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AgustaWestland Products

SERVICE BULLETIN

N° 139-656

DATE: September 8, 2021

REV. : /

TITLE

ATA 21 – INSTALLATION OF ENVIRONMENTAL CONTROL SYSTEM (ECS) HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTER

REVISION LOG

First Issue

1. PLANNING INFORMATION

A. EFFECTIVITY

AW139 helicopter S/N 31762.

B. COMPLIANCE

At Customer's option.

C. CONCURRENT REQUIREMENTS

N.A.

D. REASON

This Service Bulletin is issued in order to provide the necessary instruction on how to perform the ECS HEPA filter installation P/N 3G2150P01611.

E. DESCRIPTION

This Service Bulletin allows for the installation of HEPA (High Efficiency Particulate Air) filters on the ends of the ECS system ducts in the passenger cabin and in the pilot cockpit. HEPA air filtration media are engineered for use in a wide range of absolute clean air applications. Specially engineered to provide the highest available efficiency at a minimal resistance to air flow.

F. APPROVAL

The technical content of this Service Bulletin is approved under the authority of DOA nr. EASA.21.J.005. For helicopters registered under other Aviation Authorities, before applying the Service Bulletin, applicable Aviation Authority approval must be checked within Leonardo Helicopters customer portal.

EASA states mandatory compliance with inspections, modifications or technical directives and related time of compliance by means of relevant Airworthiness Directives.

If an aircraft listed in the effectivity embodies a modification or repair not LHD certified and affecting the content of this Service Bulletin, it is responsibility of the Owner/Operator to obtain a formal approval by Aviation Authority having jurisdiction on the aircraft, for any adaptation necessary before incorporation of the present Service Bulletin.

G. MANPOWER

To comply with this Service Bulletin three (3) MMH are deemed necessary.

MMH are based on hands-on time and can change with personnel and facilities available.

H. WEIGHT AND BALANCE

WEIGHT (Kg)		0,128
	ARM (mm)	**MOMENT (Kgmm)**
LONGITUDINAL BALANCE	3357	429,696
LATERAL BALANCE	0	0

I. REFERENCES

1) PUBLICATIONS

DATA MODULE		DESCRIPTION	PART
DM01	39-A-00-20-00-00A-120A-A	Helicopter on ground for a safe maintenance	-

2) ACRONYMS & ABBREVIATIONS

AMDI	Aircraft Material Data Information
AMP	Aircraft Maintenance Publication
AR	As Required
DM	Data Module
DOA	Design Organization Approval
EASA	European Aviation Safety Agency
ECS	Environmental Control System
HEPA	High Efficiency Particulate Air
ITEP	Illustrated tool and equipment publication
LH	Left Hand
LHD	Leonardo Helicopters
MMH	Maintenance Man Hours
RH	Right Hand
SB	Service Bulletin

3) ANNEX

N.A.

J. PUBLICATIONS AFFECTED

N.A.

K. SOFTWARE ACCOMPLISHMENT SUMMARY

N.A.

2. MATERIAL INFORMATION

A. REQUIRED MATERIALS

1) PARTS

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
1	**3G2150P01611**		**ECS HEPA FILTER INSTALLATION**	**REF**	**.**		**-**
2	3G2150A07931		Composite cover HEPA filter assy LH	1	..		139-656L1
3	3G2150A08031		Composite cover HEPA filter assy RH	1	..		139-656L1
4	3G2150A07751		HEPA filter	2	..	(1)	-
5	3G2150A08151		HEPA filter	2	..	(1)	-
6	3G2150A07851		Mesh	2	..	(2)	-
7	3G2150A08351		Mesh	2	..	(2)	-
8	MS20426AD3-4		Rivet	0.1 Kg	..		139-656L1
9	MS21075L3N	MS21075L3	Anchor nut	8	..		139-656L1
10	MS27039-1-08		Screw	8	..		139-656L1
11	NAS1149D0316K		Washer	8	..		139-656L1

2) CONSUMABLES

The following consumable materials, or equivalent, are necessary to accomplish this Service Bulletin:

#	Spec./LHD code number	DESCRIPTION	Q.TY	NOTE	PART
12	Commercial	3M scotch tape n°363 (C260)	AR	(3)	-
13	4708-HEPA	Raw material (thickness 0.33 mm)	0.20 m^2	(1) (3)	-
14	167844080	Raw material (thickness 1.4 mm)	0.25 m^2	(2) (3)	-

Refer also to AMDI for the consumable materials required to comply with the AMP DM referenced in the accomplishment instructions.

3) LOGISTIC MATRIX

In order to apply this Service Bulletin, the following Logistic P/N can be ordered in accordance with the applicable notes:

LOGISTIC P/N	Q.TY (PER HELO)	NOTE	PART
139-656L1	1		-
3G2150A07751	2	(1)	-
3G2150A08151	2	(1)	-
3G2150A07851	2	(2)	-
3G2150A08351	2	(2)	-

NOTES

(1) This item can be obtained from raw material P/N 4708-HEPA.

(2) This item can be obtained from raw material P/N 167844080.

(3) Item to procured as local supply.

B. SPECIAL TOOLS

Refer to ITEP for the special tools required to comply with the AMP DM referenced in the accomplishment instructions.

C. INDUSTRY SUPPORT INFORMATION

Customization

3. ACCOMPLISHMENT INSTRUCTIONS

GENERAL NOTES

a) Place an identification tag on all components that are re-usable, including the attaching hardware that has been removed to gain access to the modification area and adequately protect them until their later re-use.

b) Exercise extreme care during drilling operations to prevent instruments, cables and hoses damage.

c) After drilling, remove all swarf and sharp edges. Apply on bare metal a light film of primer unless the hole is used for ground connection.

d) All lengths are in mm.

1. In accordance with AMP DM 39-A-00-20-00-00A-120A-A prepare the helicopter on ground for a safe maintenance. Disconnect the battery, all electrical power sources and/or the external power supply.

NOTE

Perform following steps 2 thru 5 only if HEPA filters P/N 3G2150A07751 or P/N 3G2150A08151 or meshes P/N 3G2150A07851 or P/N 3G2150A08351 will be obtained from raw material. Otherwise skip to step 6.

