

# Commercial Airplanes

737 Service Bulletin

# **SPECIAL ATTENTION**

 Number:
 737-21-1186

 Original Issue:
 April 17, 2012

 Revision 1:
 April 23, 2015

ATA System: 2130

SUBJECT: AIR CONDITIONING - Control Cabin Conditioned Air Distribution System - Inspection

of the Metal Clamp Installed on Hoses to the Air Conditioning Temperature Sensor,

Gasper Air Outlet and Diffuser

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ECCN: 9E991

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# Commercial Airplanes

737 Service Bulletin

# **SPECIAL ATTENTION**

Number: 737-21-1186 Revision Transmittal Sheet

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SUBJECT: AIR CONDITIONING - Control Cabin Conditioned Air Distribution System - Inspection

of the Metal Clamp Installed on Hoses to the Air Conditioning Temperature Sensor,

Gasper Air Outlet and Diffuser

This revision includes all pages of the service bulletin.

#### COMPLIANCE INFORMATION RELATED TO THIS REVISION

Federal Aviation Administration (FAA) AD 2014-04-05 is related to this service bulletin.

Effects of this Revision on airplanes on which the Original Issue was previously done:

Group	Condition	Action
Groups 1 and 2	Airplanes that have incorporated Service Bulletin 737-21-1186 original issue.	Inspect for metal clamps and improperly installed plastic tie straps and remove. Install new plastic tie straps. Inspect for wire bundle damage or chafing and repair the damage.

Boeing endorses the new Federal Aviation Administration (FAA) rules related to Limit of Validity (LOV) and recommends immediate and permanent removal from service of any airplane upon reaching the LOV, whether or not it is operated under FAA jurisdiction. Boeing no longer provides maintenance instructions for airplanes that have accumulated flight cycles beyond the LOV. Airplanes in Group 3 (line numbers 1-291) have accumulated flight cycles beyond the LOV of the maintenance program. Title 14, Code of Federal Regulations (14 CFR) 121.1115 and 129.115 prohibit operation of an airplane beyond its LOV.

#### **REASON FOR REVISION**

This revision is sent to remove and replace each metal clamp or improperly installed tie straps with properly installed plastic tie straps. A General Visual Inspection (GVI) will be done for the metal clamps and improperly installed plastic tie straps on the hoses of the Air Conditioning Temperature Sensor, Gasper Air Outlet and the Diffuser on the left side of the Control Cabin at STA 259.5. Also, do a GVI of adjacent wire bundles for damage or chafing and repair the damage.

The data given in Information Notice 737-21-1186 IN 01 is included in this revision.

This service bulletin gives instructions to do as follows:

- 1. Summary Background, changed statement and changed Summary Evaluation Table
- 2. Summary Action, changed statement.
- 3. Summary Compliance, changed paragraphs.
- 4. Summary Manpower, updated tables.
- 5. Paragraph 1.A., added groups.
- 6. Paragraph 1.C., Reason, changed statement and added paragraph.
- 7. Paragraph 1.D., Description, changed statement, added table and paragraph.
- 8. Paragraph 1.E., Compliance, changed paragraphs.
- 9. Paragraph 1.F., Approval, added statement.
- 10. Paragraph 1.G., Manpower, updated tables.
- 11. Paragraph 1.J.1., Existing Data, added references.
- 12. Paragraph 1.K.1., Publications, updated table.
- 13. Paragraph 2.C.2., Parts and Materials Supplied by the Operator, updated footnote table.
- 14. Paragraph 3.A., General Information, changed and added notes.
- 15. Paragraph 3.B., Work Instructions, changed instructions.
- 16. FIGURE 1, updated illustration and step table.
- 17. New FIGURE 2, added.
- 18. New FIGURE 3, added.
- 19. New FIGURE 4, added.

Vertical lines are put on the left edge of each page, except in Paragraph 1.A., Effectivity and format changes, to show the location of all content changes.

Pages with no vertical lines have no changes.

#### **REVISION HISTORY**

Original Issue:	April 17, 2012
Revision 1:	April 23, 2015



# Commercial Airplanes

# 737 Service Bulletin

# **SPECIAL ATTENTION**

Number: 737-21-1186 Summary

Original Issue: April 17, 2012 Revision 1: April 23, 2015

ATA System: 2130

SUBJECT: AIR CONDITIONING - Control Cabin Conditioned Air Distribution System - Inspection

of the Metal Clamp Installed on Hoses to the Air Conditioning Temperature Sensor,

Gasper Air Outlet and Diffuser

BOEING RECOMMENDS THAT EACH OPERATOR EXAMINE THIS SERVICE BULLETIN IMMEDIATELY.

#### **CONCURRENT REQUIREMENTS**

None.

#### **BACKGROUND**

This service bulletin gives instructions to remove and replace each metal clamp or improperly installed tie straps with properly installed plastic tie straps. A General Visual Inspection (GVI) will be done for the metal clamps and improperly installed plastic tie straps on the hoses of the Air Conditioning Temperature Sensor, Gasper Air Outlet and the Diffuser on the left side of the Control Cabin at STA 259.5. Also, do a General Visual inspection (GVI) of adjacent wire bundles for damage or chafing and repair the damage. Metal clamps and improperly installed plastic tie straps on the hoses can cause damage to the adjacent wire bundles. Replacing each metal clamp or improperly installed plastic tie strap with properly installed plastic tie strap and repairing any damaged wire bundles, will minimize the possibility of wire bundle damage and chafing. If not corrected the adjacent wire bundles may sustain damage or chafe and there is the possibility of shorting an electrical circuit which may lead to fire and smoke in the flight deck.

Operators have informed Boeing of chafed wire bundles caused by metal clamps installed on hoses to the Air Conditioning Temperature Sensor, Gasper Air Outlet and the Diffuser on the left side of the Control Cabin at STA 259.5. A metal clamp or improperly installed plastic tie strap can cause chafing of the wire bundles.

Boeing Service Related Problem (SRP) 737-SRP-21-0186 is related to this service bulletin.

This table is provided to operators for planning purposes only. Refer to the applicable sections for more information.

Planning Data	Affected	Reference
Spares Affected	No	Paragraph 1.A.2., Spares Affected
AD Related	Yes	Paragraph 1.E., Compliance
Weight and Balance Change	No	Paragraph 1.H., Weight and Balance Changes
Electrical Load Changed	No	Paragraph 1.I., Electrical Load Data

Planning Data	Affected	Reference
Publications Affected	Yes	Paragraph 1.K., Publications Affected
Airplane Flight Operations Affected (Flight Crew Operations Manual and/or FAA Approved Airplane Flight Manual)	No	Paragraph 1.K., Publications Affected
Kits/Parts Required	No	Paragraph 2.C.1., Kits/Parts
Operator Supplied Material	Yes	Paragraph 2.C.2., Parts and Materials Supplied by the Operator
Special Tooling Required	No	Paragraph 2.F., Special Tooling Necessary to do this Service Bulletin

#### **ACTION (PRR 35005-309R)**

#### Group 1-2:

Gain access to the Air Conditioning Temperature Sensor, Gasper Air Outlet and the Diffuser on the left side of the Control Cabin. Do a General Visual Inspection (GVI) of hoses for metal clamps or improperly installed plastic tie straps. Remove and replace each metal clamps or improperly installed plastic tie straps with properly installed plastic tie straps. Do a GVI of adjacent wire bundles for damage or chafing and repair the damage. Close access to the Air Conditioning Temperature Sensor, Gasper Air Outlet and the Diffuser on the left side of the Control Cabin.

