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JETMASTER (VIC) PTY LTD



**THERMAL CLEARANCE TESTING OF THE VISIONLINE
TAURUS FREE-STANDING APPLIANCE**

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By:
Garry W. Mooney



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Revision Details

Revision	Date	Comments
0	20/02/2020	Preliminary report – awaiting payment and engineering drawings of appliance
1	28/05/2020	Issue of NATA endorsed test report

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THERMAL CLEARANCE TESTING OF THE VISIONLINE TAURUS FREE-STANDING APPLIANCE

Report

The VisionLINE Taurus Free-Standing appliance installed with a Wildcat 6” triple flue kit with 8” decromesh casing was tested in one position in a manner conforming to joint Australian/New Zealand Standard 2918:2018, Appendix B.

A minimum 440mm deep x 1040mm wide x 100mm thick floor protector (Hebel Block) must be used under the appliance, 1230mm wide x 600mm deep x 42mm thick floor protector (compressed board) must be used in front of the appliance base when installing the appliance (see joint AS/NZS 2918:2018 3.3.2). The floor protector should extend 600mm in front of the appliance door and be placed centrally in the 1230mm width. The Thermal resistivity of the floor protector is 0.26m².K/W for 150mm thick Hebel blocks and 0.08m².K/W for 6mm thick compressed cement sheets.

The VisionLINE Taurus Free-Standing solid fuel appliance installed with a Wildcat 6” triple flue kit with 8” decromesh casing conforms to the requirements of the joint AS/NZS 2918:2018 Standard, Appendix B.

The appliance and flue system were tested at the following clearances:

Position A – Parallel position

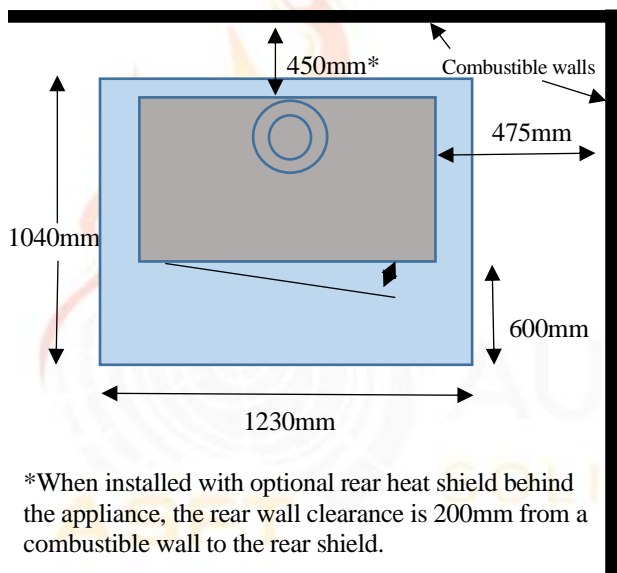




Figure 1 – Clearance Diagram

Signed		Approved	
Name	Garry W. Mooney	Name	Steve Marland
Title	<i>Technical Officer</i>	Title	<i>Managing Director – Australian Solid Fuel Testing</i>
Date	28/05/2020	Date	28/05/2020

1. INTRODUCTION

Thermal Clearance testing of the VisionLINE Taurus appliance and flue system took place on 17 & 18 February 2020 at the Australian Solid Fuel Testing Laboratory located at 3 Garden Street, Morwell, Victoria. The testing was performed by Mr G.W. Mooney and Mr S. Marland.

2. PROCEDURE

Testing was conducted as per Appendix B of AS/NZS2918:2018, Hot sites were located with the aid of an infra-red thermometer. Thermocouple tips were stapled onto the test surfaces, with black tape over the first 100 mm to facilitate consistent and accurate recording of temperatures.