2. With reference to Figure 6, if necessary manufacture n°2 HEPA filters P/N 3G2150A07751 from the raw material P/N 4708-HEPA.
3. With reference to Figure 8, if necessary manufacture n°2 HEPA filters P/N 3G2150A08151 from the raw material P/N 4708-HEPA, use cover P/N 3G2150A07931 as template.
4. With reference to Figure 7, if necessary manufacture n°2 meshes P/N 3G2150A07851 from the raw material P/N 167844080.
5. With reference to Figure 9, if necessary manufacture n°2 meshes P/N 3G2150A08351 from the raw material P/N 167844080, use cover P/N 3G2150A07931 as template.
6. With reference to Figures 1 thru 5, gain access to the area affected by the installation and perform ECS HEPA filter installation P/N 3G2150P01611 as described in the following procedure:
   - 6.1 With reference to Figure 1, remove the cover assy P/N 3P5330A03831.
   - 6.2 With reference to Figure 3, temporary locate n°2 HEPA filters P/N 3G2150A07751 on the cover P/N 3P5330A03831.

6.3 Using the cover P/N 3P5330A03831 as template countermark positions of the holes on the filtes P/N 3G2150A07751. Drill holes as required through the filters P/N 3G2150A07751.

NOTE

With reference to step 6.4, it is allowed to slightly adapt the filters P/N 3G2150A07751 and meshes P/N 3G2150A07851 to the existing soundproofing installation or vice versa.

NOTE

With reference to step 6.4, adapt the holes of meshes P/N 3G2150A07851 with the holes of the cover P/N 3P5330A03831, in order to fix the screws as per step 6.5.

6.4 With reference to Figure 3, install n°2 HEPA filters P/N 3G2150A07751 and n°2 meshes P/N 3G2150A07851 by means of 3M scotch tape n°363 (C260) as required, on the internal side of the cover assy P/N 3P5330A03831.

NOTE

With reference to step 6.5, if required, oversized screws are allowed.

6.5 With reference to Figure 1, re-install the cover assy P/N 3P5330A03831 by means of previously removed fixing hardware.

6.6 With reference to Figure 2 and Figure 5 section E-E, install HEPA filter P/N 3G2150A08151 and mesh P/N 3G2150A08351 by means of 3M scotch tape n°363 (C260) as required, on the internal side of the composite cover HEPA filter assy LH P/N 3G2150A07931.

6.7 With reference to Figure 4, install HEPA filter P/N 3G2150A08151 and mesh P/N 3G2150A08351 by means of 3M scotch tape n°363 (C260) as required, on the internal side of the composite cover HEPA filter assy RH P/N 3G2150A08031.

NOTE

Perform following steps 6.8 thru 6.15 only if upper cover STA3120 LH P/N 3G5320A03335 (or alternative P/N) and upper cover STA3120 RH P/N 3G5320A03835 (or alternative P/N) are not equipped with anchor nuts (Ref. Figure 5 Section F-F). Otherwise skip to step 6.16.

6.8 With reference to Figure 1 and Figure 5 Section F-F, remove upper cover STA3120 LH P/N 3G5320A03335 and upper cover STA3120 RH P/N 3G5320A03835 from the helicopter.

6.9 With reference to Figure 2 and Figure 5 Section F-F, temporarily locate composite cover HEPA filter assy LH P/N 3G2150A07931 on the upper cover STA3120 LH P/N 3G5320A03335 and countermark the positions of existing screw holes.

6.10 With reference to Figure 5 Section F-F, drill n°4 holes Ø 5.74÷5.87 on the upper cover STA3120 LH in correspondence of previously marked positions.

6.11 With reference to Figure 5 Section F-F, install n°4 anchor nuts P/N MS21075L3 by means of n°8 rivets P/N MS20426AD3-4 on the upper cover STA3120 LH.

6.12 With reference to Figure 4 and Figure 5 Section F-F, temporarily locate composite cover HEPA filter assy RH P/N 3G2150A08031 on the upper cover STA3120 RH P/N 3G5320A03835 and countermark the positions of existing screw holes.

6.13 With reference to Figure 5 Section F-F, drill n°4 holes Ø 5.74÷5.87 on the upper cover STA3120 RH in correspondence of previously marked positions.

6.14 With reference to Figure 5 Section F-F, install n°4 anchor nuts P/N MS21075L3 by means of n°8 rivets P/N MS20426AD3-4 on the upper cover STA3120 RH.

6.15 With reference to Figure 1 and Figure 5 Section F-F, re-install upper cover STA3120 LH P/N 3G5320A03335 and upper cover STA3120 RH P/N 3G5320A03835 on the helicopter by means of previously removed fixing hardware.

6.16 With reference to Figure 2 View A, if necessary remove existing cover from the upper cover STA3120 LH P/N 3G5320A03335 (or alternative P/N) and install composite cover HEPA filter assy LH P/N 3G2150A07931 by means of n°4 screws P/N MS27039-1-08 and n°4 washers P/N NAS1149D0316K.

6.17 With reference to Figure 4 View C, if necessary remove existing cover from the upper cover STA3120 RH P/N 3G5320A03835 (or alternative P/N) and install composite cover HEPA filter assy RH P/N 3G2150A08031 by means of n°4 screws P/N MS27039-1-08 and n°4 washers P/N NAS1149D0316K.

7. Remove all the tools and other items from the work area.

8. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).
9. Return the helicopter to flight configuration and record for compliance with this Service Bulletin on the helicopter logbook.
10. Send the attached compliance form to the following mail box:

    engineering.support.lhd@leonardocompany.com

    As an alternative, gain access to My Communications section on Leonardo WebPortal and compile the “Service Bulletin Application Communication”.