#### Group 3:

No retrofit actions are provided.

#### **EFFECTIVITY**

737-100/-200/-200C/-300/-400/-500 Airplanes. Refer to Paragraph 1.A.1., Airplanes, for the list of affected airplane(s).

#### **COMPLIANCE**

Federal Aviation Administration (FAA) Airworthiness Directive AD 2014-04-05 is related to this service bulletin.

Boeing recommends that the changes given in this service bulletin be done within 60 months after the effective date of AD 2014-04-05. The effective date of AD 2014-04-05 is April 1, 2014.

#### Group 3:

Boeing endorses the new Federal Aviation Administration (FAA) rules related to Limit of Validity (LOV) and recommends immediate and permanent removal from service of any airplane upon reaching the LOV, whether or not it is operated under FAA jurisdiction. Boeing no longer provides maintenance instructions for airplanes that have accumulated flight cycles beyond the LOV. Airplanes in Group 3 (line numbers 1-291) have accumulated flight cycles beyond the LOV of the maintenance program. Title 14, Code of Federal Regulations (14 CFR) 121.1115 and 129.115 prohibit operation of an airplane beyond its LOV.

#### **INDUSTRY SUPPORT INFORMATION**

Boeing warranty remedies are not available for the inspection and repair procedure given in this service bulletin.

# **MANPOWER**

**Group 1-2:** 

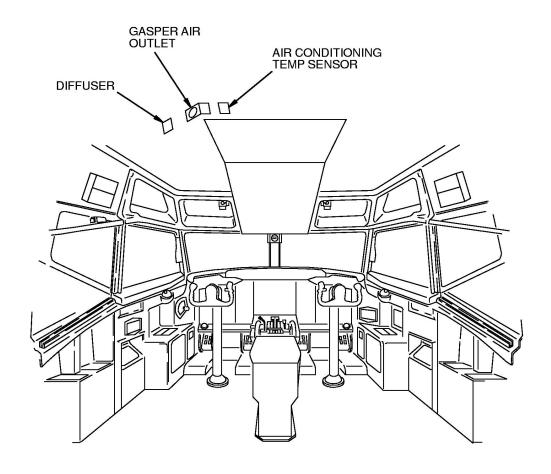
Airplanes	Total Task Hours	Elapsed Hours
Group 1	2.00	2.00
Group 2	2.00	2.00

Refer to Paragraph 1.G., Manpower.

#### **MATERIAL INFORMATION**

Operator Supplied Parts/Materials.

Refer to Paragraph 2.A., Material - Price and Availability.



GROUP 1-2:
GAIN ACCESS TO THE AIR CONDITIONING TEMPERATURE SENSOR, GASPER AIR OUTLET AND THE DIFFUSER ON THE LEFT SIDE OF THE CONTROL CABIN, DO A GENERAL VISUAL INSPECTION (GVI) OF HOSES FOR METAL CLAMPS OR IMPROPERLY INSTALLED PLASTIC TIE STRAPS. REMOVE AND REPLACE METAL CLAMPS OR IMPROPERLY INSTALLED PLASTIC TIE STRAPS WITH PROPERLY INSTALLED PLASTIC TIE STRAPS. DO A GVI OF ADJACENT WIRE BUNDLES FOR DAMAGE OR CHAFING AND REPAIR THE DAMAGE. CLOSE ACCESS TO THE AIR CONDITIONING TEMPERATURE SENSOR, GASPER AIR OUTLET AND THE DIFFUSER ON THE LEFT SIDE OF THE CONTROL CABIN.

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# Commercial Airplanes

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BOEING RECOMMENDS THAT EACH OPERATOR EXAMINE THIS SERVICE BULLETIN IMMEDIATELY.

#### 1. PLANNING INFORMATION

# A. Effectivity

# 1. Airplanes

Refer to Service Bulletin Index D6-19567 Part 3 for Airplane Variable Number, Line Number, and Serial Number data.

This service bulletin is for the airplane(s) shown below.

GROUP	CONFIGURATION	DESCRIPTION
1	-	737 Airplanes with an Air Conditioning Temperature Sensor, 1 Gasper Air Outlet and Diffuser.
2	-	737 Airplanes with an Air Conditioning Temperature Sensor, 2 Gasper Air Outlet and Diffuser.
3	-	737 Airplanes line numbers 1 - 291.

# Airplane Models:

737-100, 737-200, 737-200C, 737-300, 737-400, 737-500

Variable Number	Group
PA001 - PA022	3
PA099	3
PA231 - PA232	3

Variable Number	Group
PC001 - PC005	3
PG001 - PG075	3
PG199	3
PG201 - PG230	3
PG251 - PG255	3
PG271 - PG279	3
PG301 - PG314	3
PG331 - PG332	3
PG351 - PG356	3
PG375	3
PG401 - PG403	3
PG431 - PG442	3
PG471 - PG475	3
PG501 - PG505	3
PG571 - PG583	3
PG584 - PG585	1
PG586	2
PG621 - PG630	3
PG651 - PG652	3
PG701 - PG705	3
PH001	2
PH011	2
PH012	1
PH013	2
PH021	2
PH022 - PH023	1
PH024	2
PH701 - PH715	3
PH731 - PH732	3
PH741 - PH742	3
PH743	2
PJ001 - PJ002	3
PJ003 - PJ006	1
	<u> </u>

Variable Number	Group
PJ007 - PJ009	2
PJ031 - PJ032	3
PJ071 - PJ072	3
PJ101 - PJ104	3
PJ105 - PJ112	1
PJ113 - PJ114	2
PJ115 - PJ118	1
PJ119	2
PJ201	2
PJ202 - PJ218	1
PJ219	2
PJ301 - PJ302	1
PJ551 - PJ561	1
PJ601 - PJ615	1
PJ811	1
PJ816 - PJ817	1
PK026	2
PK027 - PK028	1
PK029	2
PK041	2
PK042 - PK052	1
PK053	2
PK061	2
PK062 - PK069	1
PK070	2
PK081 - PK082	2
PK091	2
PK092 - PK098	1
PK099	2
PK101	2
PK102	1
PK103	2
PK111	2

Variable Number	Group
PK112 - PK119	1
PK120	2
PK141	2
PK142 - PK145	1
PK146	2
PK201	2
PK202	1
PK203 - PK204	2
PK211	2
PK212	1
PK213 - PK214	2
PK215 - PK219	1
PK220 - PK223	2
PK231	2
PK232 - PK234	1
PK235 - PK236	2
PK237 - PK239	1
PK240 - PK241	2
PK251	2
PK252 - PK257	1
PK258	2
PK271	2
PK272	1
PK273 - PK274	2
PK281 - PK285	2
PK286	1
PK287 - PK289	2
PK291	2
PK301	2
PK302 - PK305	1
PK306 - PK307	2
PK308 - PK309	1
PK310 - PK311	2
	l .

