

TIMESHEET REPORT

CUSTOMER NAME MAINTENANCE SOLUTIONS		SITE CONTACT (OPERATOR RESPONSIBLE FOR F-GAS COMPLIANCE) ROB NORMAN - ENGINEERING MANAGER			SHEET NUMBER 08434
SITE NAME & ADDRESS (PLANT OWNER F-GAS) HEMEL ONE, BOUNDARY WAY, HEMEL HEMPSTEAD, HERTFORDSHIRE. HP2 7YU		ENGINEER MATE	STEVE ORLANDO D. HICKEY C.ORLANDO		CLIENT ASSET NUMBER 00928
REASON FOR VISIT	QUOTED REPAIRS - SYSTEM 4	MANUFACTURER	DELONGHI	MODEL	FE/SRAT/B 2404
JOB NUMBER	J/N:2172. O/N:PO18166	SERIAL No.	A898202034/A	YEAR INSTALLED	01/01/2000
PLANT LOCATION	ROOF CHILLER PLANT AREA	REFRIGERANT TYPE	R407C	TOTAL REF. CHARGE	200.0 KG
PLANT REFERENCE	BASE BUILD CHILLER 2 (928)	REFRIGERANT GWP	1774	IND. REF SYS. CHARGE	50+50+50+50 KG
LOADS SERVED	BASE BUILD COMFORT COOLING LOADS	EQUIV. TONNES CO2E	354.8	FGAS LEAK CHECK FREQ.	HALF YEARLY

WORK CARRIED OUT:
 ATTENDED SITE RECOVERED REFRIGERANT FOR RE-USE, DOCUMENTED IN F-GAS LOG; ATTACHED.

INSTALLED SUPPORTING UNISTRUT FOR THE RELOCATION OF THE PRV VALVE FROM BENEATH THE COMPRESSOR LOCATION TO THE DISCHARGE LINE ENTERING THE CONDENSER. REMOVED OLD PRV AND BLANKED WITH 1/2 PLUG. INSTALLED REMOTE PIPEWORK AND INSTALLED SINGLE PORT PRV WITH LOCKABLE ISOLATION VALVE. REMOVED DRIER CORES AND REPLACED SIGHT GLASS ASSEMBLY. REPLACED DRIER CORES AND RE-ASSEMBLED. REPLACED CONTROL LINE FROM SUCTION LINE TO EXTERNALLY EQUALIZED TX VALVE PORT.

CARRIED OUT INITIAL LEAK TEST, ALL OK, NO LEAKS FOUND. CARRIED OUT 24 HOUR PRESSURE TEST ALL OK. PUT SYSTEM ON EVACUATION OVERNIGHT. CARRIED OUT FULL VACUUM RISE TEST, NO DISCERNIBLE LOSS IN VACUUM.

CHARGED SYSTEM WITH RECOVERED REFRIGERANT, CHARGED TO LIQUID LINE SUBCOOLING. ONLY 46KG OF THE 50KG NAMEPLATE REQUIRED.

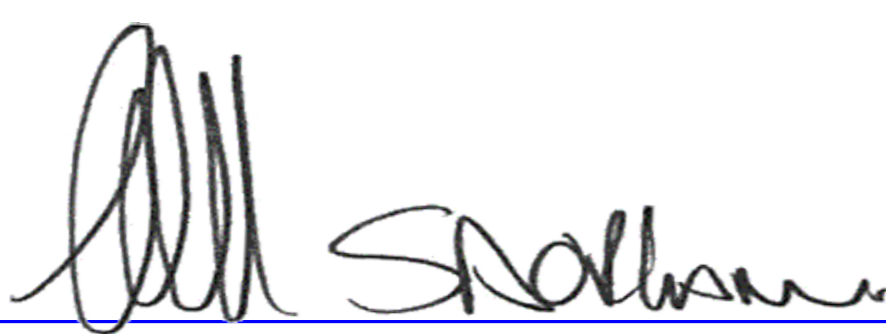
TEST RUN AND RE-COMMISSIONED ALL OK.

CARRIED OUT RUST TREATMENT TO DRIER CAN AND ASSOCIATED FIXINGS. REMOVED CONDENSER HX MESH & CHEMICALLY / DEEP CLEANED CONDENSER. LEFT MESH OFF.