Thermocouple positions are shown in the table below:

Position A – Parallel Position

Thermocouple No.	Position	Thermocouple No.	Position
1	Floor - 1300mm in front of centre	16	Floor – 150mm RHS of centre
2	Floor – 1200mm in front of centre	17	Floor – 300mm RHS of centre
3	Floor - 1050mm in front of centre	18	Floor – 450mm RHS of centre
4	Floor – 900mm in front of centre	19	Ceiling Ring – Inner front
5	Floor – 750mm in front of centre	20	Ceiling Ring – 25mm in front
6	Floor – 600mm in front of centre	21	Ceiling Ring – Inner side
7	Floor – 450mm in front of centre	22	Ceiling Ring – 25mm to side
8	Floor – 300mm in front of centre	23	Rear wall – 680mm from corner, 1160mm above the floor
9	Floor – 150mm in front of centre	24	Rear wall – 874mm from corner, 490mm above the floor
10	Floor – Centre of flue	25	Rear wall – 1013mm from corner, 834mm above the floor
11	Floor – 150mm behind centre	26	RHS wall, 988mm from corner, 477mm above the floor
12	Floor – 300mm behind centre	27	RHS wall, 506mm from corner, 623mm above the floor
13	Floor – 450mm LHS of centre	28	RHS wall, 381mm from corner, 812mm above the floor
14	Floor – 300mm LHS of centre	29	Rear wall – 853mm from corner, 833mm above the floor
15	Floor – 150mm LHS of centre	30	Ambient temperature

TABLE 1

3. TEST FUEL

Testing was conducted with Pinus Radiata as the test fuel which had a moisture content of 11.3% moisture. Each firewood piece was 300mm x 80mm x 40mm.

4. FLUE SYSTEM

The flue system used during testing was a Wildcat 6” triple flue kit with 8” decromesh casing was supplied by Wildcat Industries Pty Ltd. This flue system has not been tested to joint AS/NZS 2918:2018, Appendix F. The flue height was 4.6 ± 0.1 m from the floor protector. Appendix 1 shows details of the flue system.

5. RESULTS

5.1 High Fire Test

The appliance was fired in accordance with Section B9.1 of AS/NZS2918;2018. The level of fuel was maintained between 50-75% of the full volume level of the fuel chamber during the High Fire test.

The average fuel load for initiating the High Fire tests was 10.0kg with an average refuelling rate of 1.4kg/10 minutes.

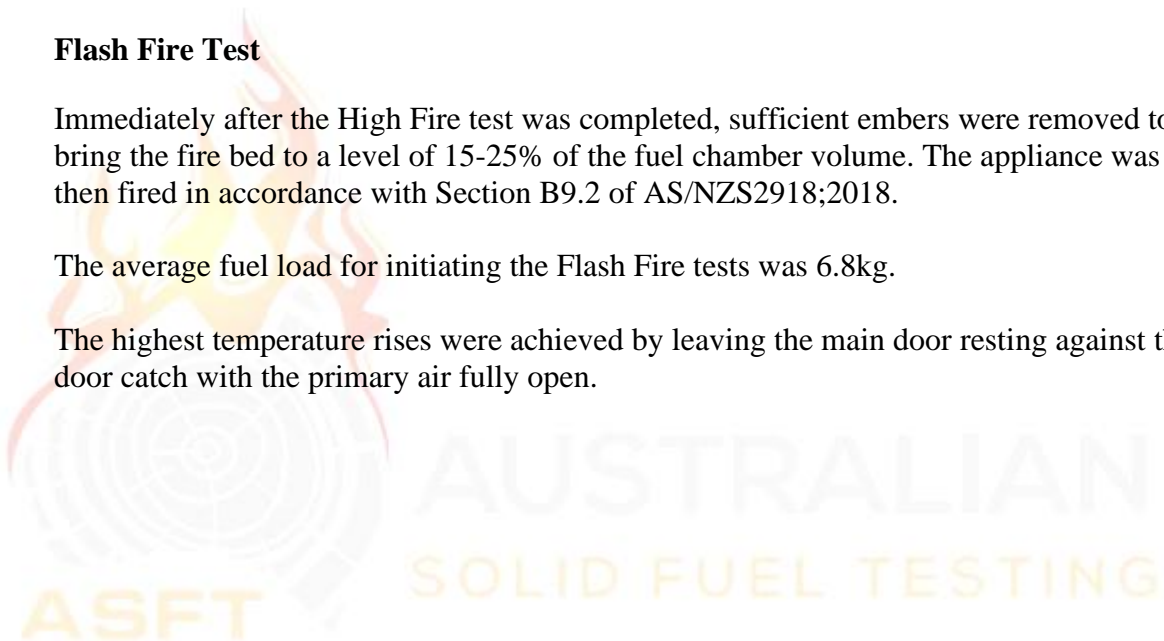
During High Fire testing it was found that the highest surface temperatures occurred when the primary air control of the appliance was fully open.