Variable Number	Group
PK312 - PK316	1
PK317 - PK318	2
PK341	2
PK351	2
PK352 - PK354	1
PK355 - PK356	2
PK357 - PK360	1
PK361	2
PK391	2
PK431 - PK433	2
PK451 - PK452	2
PK461	2
PK462 - PK468	1
PK469	2
PK495	2
PK501 - PK502	2
PK503	1
PK504	2
PK511 - PK512	2
PK513 - PK514	1
PK515	2
PK519	2
PK521 - PK523	2
PK524 - PK527	1
PK528	2
PK541	2
PK542 - PK545	1
PK546 - PK547	2
PK548 - PK559	1
PK560 - PK563	2
PK564	1
PK565	2
PK581	2

PK591 2 PK592 1 PK593 - PK594 2 PK595 - PK598 1 PK599 2 PK601 2 PK602 - PK609 1 PK610 - PK611 2 PK613 - PK614 2 PK615 - PK616 1 PK617 2 PK621 2 PK622 - PK636 1 PK637 2 PK641 - PK642 2 PK663 - PK665 1 PK666 2 PK671 2 PK672 - PK680 1 PK697 2 PK691 - PK693 2 PK691 - PK696 1 PK697 2 PK711 2 PK712 - PK714 1 PK715 - PK716 2 PK731 2 PK732 - PK764 1 PK765 2 PK771 2	Variable Number	Group
PK593 - PK594       2         PK595 - PK598       1         PK599       2         PK601       2         PK602 - PK609       1         PK610 - PK611       2         PK612       1         PK613 - PK614       2         PK615 - PK616       1         PK617       2         PK621       2         PK622 - PK636       1         PK637       2         PK641 - PK642       2         PK663 - PK665       1         PK666       2         PK671       2         PK672 - PK680       1         PK681       2         PK691 - PK693       2         PK697       2         PK711       2         PK712 - PK714       1         PK715 - PK716       2         PK731 - PK764       1         PK765       2         PK771       2	PK591	
PK595 - PK598       1         PK599       2         PK601       2         PK602 - PK609       1         PK610 - PK611       2         PK612       1         PK613 - PK614       2         PK615 - PK616       1         PK617       2         PK621       2         PK622 - PK636       1         PK637       2         PK641 - PK642       2         PK661 - PK662       2         PK663 - PK665       1         PK666       2         PK671       2         PK672 - PK680       1         PK681       2         PK691 - PK693       2         PK697       2         PK711       2         PK712 - PK714       1         PK715 - PK716       2         PK731 - PK764       1         PK765 - PK771       2	PK592	1
PK599       2         PK601       2         PK602 - PK609       1         PK610 - PK611       2         PK612       1         PK612       1         PK613 - PK614       2         PK615 - PK616       1         PK617       2         PK621       2         PK622 - PK636       1         PK637       2         PK641 - PK642       2         PK661 - PK662       2         PK663 - PK665       1         PK666       2         PK671       2         PK672 - PK680       1         PK681       2         PK691 - PK693       2         PK694 - PK696       1         PK697       2         PK711       2         PK712 - PK714       1         PK731 - PK764       1         PK765       2         PK771       2	PK593 - PK594	2
PK601       2         PK602 - PK609       1         PK610 - PK611       2         PK612       1         PK612       1         PK613 - PK614       2         PK615 - PK616       1         PK617       2         PK621       2         PK622 - PK636       1         PK637       2         PK641 - PK642       2         PK661 - PK662       2         PK663 - PK665       1         PK666       2         PK671       2         PK672 - PK680       1         PK681       2         PK691 - PK693       2         PK694 - PK696       1         PK697       2         PK711       2         PK712 - PK714       1         PK731 - PK764       1         PK765 - PK771       2	PK595 - PK598	1
PK602 - PK609       1         PK610 - PK611       2         PK612       1         PK613 - PK614       2         PK615 - PK616       1         PK617       2         PK621       2         PK622 - PK636       1         PK637       2         PK641 - PK642       2         PK661 - PK662       2         PK663 - PK665       1         PK666       2         PK671       2         PK672 - PK680       1         PK681       2         PK691 - PK693       2         PK694 - PK696       1         PK697       2         PK711       2         PK712 - PK714       1         PK731 - PK764       1         PK765 - 2       2         PK771       2	PK599	2
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PK613 - PK614 2 PK615 - PK616 1 PK617 2 PK621 2 PK622 - PK636 1 PK637 2 PK641 - PK642 2 PK661 - PK662 2 PK663 - PK665 1 PK666 2 PK671 2 PK672 - PK680 1 PK681 2 PK691 - PK693 2 PK694 - PK696 1 PK697 2 PK711 2 PK715 - PK714 1 PK715 - PK716 2 PK732 - PK764 1 PK765 2 PK771 2	PK610 - PK611	2
PK615 - PK616       1         PK617       2         PK621       2         PK622 - PK636       1         PK637       2         PK641 - PK642       2         PK661 - PK662       2         PK663 - PK665       1         PK666       2         PK671       2         PK672 - PK680       1         PK681       2         PK691 - PK693       2         PK694 - PK696       1         PK697       2         PK711       2         PK712 - PK714       1         PK731 - PK731       2         PK732 - PK764       1         PK765       2         PK771       2	PK612	1
PK617       2         PK621       2         PK622 - PK636       1         PK637       2         PK641 - PK642       2         PK661 - PK662       2         PK663 - PK665       1         PK666       2         PK671       2         PK672 - PK680       1         PK681       2         PK691 - PK693       2         PK697 - PK769       1         PK697 - PK711       2         PK712 - PK714 - PK715 - PK716       2         PK731 - PK732 - PK764 - PK765       2         PK765 - PK771 -	PK613 - PK614	2
PK621       2         PK622 - PK636       1         PK637       2         PK641 - PK642       2         PK661 - PK662       2         PK663 - PK665       1         PK666       2         PK671       2         PK672 - PK680       1         PK681       2         PK691 - PK693       2         PK694 - PK696       1         PK697       2         PK711       2         PK712 - PK714       1         PK731 - PK731       2         PK732 - PK764       1         PK765       2         PK771       2	PK615 - PK616	1
PK622 - PK636       1         PK637       2         PK641 - PK642       2         PK661 - PK662       2         PK663 - PK665       1         PK666       2         PK671       2         PK672 - PK680       1         PK681       2         PK691 - PK693       2         PK694 - PK696       1         PK697       2         PK711       2         PK712 - PK714       1         PK731       2         PK732 - PK764       1         PK765       2         PK771       2	PK617	2
PK637       2         PK641 - PK642       2         PK661 - PK662       2         PK663 - PK665       1         PK666       2         PK671       2         PK672 - PK680       1         PK681       2         PK691 - PK693       2         PK694 - PK696       1         PK697       2         PK711       2         PK712 - PK714       1         PK731       2         PK732 - PK764       1         PK765       2         PK771       2	PK621	2
PK641 - PK642 2 PK661 - PK662 2 PK663 - PK665 1 PK666 2 PK671 2 PK672 - PK680 1 PK681 2 PK691 - PK693 2 PK694 - PK696 1 PK697 2 PK711 2 PK712 - PK714 1 PK715 - PK716 2 PK731 2 PK732 - PK764 1 PK765 2 PK771 2	PK622 - PK636	1
PK661 - PK662 2 PK663 - PK665 1 PK666 2 PK671 2 PK672 - PK680 1 PK681 2 PK691 - PK693 2 PK694 - PK696 1 PK697 2 PK711 2 PK715 - PK714 1 PK715 - PK716 2 PK732 - PK764 1 PK765 2 PK771 2	PK637	2
PK663 - PK665 1 PK666 2 PK671 2 PK672 - PK680 1 PK681 2 PK691 - PK693 2 PK694 - PK696 1 PK697 2 PK711 2 PK712 - PK714 1 PK715 - PK716 2 PK731 2 PK732 - PK764 1 PK765 2 PK771 2	PK641 - PK642	2
PK666       2         PK671       2         PK672 - PK680       1         PK681       2         PK691 - PK693       2         PK694 - PK696       1         PK697       2         PK711       2         PK712 - PK714       1         PK715 - PK716       2         PK731       2         PK732 - PK764       1         PK765       2         PK771       2	PK661 - PK662	2
PK671 2 PK672 - PK680 1 PK681 2 PK691 - PK693 2 PK694 - PK696 1 PK697 2 PK711 2 PK712 - PK714 1 PK715 - PK716 2 PK731 2 PK732 - PK764 1 PK765 2 PK771 2	PK663 - PK665	1
PK672 - PK680       1         PK681       2         PK691 - PK693       2         PK694 - PK696       1         PK697       2         PK711       2         PK712 - PK714       1         PK715 - PK716       2         PK731       2         PK732 - PK764       1         PK765       2         PK771       2	PK666	2
PK681       2         PK691 - PK693       2         PK694 - PK696       1         PK697       2         PK711       2         PK712 - PK714       1         PK715 - PK716       2         PK731       2         PK732 - PK764       1         PK765       2         PK771       2	PK671	2
PK691 - PK693 2 PK694 - PK696 1 PK697 2 PK711 2 PK712 - PK714 1 PK715 - PK716 2 PK731 2 PK732 - PK764 1 PK765 2 PK771 2	PK672 - PK680	1
PK694 - PK696 1 PK697 2 PK711 2 PK712 - PK714 1 PK715 - PK716 2 PK731 2 PK732 - PK764 1 PK765 2 PK771 2	PK681	2
PK697       2         PK711       2         PK712 - PK714       1         PK715 - PK716       2         PK731       2         PK732 - PK764       1         PK765       2         PK771       2	PK691 - PK693	2
PK711       2         PK712 - PK714       1         PK715 - PK716       2         PK731       2         PK732 - PK764       1         PK765       2         PK771       2	PK694 - PK696	1
PK712 - PK714 1 PK715 - PK716 2 PK731 2 PK732 - PK764 1 PK765 2 PK771 2	PK697	2
PK715 - PK716       2         PK731       2         PK732 - PK764       1         PK765       2         PK771       2	PK711	2
PK731       2         PK732 - PK764       1         PK765       2         PK771       2	PK712 - PK714	1
PK732 - PK764 1 PK765 2 PK771 2	PK715 - PK716	2
PK765 2 PK771 2	PK731	2
PK771 2	PK732 - PK764	1
	PK765	2
PK772 - PK778 1	PK771	2
	PK772 - PK778	1