LEFT SYSTEM RUNNING & AVAILABLE.

ENGINEERS TIME ON SITE & TRAVEL									MATERIALS USED	
DAY	DATE	START	FINISH	TRAVEL	TOTAL	COMPLETE Y/N	MILEAGE	No. ENG	QUANTITY	DESCRIPTION
MON									1	CASTEL LOCKABLE ISOLATION VALVE & PRV
TUES	02/07/2019					N		2	1	BRAZING CONSUMABLES
WED	03/07/2019					N		2	1	UNISTRUT & COPPER CONSUMABLES
THUR	04/07/2019					N		2	1	10MM BOLTS, NUTS & CONSUMABLES
FRI	05/07/2019					Y		2	1	LARGE RECEIVER & 2 OFN NITROGEN
SAT									3	DRIER CORES & SIGHT GLASS
SUN									1	PAINT & RUST PREP. CONSUMABLES

CUSTOMER TO SIGN FOR ENGINEERS TIME ON SITE

ENGINEER SIGNATURE: 

CUSTOMERS SIGNATURE: _____

F-GAS QUALIFICATION: C&G 2079 PART 1

CUSTOMER NAME: ROB NORMAN

SIGNATURE DATE: 05/07/2019

CUSTOMERS JOB TITLE: ENGINEERING MANAGER

ADDITIONAL WORKS RECOMMENDED / REQUIRED:

* EXPANDED LIQUID REFRIGERANT LINE INTO EVAPORATOR FLANGE HEAVILY RUSTED. REPLACEMENT FLANGE RECOMMENDED ASAP.

ISO9001:2008. CUSTOMER SATISFACTION: 1 = UNSATISFIED 2 = BELOW AVERAGE 3 = MET EXPECTATION 4 = ABOVE AVERAGE 5 = EXCELLENT

CUSTOMER COMMENTS ABOUT PERFORMANCE ON THIS JOB / CONTRACT:

SYSTEM TEST CERTIFICATES

CUSTOMER NAME MAINTENANCE SOLUTIONS		SITE CONTACT (OPERATOR RESPONSIBLE FOR F-GAS COMPLIANCE) ROB NORMAN - ENGINEERING MANAGER		SHEET NUMBER 08434
SITE NAME & ADDRESS HEMEL ONE, BOUNDARY WAY, HEMEL HEMPSTEAD, HERTFORDSHIRE. HP2 7YU		ENGINEER STEVE ORLANDO	F-GAS QUALIFICATION C&G 2079 PART 1	CLIENT ASSET NUMBER 00928
REASON FOR VISIT QUOTED REPAIRS - SYSTEM 4	MANUFACTURER DELONGHI	MODEL	FE/SRAT/B 2404	
JOB NUMBER J/N:2172. O/N:PO18166	SERIAL No. A898202034/A	YEAR INSTALLED	01/01/2000	
PLANT LOCATION ROOF CHILLER PLANT AREA	REFRIGERANT TYPE R407C	QUANTITY (KG)	200.0 KG	
PLANT REFERENCE BASE BUILD CHILLER 2 (928)	CLG LOAD SERVED BASE BUILD COMFORT COOLING LOADS			

STRENGTH TEST CERTIFICATE

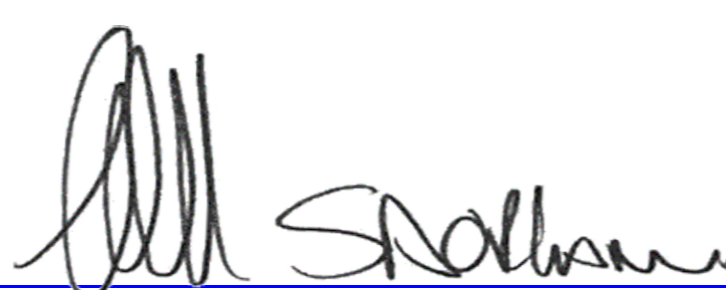
START OF STRENGTH TEST

DATE _____ TIME _____ PRESSURE _____ MOP _____

THE ABOVE SYSTEM / COMPONENT HAD A WITNESSED OFN NITROGEN STRENGTH TEST APPLIED AT 1.5 TIMES MOP (MAXIMUM OPERATING PRESSURE), MAINTAINED FOR 30 SECONDS.