5.2 Flash Fire Test

Immediately after the High Fire test was completed, sufficient embers were removed to bring the fire bed to a level of 15-25% of the fuel chamber volume. The appliance was then fired in accordance with Section B9.2 of AS/NZS2918;2018.

The average fuel load for initiating the Flash Fire tests was 6.8kg.

The highest temperature rises were achieved by leaving the main door resting against the door catch with the primary air fully open.



5.3 Ambient and Test Surface Temperatures

The Tables below show the Ambient temperatures and test surfaces temperatures during testing of the appliance and flue combination:

Ambient Temperature Range °C

Position	High Fire	Flash Fire
A	16.0 – 27.2	21.0 – 28.2

Maximum Surface Temperature Rise above Ambient - Position A

Position	Thermocouple Number	High Fire Test (°C)	Thermocouple Number	Flash Fire Test (°C)
Floor	7	62.4	7	61.3
Ceiling	19	47.7	19	52.6
Rear Wall	29	61.9	29	60.2
Side Wall	26	60.6	26	62.8

5.4 Uncertainty of Measurement Statement

5.5.1 The uncertainty of distance measurement for determining clearance distances was not greater than ± 3 mm.

5.5.2 The uncertainty of temperature measurement during the entire test period was a maximum of $\pm 2^\circ\text{C}$ at a 95% confidence level.

6. APPLIANCE CONSTRUCTION DETAILS

The test results reported directly relate to the appliance/flue system tested. The details of the appliance given in this section include features which may affect safety clearances. Any change in the design/construction of this appliance or flue may invalidate this report. Below are the constructions details of the appliance:

Appliance Model Name: VisionLINE Taurus		Serial No: H01343
Manufacturer: Jetmaster		
Overall Height: 560mm	Overall Depth: 440mm	Overall Width: 1040mm
Top Plate Width: 1040mm	Top Plate Depth: 440mm	Top Plate Thickness: 6mm
Usable Firebox Height: 290-322mm	Width: 721-913mm	Depth: 244mm
Usable Firebox Volume: 80.53 Litres		
Firebox Material Type/Seam Fully Welded: Fully welded 5mm steel		
Firebrick Type: 20-25mm Ceramic		
Main Door Opening Height: 285mm	Width: 830mm	
Door Height: 520mm	Width: 1000mm	Depth: 35mm
Door glass Height: 280mm	Width: 800mm	
Primary Air Location: Inside firebox: Rear 28×6mm holes at 25mm from base of firebox (these were blocked during testing) Front base of firebox 6 slots 54×4mm plus air wash (40 x 4mm dia holes added to rear of airwash chamber)		
Dimension of Primary Air: 2 triangle slots at 60 x 12-22mm + 2 rectangle slots @ 60 x 9mm		
Area of Primary (mm ²): 3264mm²		
Secondary/Tertiary Air Location: Rear of firebox below baffle		
Dimension of Secondary/Tertiary Air: 89 holes @ 4.0mm diameter fed by 2 slots with 5600mm² in total		
Area of Secondary/Tertiary Air (mm ²): 1118.6mm²		
Baffle Plate size: 680-895×268×30mm in two pieces		
Flue Dimensions: 152mm		
Spigot Dimensions:	OD: 146mm	ID: 139mm
Spigot to Rear of Appliance: 123mm		
Rear Internal to External Heat Shield: 16mm		
Side Internal to External Heat Shield: 15-145mm		
Heat Shield Material Type: Rear 1.5mm, Side 6mm steel		
Optional Rear Heat Shield: 1047×560×1.2mm, 60mm from rear of appliance		
Water Heater Fitted: N/A		
Fan Location/Speeds: N/A		
Catalytic Combustor fitted: N/A		
Grate: N/A		
NOTE: Accuracy of measurement is ±5% of the measured value		

7. CONCLUSION

The VisionLINE Taurus Free-Standing appliance installed with a Wildcat 6” triple flue kit with 8” decromesh casing, conforms to the requirements of Australian/New Zealand Standard 2918:2018, with respect to floor, ceiling, side wall and rear wall surface temperatures, when tested in the test positions shown in Figure 1 of this report in accordance with Appendix B of AS/NZS2918;2018.