Variable Number	Group
PK779	2
PK801	2
PK802 - PK803	1
PK804	2
PK819	2
PK820 - PK826	1
PK827	2
PK830	2
PK861	2
PK862	1
PK863	2
PK871	2
PK872 - PK873	1
PK874	2
PK881	2
PK882 - PK883	1
PK884	2
PK901	2
PK902 - PK937	1
PK938	2
PK971	2
PK972 - PK973	1
PK974	2
PL001	2
PL002 - PL013	1
PL014 - PL015	2
PL016 - PL027	1
PL028	2
PL061	2
PL081	2
PL101	2
PL102 - PL112	1
PL113	2

Variable Number	Group
PL151	2
PL171 - PL172	2
PL201	2
PL202	1
PL203	2
PL221	2
PL401	2
PL402	1
PL403 - PL404	2
PL405 - PL416	1
PL417	2
PL421	2
PL441	2
PL451	2
PL452 - PL455	1
PL456	2
PL471	2
PL491	2
PL501	2
PL502 - PL505	1
PL506	2
PL551	2
PL552 - PL561	1
PL562	2
PL581	2
PL601	2
PL602	1
PL603	2
PL611	2
PL621	2
PL622 - PL625	1
PL626	2
PL631 - PL632	2

PL711 - PL712 3 PL716 3 PL717 - PL743 1 PL744 - PL745 2 PL746 1 PL747 2 PL756 2 PL758 2 PL761 2 PL762 - PL768 1 PL769 - PL770 2 PL781 - PL783 2 PL784 - PL787 1 PL788 2 PL793 2 PL801 - PL803 3 PM001 2 PM002 - PM005 1 PM006 2 PM016 - PM017 2 PM021 2 PM022 1 PM023 2 PM052 - PM065 1 PM066 2 PM010 2 PM052 - PM065 1 PM066 2 PM101 2 PM101 2 PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2 PM251 2	Variable Number	Group
PL717 - PL743 1 PL744 - PL745 2 PL746 1 PL747 2 PL756 2 PL758 2 PL761 2 PL762 - PL768 1 PL769 - PL770 2 PL781 - PL783 2 PL784 - PL787 1 PL788 2 PL793 2 PL801 - PL803 3 PM001 2 PM002 - PM005 1 PM006 2 PM016 - PM017 2 PM021 2 PM022 1 PM023 2 PM051 2 PM052 - PM065 1 PM066 2 PM010 2 PM066 2 PM101 2 PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PL711 - PL712	3
PL744 - PL745       2         PL746       1         PL747       2         PL756       2         PL758       2         PL761       2         PL762 - PL768       1         PL769 - PL770       2         PL781 - PL783       2         PL784 - PL787       1         PL788       2         PL793       2         PL801 - PL803       3         PM001       2         PM002 - PM005       1         PM006       2         PM016 - PM017       2         PM021       2         PM022       1         PM023       2         PM051       2         PM052 - PM065       1         PM066       2         PM101       2         PM102 - PM118       1         PM119       2         PM171       2         PM181       2	PL716	3
PL746 1 PL747 2 PL756 2 PL758 2 PL761 2 PL762 - PL768 1 PL769 - PL770 2 PL781 - PL783 2 PL784 - PL787 1 PL788 2 PL793 2 PL801 - PL803 3 PM001 2 PM002 - PM005 1 PM006 2 PM016 - PM017 2 PM021 2 PM022 1 PM023 2 PM051 2 PM051 2 PM052 - PM065 1 PM066 2 PM101 2 PM066 2 PM101 2 PM102 - PM118 1 PM119 2 PM119 2 PM171 2 PM171 2 PM181 2	PL717 - PL743	1
PL747       2         PL756       2         PL758       2         PL761       2         PL762 - PL768       1         PL769 - PL770       2         PL781 - PL783       2         PL784 - PL787       1         PL788       2         PL793       2         PL801 - PL803       3         PM001       2         PM002 - PM005       1         PM006       2         PM016 - PM017       2         PM021       2         PM022       1         PM023       2         PM051       2         PM052 - PM065       1         PM066       2         PM101       2         PM102 - PM118       1         PM119       2         PM171       2         PM181       2	PL744 - PL745	2
PL756 2 PL758 2 PL761 2 PL761 2 PL762 - PL768 1 PL769 - PL770 2 PL781 - PL783 2 PL784 - PL787 1 PL788 2 PL793 2 PL801 - PL803 3 PM001 2 PM002 - PM005 1 PM006 2 PM016 - PM017 2 PM021 2 PM022 1 PM023 2 PM052 - PM065 1 PM066 2 PM052 - PM065 1 PM066 2 PM101 2 PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PL746	1
PL758 2 PL761 2 PL762 - PL768 1 PL769 - PL770 2 PL781 - PL783 2 PL784 - PL787 1 PL788 2 PL793 2 PL801 - PL803 3 PM001 2 PM002 - PM005 1 PM006 2 PM016 - PM017 2 PM021 2 PM022 1 PM023 2 PM051 2 PM052 - PM065 1 PM066 2 PM010 2 PM066 2 PM101 2 PM101 2 PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PL747	2
PL761 2 PL762 - PL768 1 PL769 - PL770 2 PL781 - PL783 2 PL784 - PL787 1 PL788 2 PL793 2 PL801 - PL803 3 PM001 2 PM002 - PM005 1 PM006 2 PM016 - PM017 2 PM021 2 PM022 1 PM023 2 PM051 2 PM052 - PM065 1 PM066 2 PM101 2 PM102 - PM118 1 PM119 2 PM119 2 PM171 2 PM171 2 PM181 2	PL756	2
PL762 - PL768 1 PL769 - PL770 2 PL781 - PL783 2 PL784 - PL787 1 PL788 2 PL793 2 PL801 - PL803 3 PM001 2 PM002 - PM005 1 PM006 2 PM016 - PM017 2 PM022 1 PM023 2 PM052 - PM065 1 PM066 2 PM016 - PM017 2 PM052 - PM065 1 PM066 2 PM101 2 PM101 2 PM101 2 PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PL758	2
PL769 - PL770 2 PL781 - PL783 2 PL784 - PL787 1 PL788 2 PL793 2 PL801 - PL803 3 PM001 2 PM002 - PM005 1 PM006 2 PM016 - PM017 2 PM021 2 PM022 1 PM023 2 PM051 2 PM052 - PM065 1 PM066 2 PM101 2 PM101 2 PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PL761	2