INSTRUMENT USED: ITE HIGH SIDE GAUGE. CALIBRATED: 16/01/2019.

INSTRUMENT SERIAL: ORAC-147. CERTIFICATE No. CM254079. NEXT DUE 16/01/2020.

ENGINEERS SIGNATURE 
F-GAS QUALIFICATION C&G 2079 PART 1
SIGNATURE DATE 05/07/2019

CUSTOMERS SIGNATURE _____
PRINT NAME ROB NORMAN
CUSTOMERS JOB TITLE ENGINEERING MANAGER

PRESSURE TEST CERTIFICATE

START OF PRESSURE TEST

DATE 03/07/2019 TIME 15:30 PRESSURE 11.5 BarG AMBIENT 27.5 Deg C

END OF PRESSURE TEST

DATE 04/07/2019 TIME 15:00 PRESSURE 11.5 BarG AMBIENT 27.0 Deg C

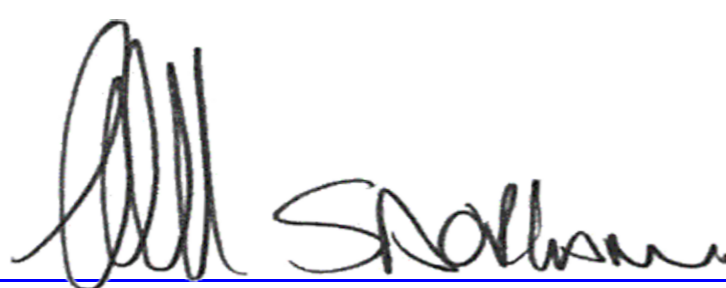
TEMPERATURE COMPENSATED NITROGEN PRESSURE FIGURE

CALCULATED CORRECTED END PRESSURE USING START PRESSURE AND START AMBIENT TEMPERATURE RELATIVE WITH FINISH AMBIENT TEMP. 11.5 BarG

THE ABOVE SYSTEM HAD A WITNESSED OFN NITROGEN PRESSURE TEST APPLIED, WHICH WAS MAINTAINED FOR THE PERIOD STATED ABOVE AND HAS BEEN PROVED TO REMAIN LEAK TIGHT

INSTRUMENT USED: CPS PROSET HIGH SIDE GAUGE. CALIBRATED: 17/01/2019.

INSTRUMENT SERIAL: ORAC-045. CERTIFICATE No. CM254088. NEXT DUE 17/01/2020.

ENGINEERS SIGNATURE 
F-GAS QUALIFICATION C&G 2079 PART 1
SIGNATURE DATE 05/07/2019

CUSTOMERS SIGNATURE _____
PRINT NAME ROB NORMAN
CUSTOMERS JOB TITLE ENGINEERING MANAGER

VACUUM TEST CERTIFICATE

START OF VACUUM TEST

DATE 10/06/2019 TIME 08:15 VACUUM 0.9 mBar

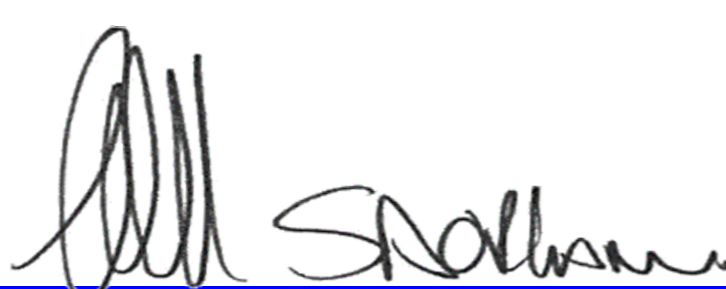
END OF VACUUM TEST

DATE 10/06/2019 TIME 10:30 VACUUM 1.1 mBar

THE ABOVE SYSTEM HAD A WITNESSED VACUUM PULLED DOWN TO 4 mBar AND MAINTAINED FOR A PERIOD OF 2 HOURS WITHOUT MORE THAN A 1.0 mBar RISE IN PRESSURE.