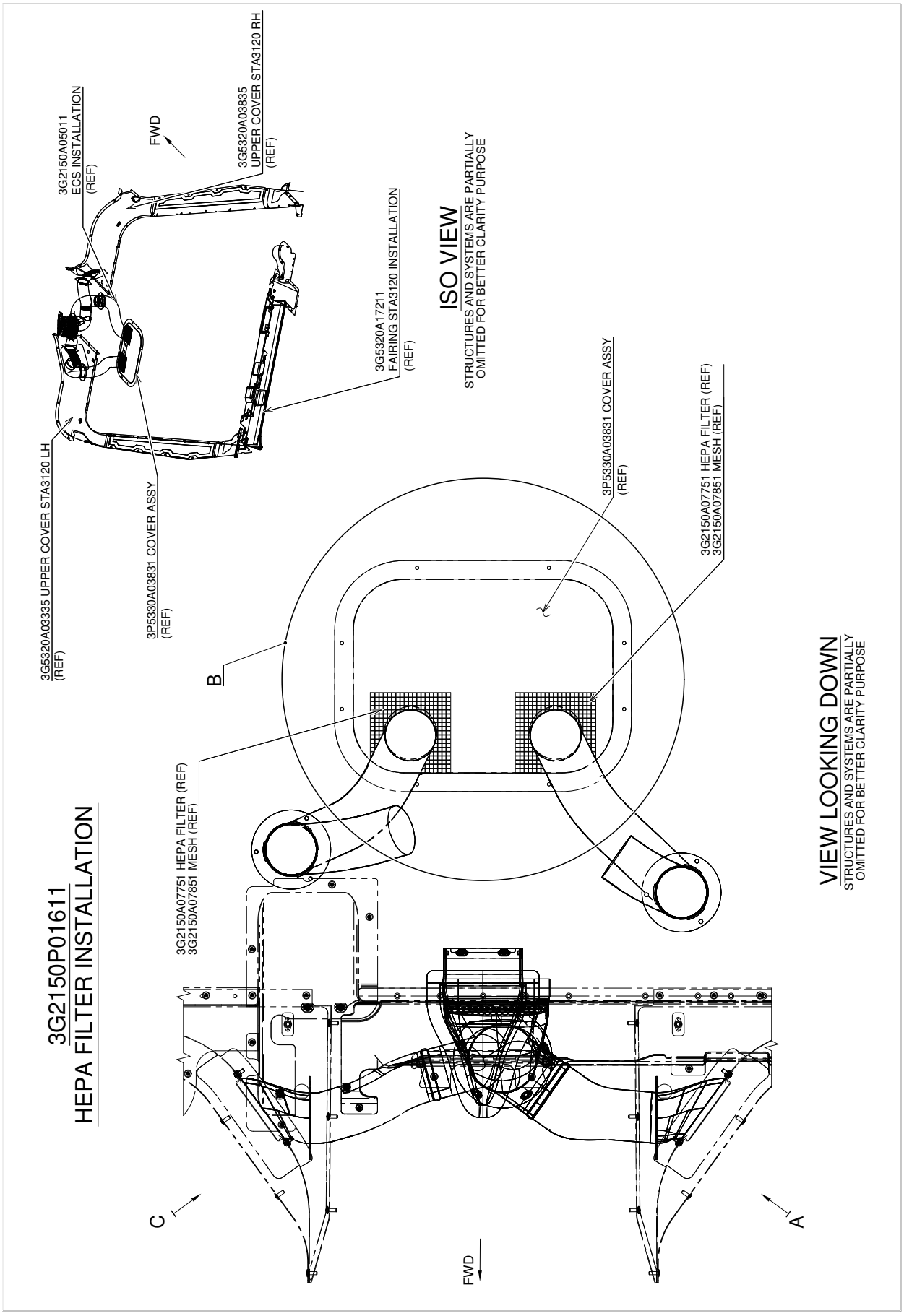
3G2150P01611
HEPA FILTER INSTALLATION
ISO VIEW
STRUCTURES AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
VIEW LOOKING DOWN
STRUCTURES AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
3G2150A05011 ECS INSTALLATION (REF)
FWD
3G5320A03835 UPPER COVER STA3120 RH (REF)
3G5320A17211 FAIRING STA3120 INSTALLATION (REF)
3G5320A03335 UPPER COVER STA3120 LH (REF)
3P5330A03831 COVER ASSY (REF)
B
3P5330A03831 COVER ASSY (REF)
3G2150A07751 HEPA FILTER (REF)
3G2150A07851 MESH (REF)
3G2150A07751 HEPA FILTER (REF)
3G2150A07851 MESH (REF)
C
A
FWD