PL781 - PL783 2 PL784 - PL787 1 PL788 2 PL793 2 PL801 - PL803 3 PM001 2 PM002 - PM005 1 PM006 2 PM016 - PM017 2 PM021 2 PM022 1 PM023 2 PM051 2 PM052 - PM065 1 PM066 2 PM101 2 PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PL762 - PL768	1
PL784 - PL787 1 PL788 2 PL793 2 PL801 - PL803 3 PM001 2 PM002 - PM005 1 PM006 2 PM016 - PM017 2 PM021 2 PM022 1 PM023 2 PM051 2 PM052 - PM065 1 PM066 2 PM101 2 PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PL769 - PL770	2
PL788 2 PL793 2 PL801 - PL803 3 PM001 2 PM002 - PM005 1 PM006 2 PM016 - PM017 2 PM021 2 PM022 1 PM023 2 PM051 2 PM052 - PM065 1 PM066 2 PM101 2 PM101 2 PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PL781 - PL783	2
PL793 2 PL801 - PL803 3 PM001 2 PM002 - PM005 1 PM006 2 PM016 - PM017 2 PM021 2 PM022 1 PM023 2 PM051 2 PM052 - PM065 1 PM066 2 PM101 2 PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PL784 - PL787	1
PL801 - PL803 3 PM001 2 PM002 - PM005 1 PM006 2 PM016 - PM017 2 PM021 2 PM022 1 PM023 2 PM051 2 PM052 - PM065 1 PM066 2 PM101 2 PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PL788	2
PM001       2         PM002 - PM005       1         PM006       2         PM016 - PM017       2         PM021       2         PM022       1         PM023       2         PM051       2         PM052 - PM065       1         PM066       2         PM101       2         PM102 - PM118       1         PM119       2         PM141 - PM142       2         PM171       2         PM181       2	PL793	2
PM002 - PM005       1         PM006       2         PM016 - PM017       2         PM021       2         PM022       1         PM023       2         PM051       2         PM052 - PM065       1         PM066       2         PM101       2         PM102 - PM118       1         PM119       2         PM141 - PM142       2         PM171       2         PM181       2	PL801 - PL803	3
PM006       2         PM016 - PM017       2         PM021       2         PM022       1         PM023       2         PM051       2         PM052 - PM065       1         PM066       2         PM101       2         PM102 - PM118       1         PM119       2         PM141 - PM142       2         PM171       2         PM181       2	PM001	2
PM016 - PM017 2 PM021 2 PM022 1 PM023 2 PM051 2 PM052 - PM065 1 PM066 2 PM101 2 PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PM002 - PM005	1
PM021       2         PM022       1         PM023       2         PM051       2         PM052 - PM065       1         PM066       2         PM101       2         PM102 - PM118       1         PM119       2         PM141 - PM142       2         PM171       2         PM181       2	PM006	2
PM022 1 PM023 2 PM051 2 PM052 - PM065 1 PM066 2 PM101 2 PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PM016 - PM017	2
PM023 2 PM051 2 PM052 - PM065 1 PM066 2 PM101 2 PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PM021	2
PM051       2         PM052 - PM065       1         PM066       2         PM101       2         PM102 - PM118       1         PM119       2         PM141 - PM142       2         PM171       2         PM181       2	PM022	1
PM052 - PM065       1         PM066       2         PM101       2         PM102 - PM118       1         PM119       2         PM141 - PM142       2         PM171       2         PM181       2	PM023	2
PM066       2         PM101       2         PM102 - PM118       1         PM119       2         PM141 - PM142       2         PM171       2         PM181       2	PM051	2
PM101       2         PM102 - PM118       1         PM119       2         PM141 - PM142       2         PM171       2         PM181       2	PM052 - PM065	1
PM102 - PM118 1 PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PM066	2
PM119 2 PM141 - PM142 2 PM171 2 PM181 2	PM101	2
PM141 - PM142 2 PM171 2 PM181 2	PM102 - PM118	1
PM171 2 PM181 2	PM119	2
PM181 2	PM141 - PM142	2
	PM171	2
PM251 2	PM181	2
	PM251	2

Variable Number	Group
PM252 - PM254	1
PM255	2
PM281	2
PM282	1
PM283	2
PM381 - PM399	1
PM401 - PM417	1
PM541 - PM564	1
PN001 - PN002	2
PN021	2
PN022 - PN042	1
PN043	2
PN081	2
PN082 - PN085	1
PN086	2
PN101	2
PN102 - PN116	1
PN117	2
PN131	2
PN132 - PN162	1
PN163	2
PN401	2
PN402 - PN419	1
PN420	2
PN431	2
PN432	1
PN433	2
PN451	2
PN452 - PN455	1
PN456	2
PN471	2
PN472 - PN473	1
PN474	2

Variable Number	Group
PN481	2
PN491	2
PN492	1
PN493	2
PN501 - PN502	2
PN511 - PN512	2
PN521	2
PP001 - PP054	1
PP101 - PP169	1
PP181 - PP199	1
PP201 - PP205	1
PP221	1
PP231 - PP243	1
PP281 - PP286	1
PP301 - PP305	1
PP351 - PP353	1
PP376 - PP384	1
PP391 - PP393	1
PP401 - PP440	1
PP471 - PP475	1
PP501 - PP522	1
PP631 - PP634	1
PP651 - PP652	1
PP671 - PP699	1
PP701 - PP733	1
PP771 - PP779	1
PP801 - PP808	1
PP821 - PP827	1
PP831 - PP848	1
PP851 - PP852	1
PP861 - PP877	1
PP891 - PP899	1
PP901 - PP936	1

