Use of dipswitch SW1 Funtional refer to service handbook)	
	Magnetic contactor								Check for loose terminal connections	Re-tighten if loose Remove dust	Improper contact. Nuisance tripping and premature failure of components
	Electrical Connections								Check all electricals terminals, Mains, comms etc	Re-tigten if loose	
	External panel								Visual check for damage and rust. Wax panels periodically	Repair with paint as necessary	

**Note: - Frequency of maintenance may increase dependant upon the equipment's environment. Failure to maintain the system to the above minimum recimmendations could result in the warranty becoming null and void.**



## City Multi Maintenance Sheets

TASKS	OUTDOOR UNIT	
	FREQUENCY	TICK BOX OR RECORD READING
Inspect And Clean Heat Exchanger	Every Visit	
Check For Refrigerant Leaks	Every Visit	
Check Integrity Of Pipework And Lagging	Every Visit	
Check All Electrical Connections Including Mains Isolator	Every Visit	
Check Unit Operation Voltage And record	Every Visit	
Check Unit Operation Current And record	Every Visit	
Check Compressor Run Hours And record *	Every Visit	
Measure Compressor Insulation Resistance	Every Visit	
Check discharge Temperature And Record *	Every Visit	
Check Suction Temperature And Record *	Every Visit	
Check Discharge Pressure And Record *	Every Visit	
Check Suction Pressure And Record *	Every Visit	
Check Operation Of Crankcase Heater	Every Visit	
<b>ADDITIONAL NOTES AND TASKS CARRIED OUT</b>		

\* Tasks with this symbol will be able to obtained by the use of Dispswitch SW1

Mitsubishi Electric recommends that the frequency of maintenance visits be no less than two per annum. Frequency of maintenance may increase dependant upon the equipment's environment.