Figure 1

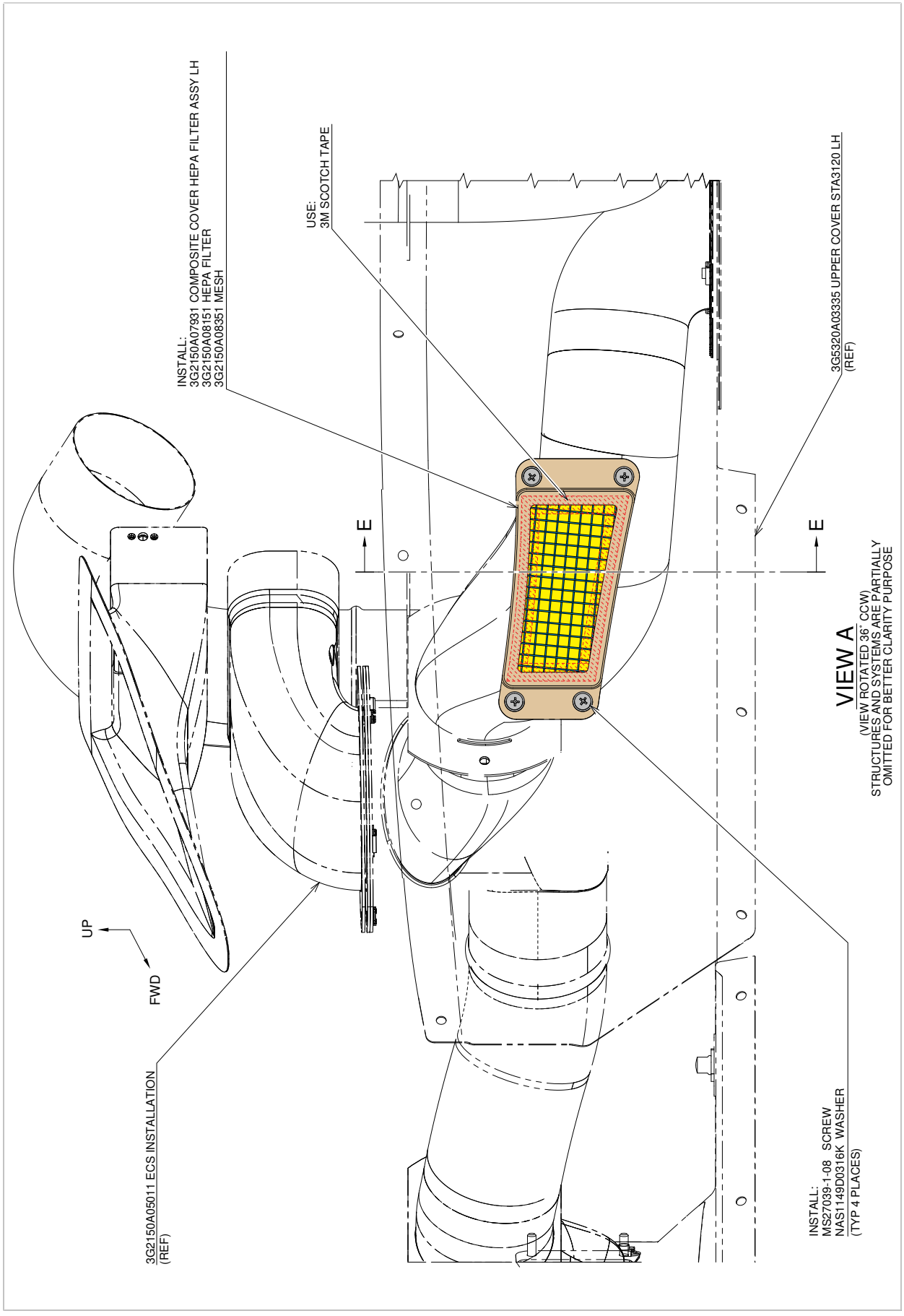
INSTALL:
3G2150A07931 COMPOSITE COVER HEPA FILTER ASSY LH
3G2150A08151 HEPA FILTER
3G2150A08351 MESH
USE:
3M SCOTCH TAPE
3G5320A03335 UPPER COVER STA3120 LH
(REF)
E
E
VIEW A
(VIEW ROTATED 36° CCW)
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE
UP
FWD
3G2150A05011 ECS INSTALLATION
(REF)
INSTALL:
MS27039-1-08 SCREW
NAS1149D0316K WASHER
(TYP 4 PLACES)

Figure 2

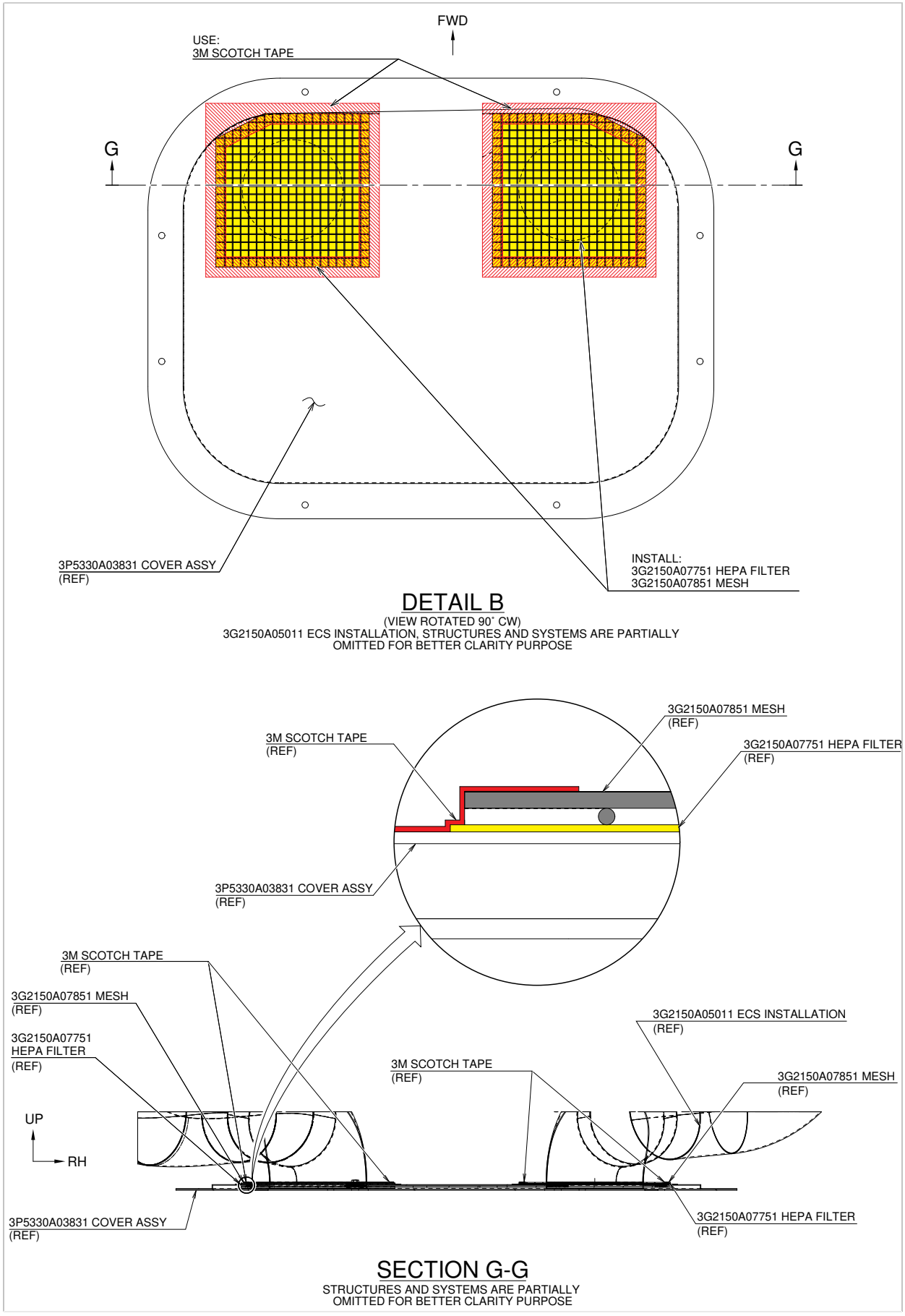
FWD
USE:
3M SCOTCH TAPE
G
G
3P5330A03831 COVER ASSY
(REF)
INSTALL:
3G2150A07751 HEPA FILTER
3G2150A07851 MESH
DETAIL B
(VIEW ROTATED 90° CW)
3G2150A05011 ECS INSTALLATION, STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE
3G2150A07851 MESH
(REF)
3M SCOTCH TAPE
(REF)
3G2150A07751 HEPA FILTER
(REF)
3P5330A03831 COVER ASSY
(REF)
3M SCOTCH TAPE
(REF)
3G2150A07851 MESH
(REF)
3G2150A07751
HEPA FILTER
(REF)
3G2150A05011 ECS INSTALLATION
(REF)
3M SCOTCH TAPE
(REF)
3G2150A07851 MESH
(REF)
UP
RH
3P5330A03831 COVER ASSY
(REF)
3G2150A07751 HEPA FILTER
(REF)
SECTION G-G
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE

Figure 3

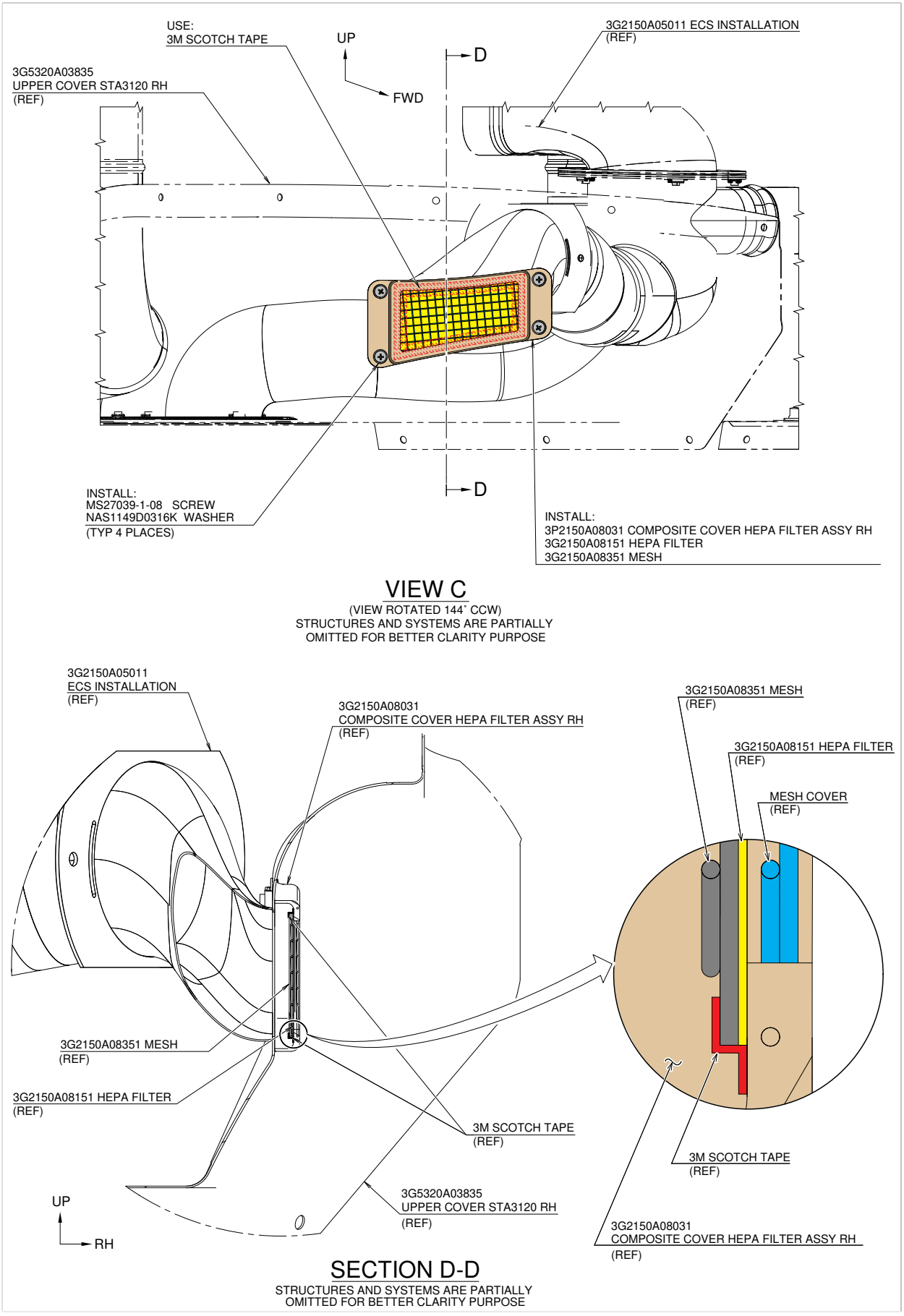
USE:
3M SCOTCH TAPE
UP
D
FWD
3G2150A05011 ECS INSTALLATION
(REF)
3G5320A03835
UPPER COVER STA3120 RH
(REF)
D
INSTALL:
MS27039-1-08 SCREW
NAS1149D0316K WASHER
(TYP 4 PLACES)
INSTALL:
3P2150A08031 COMPOSITE COVER HEPA FILTER ASSY RH
3G2150A08151 HEPA FILTER
3G2150A08351 MESH
VIEW C
(VIEW ROTATED 144° CCW)
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE
3G2150A05011
ECS INSTALLATION
(REF)
3G2150A08031
COMPOSITE COVER HEPA FILTER ASSY RH
(REF)
3G2150A08351 MESH
(REF)
3G2150A08151 HEPA FILTER
(REF)
MESH COVER
(REF)
3G2150A08351 MESH
(REF)
3G2150A08151 HEPA FILTER
(REF)
3M SCOTCH TAPE
(REF)
3M SCOTCH TAPE
(REF)
UP
RH
3G5320A03835
UPPER COVER STA3120 RH
(REF)
3G2150A08031
COMPOSITE COVER HEPA FILTER ASSY RH
(REF)
SECTION D-D
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE

Figure 4

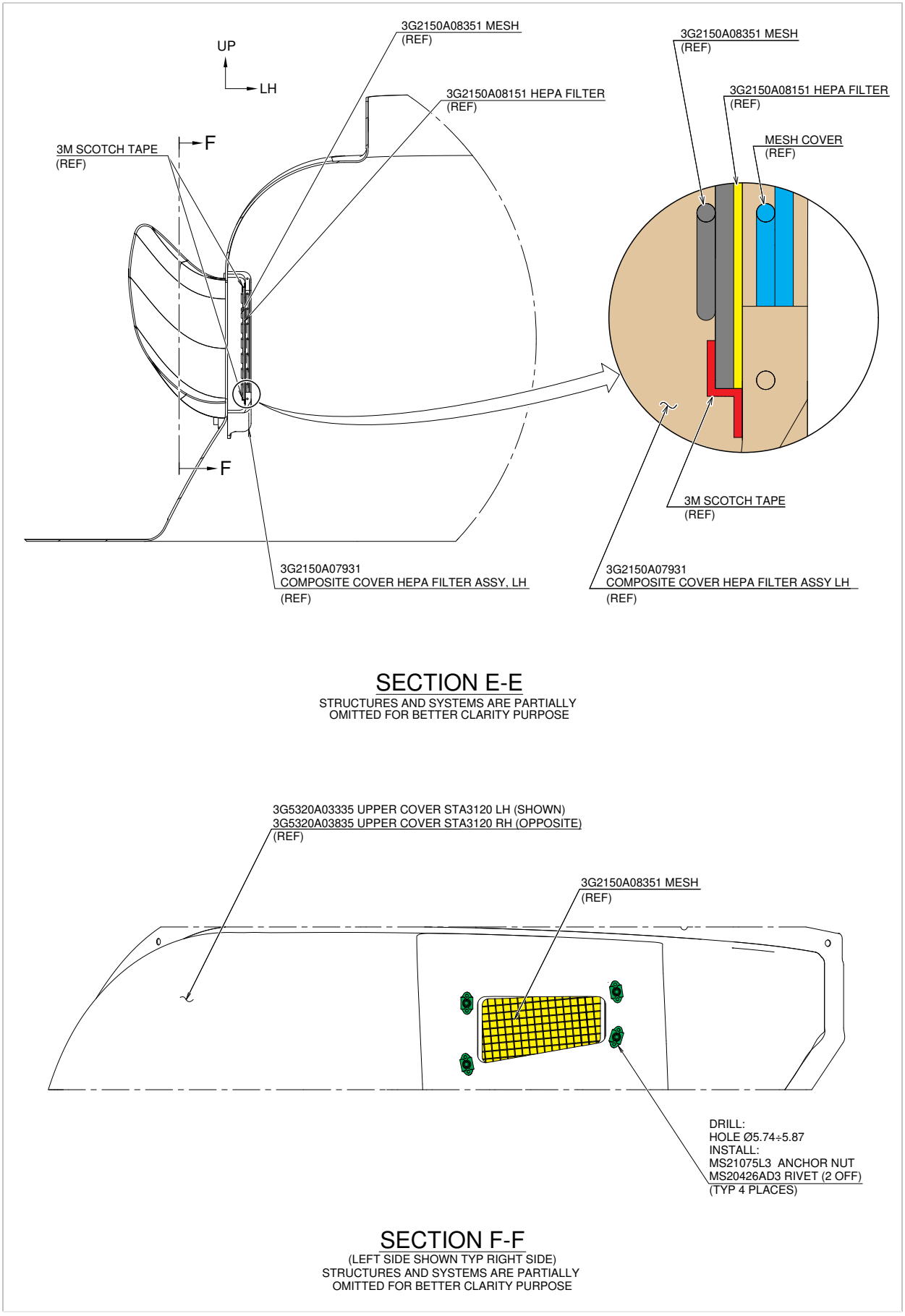
UP
LH
F
F
3M SCOTCH TAPE
(REF)
3G2150A08351 MESH
(REF)
3G2150A08151 HEPA FILTER
(REF)
3G2150A07931
COMPOSITE COVER HEPA FILTER ASSY, LH
(REF)
3G2150A08351 MESH
(REF)
3G2150A08151 HEPA FILTER
(REF)
MESH COVER
(REF)
3M SCOTCH TAPE
(REF)
3G2150A07931
COMPOSITE COVER HEPA FILTER ASSY LH
(REF)
SECTION E-E
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE
3G5320A03335 UPPER COVER STA3120 LH (SHOWN)
3G5320A03835 UPPER COVER STA3120 RH (OPPOSITE)
(REF)
3G2150A08351 MESH
(REF)
DRILL:
HOLE Ø5.74÷5.87
INSTALL:
MS21075L3 ANCHOR NUT
MS20426AD3 RIVET (2 OFF)
(TYP 4 PLACES)
SECTION F-F
(LEFT SIDE SHOWN TYP RIGHT SIDE)
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE

Figure 5

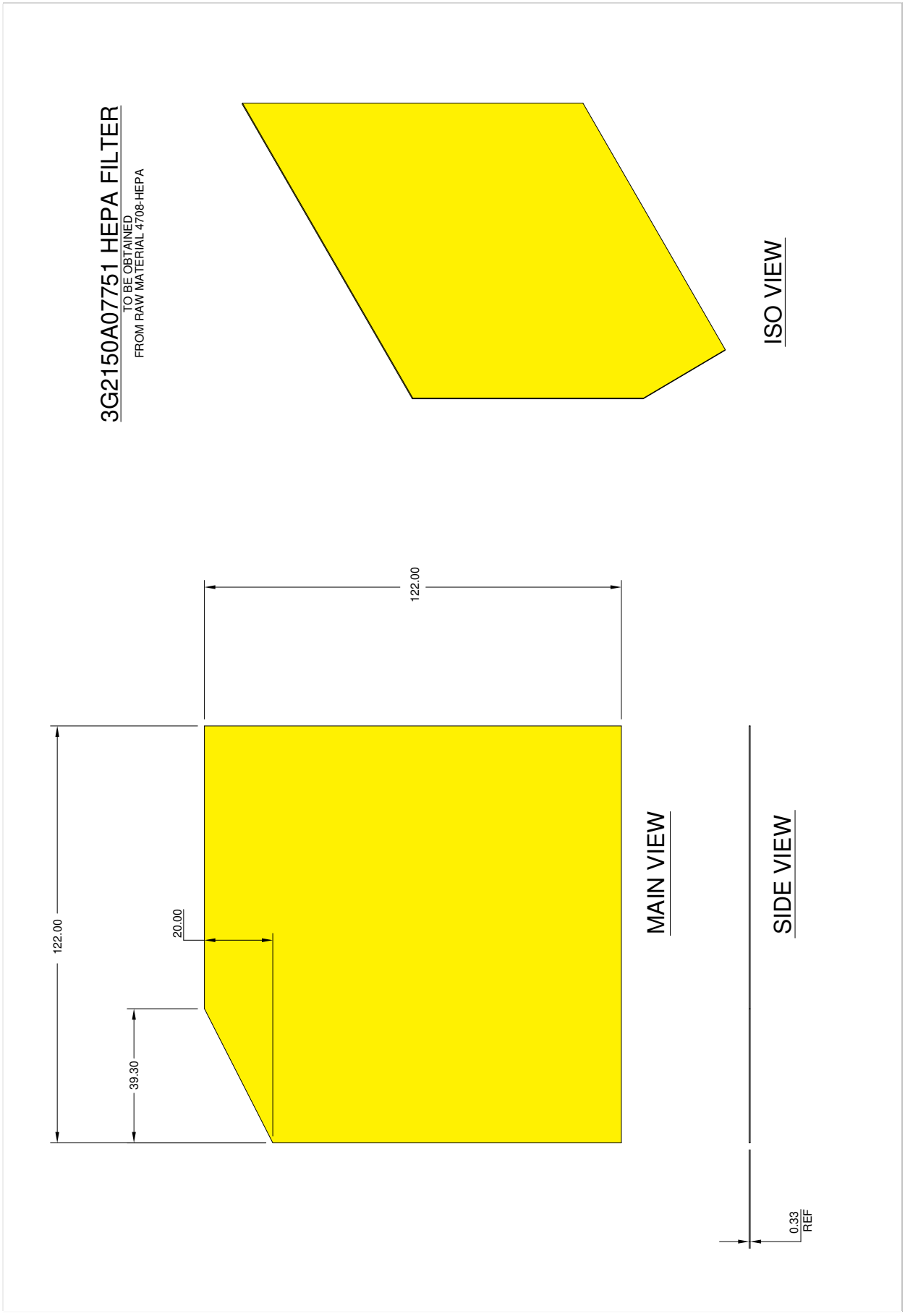
3G2150A07751 HEPA FILTER
TO BE OBTAINED
FROM RAW MATERIAL 4708-HEPA
ISO VIEW
122.00
122.00
20.00
39.30
MAIN VIEW
SIDE VIEW
0.33
REF

Figure 6

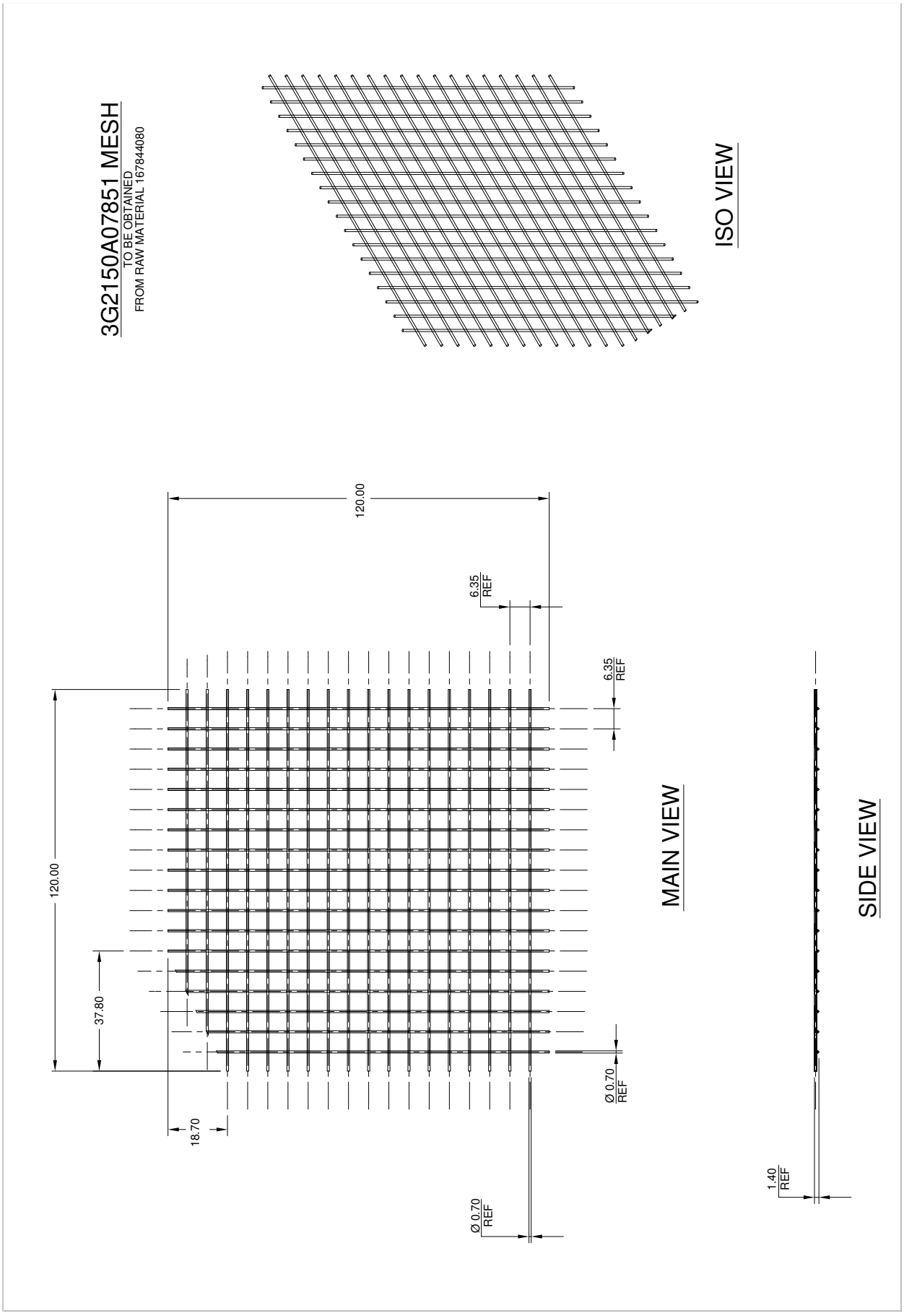
3G2150A07851 MESH
TO BE OBTAINED
FROM RAW MATERIAL 167844080
ISO VIEW
MAIN VIEW
SIDE VIEW
120.00
6.35
REF
6.35
REF
120.00
37.80
18.70
Ø 0.70
REF
Ø 0.70
REF
1.40
REF