PP946 - PP948 1 PP951 - PP952 1 PP961 - PP967 1 PP981 - PP991 1 PP993 1 PQ001 - PQ016 1 PQ026 - PQ041 1 PQ051 - PQ092 1 PQ101 - PQ199 1 PQ201 - PQ202 1 PQ221 - PQ237 1 PQ241 - PQ243 1 PQ251 - PQ267 1 PQ331 - PQ307 1 PQ331 - PQ307 1 PQ331 - PQ392 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ421 1 PQ421 1 PQ421 1 PQ431 - PQ448 1 PQ421 1 PQ471 - PQ478 1 PQ471 - PQ478 1 PQ479 - PQ481 1 PQ479 - PQ481 1 PQ486 - PQ487 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	Variable Number	Group
PP961 - PP967 1 PP981 - PP991 1 PP993 1 PQ001 - PQ016 1 PQ026 - PQ041 1 PQ051 - PQ092 1 PQ101 - PQ199 1 PQ201 - PQ202 1 PQ221 - PQ237 1 PQ241 - PQ243 1 PQ251 - PQ267 1 PQ301 - PQ307 1 PQ301 - PQ307 1 PQ301 - PQ307 1 PQ391 - PQ392 1 PQ391 - PQ393 1 PQ401 - PQ418 1 PQ421 1 PQ421 1 PQ421 1 PQ421 1 PQ421 1 PQ431 - PQ448 1 PQ451 1 PQ454 1 PQ454 1 PQ454 1 PQ479 - PQ481 1 PQ479 - PQ481 1 PQ491 - PQ493 1 PQ491 - PQ493 1 PQ791 - PQ793 1 PQ791 - PQ793 1 PQ801 - PQ805 1		
PP981 - PP991 1 PP993 1 PQ001 - PQ016 1 PQ026 - PQ041 1 PQ051 - PQ092 1 PQ101 - PQ199 1 PQ201 - PQ202 1 PQ221 - PQ237 1 PQ241 - PQ243 1 PQ251 - PQ267 1 PQ301 - PQ307 1 PQ331 - PQ307 1 PQ331 - PQ392 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ421 1 PQ421 1 PQ421 1 PQ421 1 PQ431 - PQ448 1 PQ471 - PQ448 1 PQ471 - PQ448 1 PQ451 1 PQ454 1 PQ454 1 PQ479 - PQ481 1 PQ479 - PQ481 1 PQ479 - PQ481 1 PQ491 - PQ493 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PP951 - PP952	1
PP993 1 PQ001 - PQ016 1 PQ026 - PQ041 1 PQ051 - PQ092 1 PQ101 - PQ199 1 PQ201 - PQ202 1 PQ221 - PQ237 1 PQ241 - PQ243 1 PQ251 - PQ267 1 PQ301 - PQ307 1 PQ331 - PQ307 1 PQ331 - PQ392 1 PQ391 - PQ395 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ421 1 PQ421 1 PQ421 1 PQ421 1 PQ431 - PQ448 1 PQ471 - PQ448 1 PQ451 1 PQ454 1 PQ454 1 PQ479 - PQ481 1 PQ479 - PQ481 1 PQ491 - PQ493 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PP961 - PP967	1
PQ001 - PQ016 1 PQ026 - PQ041 1 PQ051 - PQ092 1 PQ101 - PQ199 1 PQ201 - PQ202 1 PQ221 - PQ237 1 PQ241 - PQ267 1 PQ281 - PQ267 1 PQ301 - PQ307 1 PQ331 - PQ307 1 PQ331 - PQ392 1 PQ341 - PQ348 1 PQ361 - PQ373 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ421 1 PQ421 1 PQ431 - PQ448 1 PQ471 - PQ448 1 PQ454 1 PQ454 1 PQ479 - PQ481 1 PQ479 - PQ481 1 PQ491 - PQ493 1 PQ491 - PQ493 1 PQ791 - PQ793 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PP981 - PP991	1
PQ026 - PQ041 1 PQ051 - PQ092 1 PQ101 - PQ199 1 PQ201 - PQ202 1 PQ221 - PQ237 1 PQ241 - PQ267 1 PQ281 - PQ267 1 PQ301 - PQ307 1 PQ301 - PQ307 1 PQ301 - PQ307 1 PQ391 - PQ395 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ431 - PQ448 1 PQ447 - PQ448 1 PQ454 1 PQ471 - PQ475 1 PQ479 - PQ481 1 PQ491 - PQ493 1 PQ491 - PQ493 1 PQ791 - PQ793 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PP993	1
PQ051 - PQ092 1 PQ101 - PQ199 1 PQ201 - PQ202 1 PQ221 - PQ237 1 PQ241 - PQ243 1 PQ251 - PQ267 1 PQ301 - PQ307 1 PQ301 - PQ307 1 PQ301 - PQ307 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ421 1 PQ421 1 PQ447 - PQ448 1 PQ451 1 PQ454 1 PQ471 - PQ475 1 PQ479 - PQ481 1 PQ491 - PQ493 1 PQ491 - PQ493 1 PQ791 - PQ793 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ001 - PQ016	1
PQ101 - PQ199 1 PQ201 - PQ202 1 PQ221 - PQ237 1 PQ241 - PQ243 1 PQ251 - PQ267 1 PQ281 - PQ299 1 PQ301 - PQ307 1 PQ331 - PQ332 1 PQ341 - PQ348 1 PQ361 - PQ373 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ421 1 PQ421 1 PQ431 - PQ448 1 PQ471 - PQ448 1 PQ451 1 PQ454 1 PQ479 - PQ481 1 PQ479 - PQ481 1 PQ491 - PQ493 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ026 - PQ041	1
PQ201 - PQ202 1 PQ221 - PQ237 1 PQ241 - PQ243 1 PQ251 - PQ267 1 PQ281 - PQ299 1 PQ301 - PQ307 1 PQ331 - PQ332 1 PQ341 - PQ348 1 PQ361 - PQ373 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ431 - PQ448 1 PQ451 1 PQ454 1 PQ471 - PQ475 1 PQ479 - PQ481 1 PQ479 - PQ481 1 PQ491 - PQ493 1 PQ491 - PQ493 1 PQ791 - PQ793 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ051 - PQ092	1
PQ221 - PQ237 1 PQ241 - PQ243 1 PQ251 - PQ267 1 PQ281 - PQ299 1 PQ301 - PQ307 1 PQ331 - PQ332 1 PQ341 - PQ348 1 PQ361 - PQ373 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ431 - PQ448 1 PQ447 - PQ448 1 PQ451 1 PQ454 1 PQ479 - PQ481 1 PQ479 - PQ481 1 PQ491 - PQ493 1 PQ491 - PQ493 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ101 - PQ199	1
PQ241 - PQ243 1 PQ251 - PQ267 1 PQ281 - PQ299 1 PQ301 - PQ307 1 PQ331 - PQ332 1 PQ341 - PQ348 1 PQ361 - PQ373 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ421 1 PQ447 - PQ448 1 PQ451 1 PQ454 1 PQ454 1 PQ479 - PQ481 1 PQ479 - PQ481 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ201 - PQ202	1
PQ251 - PQ267 1 PQ281 - PQ299 1 PQ301 - PQ307 1 PQ331 - PQ332 1 PQ341 - PQ348 1 PQ361 - PQ373 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ431 - PQ448 1 PQ451 1 PQ451 1 PQ454 1 PQ471 - PQ475 1 PQ479 - PQ481 1 PQ486 - PQ487 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ221 - PQ237	1
PQ281 - PQ299 1 PQ301 - PQ307 1 PQ331 - PQ332 1 PQ341 - PQ348 1 PQ361 - PQ373 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ431 - PQ438 1 PQ447 - PQ448 1 PQ451 1 PQ471 - PQ475 1 PQ479 - PQ481 1 PQ486 - PQ487 1 PQ491 - PQ493 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ241 - PQ243	1
PQ301 - PQ307 1 PQ331 - PQ332 1 PQ341 - PQ348 1 PQ361 - PQ373 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ431 - PQ438 1 PQ447 - PQ448 1 PQ451 1 PQ454 1 PQ471 - PQ475 1 PQ479 - PQ481 1 PQ486 - PQ487 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ251 - PQ267	1
PQ331 - PQ332 1 PQ341 - PQ348 1 PQ361 - PQ373 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ431 - PQ438 1 PQ447 - PQ448 1 PQ451 1 PQ454 1 PQ479 - PQ481 1 PQ479 - PQ481 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ281 - PQ299	1
PQ341 - PQ348 1 PQ361 - PQ373 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ431 - PQ438 1 PQ447 - PQ448 1 PQ451 1 PQ454 1 PQ479 - PQ475 1 PQ479 - PQ481 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ301 - PQ307	1
PQ361 - PQ373 1 PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ431 - PQ438 1 PQ447 - PQ448 1 PQ451 1 PQ454 1 PQ471 - PQ475 1 PQ479 - PQ481 1 PQ486 - PQ487 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ331 - PQ332	1
PQ391 - PQ395 1 PQ401 - PQ418 1 PQ421 1 PQ431 - PQ438 1 PQ447 - PQ448 1 PQ451 1 PQ454 1 PQ471 - PQ475 1 PQ479 - PQ481 1 PQ486 - PQ487 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ341 - PQ348	1
PQ401 - PQ418 1 PQ421 1 PQ431 - PQ438 1 PQ447 - PQ448 1 PQ451 1 PQ454 1 PQ471 - PQ475 1 PQ479 - PQ481 1 PQ486 - PQ487 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ361 - PQ373	1
PQ421 1 PQ431 - PQ438 1 PQ447 - PQ448 1 PQ451 1 PQ454 1 PQ471 - PQ475 1 PQ479 - PQ481 1 PQ486 - PQ487 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ391 - PQ395	1
PQ431 - PQ438 1 PQ447 - PQ448 1 PQ451 1 PQ454 1 PQ471 - PQ475 1 PQ479 - PQ481 1 PQ486 - PQ487 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ401 - PQ418	1
PQ447 - PQ448 1 PQ451 1 PQ454 1 PQ471 - PQ475 1 PQ479 - PQ481 1 PQ486 - PQ487 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ421	1
PQ451 1 PQ454 1 PQ471 - PQ475 1 PQ479 - PQ481 1 PQ486 - PQ487 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ431 - PQ438	1
PQ454 1 PQ471 - PQ475 1 PQ479 - PQ481 1 PQ486 - PQ487 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ447 - PQ448	1
PQ471 - PQ475 1 PQ479 - PQ481 1 PQ486 - PQ487 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ451	1
PQ479 - PQ481 1 PQ486 - PQ487 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ454	1
PQ486 - PQ487 1 PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ471 - PQ475	1
PQ491 - PQ493 1 PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ479 - PQ481	1
PQ771 - PQ772 1 PQ791 - PQ793 1 PQ801 - PQ805 1	PQ486 - PQ487	1
PQ791 - PQ793 1 PQ801 - PQ805 1	PQ491 - PQ493	1
PQ801 - PQ805 1	PQ771 - PQ772	1
	PQ791 - PQ793	1
PQ931 - PQ935 1	PQ801 - PQ805	1
	PQ931 - PQ935	1