INSTRUMENT USED: TESTO. 2906782 CALIBRATED: 08/01/2019.

INSTRUMENT SERIAL: ORAC-169. CERTIFICATE No. 22733149. NEXT DUE 08/01/2020.

ENGINEERS SIGNATURE 
F-GAS QUALIFICATION C&G 2079 PART 1
SIGNATURE DATE 05/07/2019

CUSTOMERS SIGNATURE _____
PRINT NAME ROB NORMAN
CUSTOMERS JOB TITLE ENGINEERING MANAGER

F-GAS & BOTTLE LOG

CUSTOMER NAME MAINTENANCE SOLUTIONS				SITE CONTACT (OPERATOR RESPONSIBLE FOR F-GAS COMPLIANCE) ROB NORMAN - ENGINEERING MANAGER			SHEET NUMBER 08434
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				QUALIFICATION C&G 2079 PART 1			
MANUFACTURER DELONGHI	MODEL FE/SRAT/B 2404	SERIAL A898202034/A	DATE INSTALLED 01/01/2000	PLANT REFERENCE BASE BUILD CHILLER 2 (928)			
REFRIG TYPE R407C	TOT. REFRIG CHR.G. 200.0 KG	INDIVIDUAL SYS. REF. CHARGE 50+50+50+50 KG	REFRIG GWP 1774	EQUIV. TONNES CO2e 354.8	F-GAS LEAK CHECK FREQ. HALF YEARLY	CLG LOAD SERVED BASE BUILD COMFORT COOLING LOADS	

VIRGIN REFRIGERANT BOTTLE LOG (KG)

DATE RECEIVED	DELIVERY NOTE NUMBER	BOTTLE NUMBER	SUPPLIER	REFRIGERANT	BOTTLE TYPE	GROSS WEIGHT	TARE WEIGHT	NET WEIGHT	NET USED	DATE RETURNED	RETURNS NOTE NUMBER

RECOVERY BOTTLE LOG (KG)

DATE RECEIVED	DELIVERY NOTE NUMBER	BOTTLE NUMBER	SUPPLIER	REFRIGERANT	RECOVERY TYPE	TARE WEIGHT	RECOVERED NET	RECOVERED USED	GROSS WEIGHT	DATE RETURNED	WASTE TRANSFER NOTE
03/06/2019	83865273	LM01728	WOLSESLEY	R407C	RECEIVER	30.8 KG	46.0 KG	46.0 KG			
03/06/2019	83865273	FW001372	WOLSESLEY	R407C	RECEIVER	30.8 KG	2.0 KG	0.0 KG			

F-GAS REFRIGERATION LOG RECORD

REFRIGERANT ADDITIONS			
DATE	ENGINEER	AMOUNT ADDED (KG)	REASON FOR ADDITION
05/07/2019	STEVE ORLANDO	46.0 KG	SYS4 - RETURNED CORRECT CHARGE AS PER SUBCOOLING AFTER COMPLETION OF WORKS

REFRIGERANT REMOVALS			
DATE	ENGINEER	AMOUNT REMOVED (KG)	REASON FOR REMOVAL
02/07/2019	STEVE ORLANDO	48.0 KG	SYS4 - REMOVED REFRIGERANT FOR PRV WORKS

REFRIGERANT LEAK TEST			
DATE	ENGINEER	TEST RESULT	FOLLOW UP ACTIONS REQUIRED
05/07/2019	STEVE ORLANDO	PASS	SYS4 - CARRIED OUT FULL PRESSURE & VACUUM RISE TEST
05/07/2019	STEVE ORLANDO	PASS	SYS4 - CARRIED ELECTRONIC REFRIGERANT LEAK TEST ON COMPLETION OF WORKS

FOLLOW UP ACTIONS			
DATE	ENGINEER	RELATED TO TEST ON	ACTIONS TAKEN

TESTING AUTOMATIC LEAK DETECTION SYSTEM (IF FITTED)			
DATE	ENGINEER	TEST RESULT	COMMENTS

LOG - SITE PICTURES

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SITE PICTURE LOG