Figure 7


3G2150A08151 HEPA FILTER
TO BE OBTAINED
FROM RAW MATERIAL 4708-HEPA
ISO VIEW
100.50
R 5.5
TYP
55.90
45.50
101.50
MAIN VIEW
0.33
REF
SIDE VIEW

Figure 8

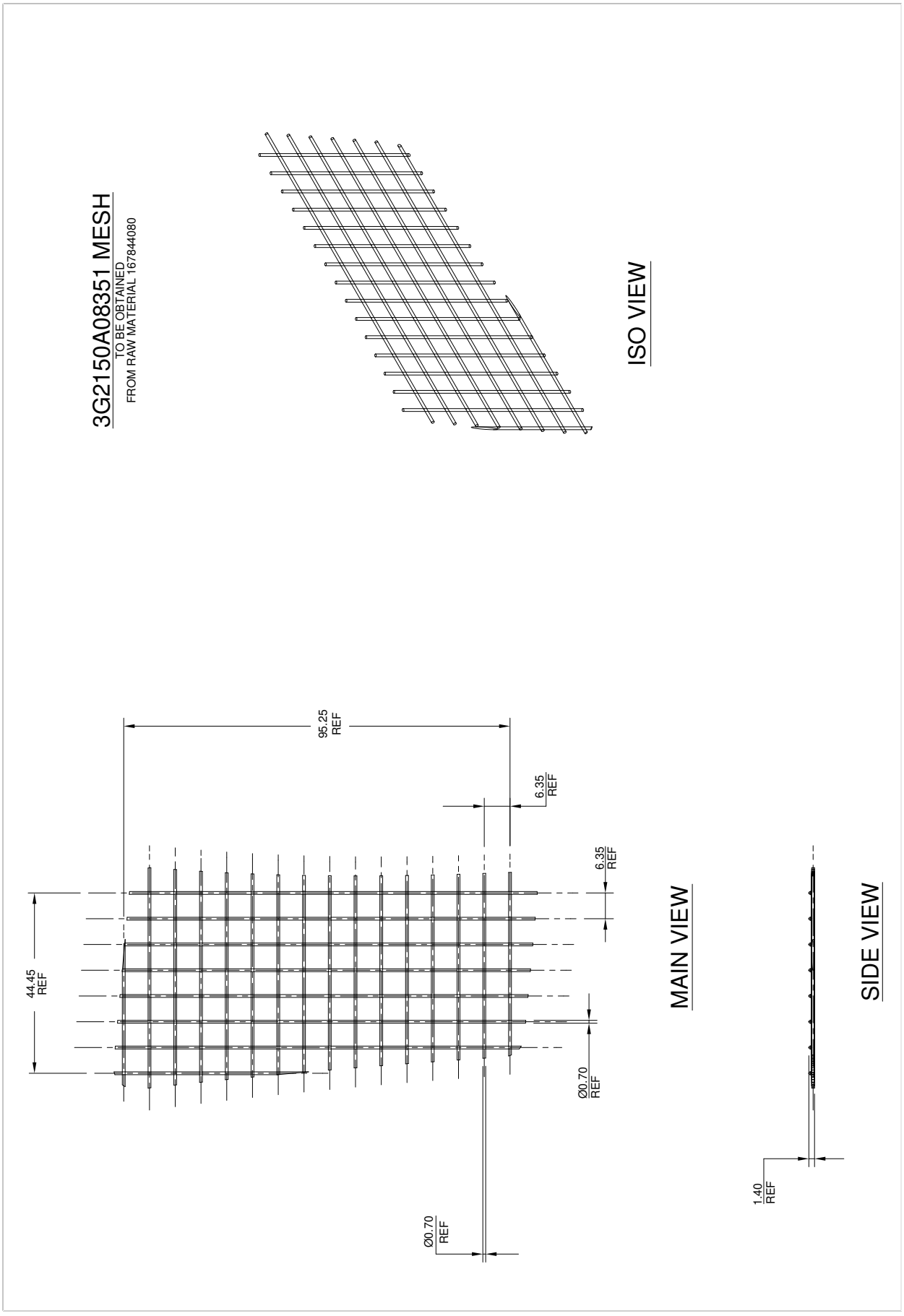
3G2150A08351 MESH
TO BE OBTAINED
FROM RAW MATERIAL 167844080
ISO VIEW
95.25
REF
6.35
REF
6.35
REF
44.45
REF
Ø0.70
REF
Ø0.70
REF
MAIN VIEW
1.40
REF
SIDE VIEW

Figure 9

LEONARDO
HELICOPTERS

AgustaWestland Products

Please send to the following address: **LEONARDO S.p.A.** **CUSTOMER SUPPORT & SERVICES - ITALY** **PRODUCT SUPPORT ENGINEERING & LICENSES DEPT.** Via Giovanni Agusta, 520 21017 Cascina Costa di Samarate (VA) - ITALY Tel.: +39 0331 225036 Fax: +39 0331 225988	**SERVICE BULLETIN COMPLIANCE FORM**	Date:
	Number:	
	Revision:	

Customer Name and Address:	Telephone:
	Fax:
	B.T. Compliance Date:

Helicopter Model	S/N	Total Number	Total Hours	T.S.O.

Remarks:

Information:

We request your cooperation in filling this form, in order to keep out statistical data relevant to aircraft configuration up-to-date. The form should be filled in all its parts and sent to the above address or you can communicate the application also via Technical Bulletin Application Communication Section placed in Leonardo AW Customer Portal - MyCommunications Area. We thank you beforehand for the information given.