Variable Number	Group
PQ951	1
PQ971 - PQ997	1
PR001 - PR017	1
PR021 - PR034	1
PR041 - PR045	1
PR061 - PR072	1
PR077 - PR082	1
PR091 - PR092	1
PR096	1
PR101	1
PR121 - PR122	1
PR131 - PR132	1
PR141 - PR143	1
PR161 - PR172	1
PR181	1
PS601 - PS631	1
PS636 - PS638	1
PS641 - PS644	1
PS651 - PS657	1
PS666 - PS669	1
PS691 - PS692	1
PS701 - PS706	1
PS751 - PS799	1
PS811	1
PS836 - PS837	1
PS841 - PS846	1
PS851 - PS852	1
PS856	1
PS861 - PS863	1
PS866 - PS868	1
PS871 - PS874	1
PS896 - PS897	1
PS901 - PS941	1

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Variable Number	Group
PS956 - PS957	1
PS961 - PS963	1
PS971 - PS978	1
PT001 - PT015	1
PT021 - PT031	1
PT041 - PT064	1
PT101 - PT105	1
PT121 - PT138	1
PT146 - PT148	1
PT161 - PT170	1
PT181 - PT188	1
PT211 - PT220	1
PT295	1
PT301 - PT309	1
PT331 - PT360	1
PT381 - PT399	1
PT401 - PT438	1
PT501 - PT517	1
PT561 - PT565	1
PT581 - PT586	1
PT611 - PT621	1
PT641 - PT644	1
PT651 - PT656	1
PT671 - PT672	1
PT681 - PT685	1
PT701 - PT703	1
PT716 - PT717	1
PT721 - PT725	1
PT801 - PT834	1
PT851 - PT854	1
PT871 - PT886	1
PT901 - PT930	1
PT971 - PT973	1
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Variable Number	Group
PT981 - PT985	1
PT996	1
PU001 - PU025	1
PU301	1
PU311 - PU313	1
PV001 - PV055	1
PV201 - PV209	1
PV226 - PV229	1
PV231 - PV237	1
PV271 - PV272	1
PV281 - PV287	1
PV296	1
PV301 - PV302	1
PV351	1
PV356 - PV357	1
PW001 - PW054	1
PW061 - PW068	1
PW072	1
PW086 - PW088	1
PW091 - PW094	1
PW101 - PW102	1
PW106	1
PW111 - PW120	1
PW156 - PW157	1
PW161 - PW171	1
PW201 - PW252	1
PW261 - PW268	1
PW271 - PW276	1
PW278	1
PW281 - PW293	1
PW296	1
PW301 - PW327	1
PW401 - PW408	1

Variable Number	Group
PW411 - PW418	1
PW421 - PW424	1
PW431 - PW435	1
PW441 - PW450	1
PW461 - PW467	1
PW501 - PW504	1
PW511 - PW522	1
PW524 - PW550	1
PW556 - PW557	1
PW561 - PW564	1
PW571 - PW576	1
PW591 - PW596	1
PW611 - PW622	1
PW631 - PW637	1
PW661 - PW662	1
PW681 - PW683	1
PW701 - PW702	1
PW711 - PW717	1
PW741 - PW742	1
PW761	1
PW771	1
PW831	1
PW851 - PW856	1
PX071	3
PX701	3
PY001 - PY008	3
PY021	3
PY022	2
PY031	3
PY036 - PY037	2
PY046	2
PY047	1
PY048	2