APPENDIX 1:

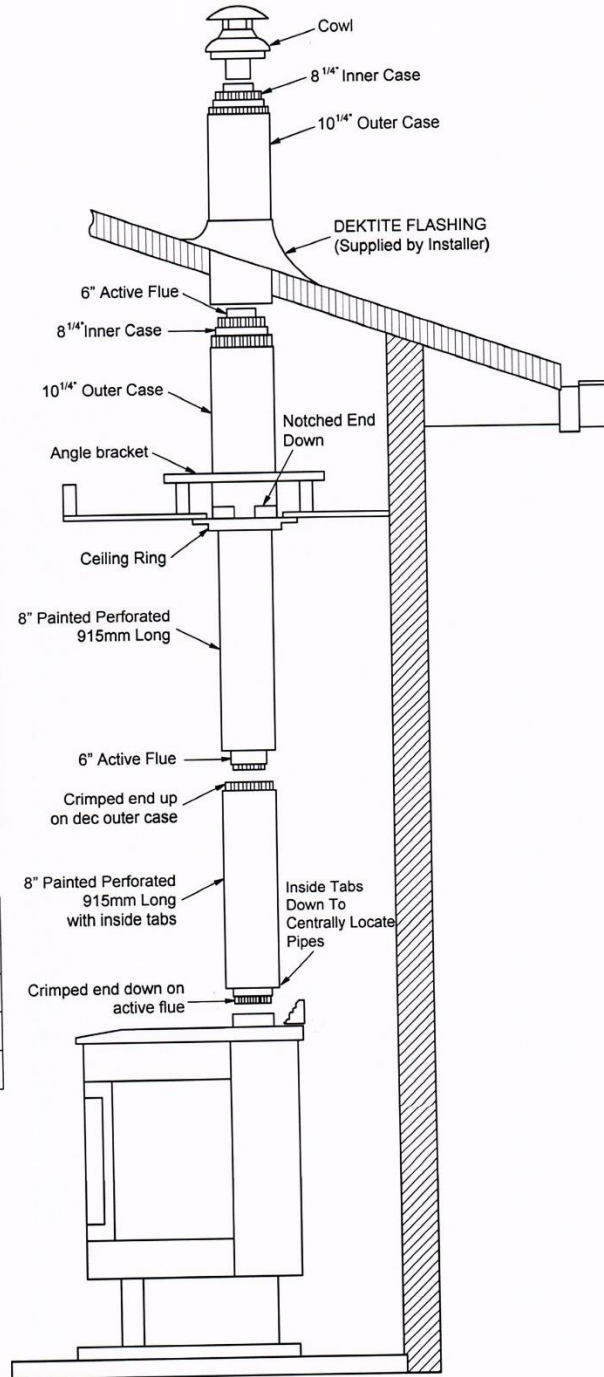


**Freestanding Triple Skin
 Flue Kit Perforated
 6" - 8" - 10" System**

QTY	DESCRIPTION
4	6" Stainless Steel Inner Flue 915mm Long
1	7 3/4" Painted Perforated 915mm Long
1	7 3/4" Painted Perforated 915mm Long with in-tabs
2	8" Galvanized Inner Flue Casing 915mm Long
1	10" Galvanized Notched Outer Flue Casing 915mm Long
1	10" Galvanized Outer Flue Casing 915mm Long
1	Cowl
1	Ceiling Ring
2	75 x 25 Angles 915mm Long
1	Installation Guide

CARTON SPECIFICATIONS	
Height	460mm
Width	460mm
Length	1150mm
Weight	32kg

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 PH: 03 9706 5544
 ABN 84 112 862 718
www.wildcatindustries.com.au



MUST ONLY BE INSTALLED BY AN AUTHORISED PERSON IN COMPLIANCE WITH AS 2918

Freestanding 10 Triple Skin Instruction page