PY051 2 PY052 1 PY053 2 PY056 - PY057 2 PY101 2 PY102 1 PY103 2 PY111 2 PY112 1 PY113 2 PY131 2 PY131 2 PY131 2 PY141 2 PY142 1 PY142 1 PY143 2 PY141 2 PY166 - PY157 2 PY161 - PY162 2 PY166 2 PY166 2 PY191 2 PY201 3 PY201 3	Variable Number	Group
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PY111 2 PY112 1 PY113 2 PY131 2 PY132 1 PY133 - PY135 2 PY141 2 PY142 1 PY143 2 PY151 - PY154 2 PY166 - PY157 2 PY166 2 PY191 2 PY201 2 PY201 2 PY221 - PY222 2 PY231 2 PY241 2 PY242 - PY243 1 PY244 2 PY270 - PY271 2 PY275 2 PY281 2 PY286 2	PY102	1
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PY141 2 PY142 1 PY143 2 PY151 - PY154 2 PY156 - PY157 2 PY161 - PY162 2 PY166 2 PY191 2 PY201 2 PY221 - PY222 2 PY231 2 PY241 2 PY242 - PY243 1 PY244 2 PY270 - PY271 2 PY275 2 PY281 2 PY286 2	PY132	1
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PY241 2 PY242 - PY243 1 PY244 2 PY270 - PY271 2 PY272 - PY274 1 PY275 2 PY281 2 PY286 2	PY221 - PY222	2
PY242 - PY243 1 PY244 2 PY270 - PY271 2 PY272 - PY274 1 PY275 2 PY281 2 PY286 2	PY231	2
PY244 2 PY270 - PY271 2 PY272 - PY274 1 PY275 2 PY281 2 PY286 2	PY241	2
PY270 - PY271 2 PY272 - PY274 1 PY275 2 PY281 2 PY286 2	PY242 - PY243	1
PY272 - PY274 1 PY275 2 PY281 2 PY286 2	PY244	2
PY275 2 PY281 2 PY286 2	PY270 - PY271	2
PY281 2 PY286 2	PY272 - PY274	1
PY286 2	PY275	2
	PY281	2
PY301 - PY304 3	PY286	2
	PY301 - PY304	3

Variable Number	Group
PY321 - PY323	3
PY341 - PY346	3
PY361 - PY362	3
PY381	3
PY401	2
PY409 - PY411	2
PY421 - PY422	2
PY441	2
PY451	2
PY461	2
PY462	1
PY463	2
PY591	2
PY592 - PY594	1
PY595	2
PY611 - PY612	2
PY621	2
PY631	2
PY651	2
PY671 - PY672	2
PY721	2
PY741	2

#### 2. Spares Affected

None.

# **B.** Concurrent Requirements

None.

# C. Reason

This service bulletin gives instructions to remove and replace each metal clamp or improperly installed tie straps with properly installed plastic tie straps. A General Visual Inspection (GVI) will be done for the metal clamps and improperly installed plastic tie straps on the hoses of the Air Conditioning Temperature Sensor, Gasper Air Outlet and the Diffuser on the left side of the Control Cabin at STA 259.5. Also, do a General Visual inspection (GVI) of adjacent wire bundles for damage or chafing and repair the damage. Metal clamps and improperly installed plastic tie straps on the hoses can cause

damage to the adjacent wire bundles. Replacing each metal clamp or improperly installed plastic tie strap with properly installed plastic tie strap and repairing any damaged wire bundles, will minimize the possibility of wire bundle damage and chafing. If not corrected the adjacent wire bundles may sustain damage or chafe and there is the possibility of shorting an electrical circuit which may lead to fire and smoke in the flight deck.

Operators have informed Boeing of chafed wire bundles caused by metal clamps installed on hoses to the Air Conditioning Temperature Sensor, Gasper Air Outlet and the Diffuser on the left side of the Control Cabin at STA 259.5. A metal clamp or improperly installed plastic tie strap can cause chafing of the wire bundles.

Boeing Service Related Problem (SRP) 737-SRP-21-0186 is related to this service bulletin.

Revision 1 is sent to remove and replace each metal clamp or improperly installed tie straps with properly installed plastic tie straps. A General Visual Inspection (GVI) will be done for the metal clamps and improperly installed plastic tie straps on the hoses of the Air Conditioning Temperature Sensor, Gasper Air Outlet and the Diffuser on the left side of the Control Cabin at STA 259.5. Also, do a GVI of adjacent wire bundles for damage or chafing and repair the damage.

The data given in Information Notice 737-21-1186 IN 01 is included in this revision.

#### D. Description

#### **Group 1-2:**

Gain access to the Air Conditioning Temperature Sensor, Gasper Air Outlet and the Diffuser on the left side of the Control Cabin. Do a General Visual Inspection (GVI) of hoses for metal clamps or improperly installed plastic tie straps. Remove and replace each metal clamps or improperly installed plastic tie straps with properly installed plastic tie straps. Do a GVI of adjacent wire bundles for damage or chafing and repair the damage. Close access to the Air Conditioning Temperature Sensor, Gasper Air Outlet and the Diffuser on the left side of the Control Cabin.

#### Group 3:

No retrofit actions are provided.

Revision 1 - Effects of this Revision on airplanes on which the Original Issue was previously done:

Group	Condition	Action
Groups 1 and 2	Airplanes that have incorporated Service Bulletin 737-21-1186 original issue.	Inspect for metal clamps and improperly installed plastic tie straps and remove. Install new plastic tie straps. Inspect for wire bundle damage or chafing and repair the damage.

Boeing endorses the new Federal Aviation Administration (FAA) rules related to Limit of Validity (LOV) and recommends immediate and permanent removal from service of any airplane upon reaching the LOV, whether or not it is operated under FAA jurisdiction. Boeing no longer provides maintenance instructions for airplanes that have accumulated flight cycles beyond the LOV. Airplanes in Group 3 (line numbers 1-291) have accumulated flight cycles beyond the LOV of the maintenance program. Title 14, Code of Federal Regulations (14 CFR) 121.1115 and 129.115 prohibit operation of an airplane beyond its LOV.

The work in this service bulletin is done in the maintenance zone(s) given below.

#### Group 1:

Affected Maintenance Zones	
Model	Zone
737-300, 737-400, 737-500	101

#### **Group 1-2:**

Affected Maintenance Zones		
Model	Zone	
737-200, 737-200C	1-11	

## Group 3:

Affected Maintenance Zones	
Model	Zone
737-100, 737-200, 737-200C	1-11

#### E. Compliance

Federal Aviation Administration (FAA) Airworthiness Directive AD 2014-04-05 is related to this service bulletin.

Boeing recommends that the changes given in this service bulletin be done within 60 months after the effective date of AD 2014-04-05. The effective date of AD 2014-04-05 is April 1, 2014.

#### Group 3:

Boeing endorses the new Federal Aviation Administration (FAA) rules related to Limit of Validity (LOV) and recommends immediate and permanent removal from service of any airplane upon reaching the LOV, whether or not it is operated under FAA jurisdiction. Boeing no longer provides maintenance instructions for airplanes that have accumulated flight cycles beyond the LOV. Airplanes in Group 3 (line numbers 1-291) have accumulated flight cycles beyond the LOV of the maintenance program. Title 14, Code of Federal Regulations (14 CFR) 121.1115 and 129.115 prohibit operation of an airplane beyond its LOV.

#### F. Approval

This service bulletin was examined by the Federal Aviation Administration (FAA). The changes specified in this service bulletin comply with the applicable regulations and are FAA approved, as well as European Aviation Safety Agency (EASA)/Joint Aviation Authorities (JAA) approved for all EASA/JAA approved airplanes listed in the service bulletin effectivity. This service bulletin and its approval were based on the airplane in its original Boeing delivery configuration or as modified by other approved Boeing changes.

If an airplane has a non-Boeing modification or repair that affects a component or system also affected by this service bulletin, the operator is responsible for obtaining appropriate regulatory agency approval before incorporating this service bulletin.

In addition, the Manager of the FAA Seattle Aircraft Certification Office approves the action (i.e. inspection or modification) defined in this service bulletin as an alternative method of compliance to the requirements of paragraph (g)(1) and (g)(2) of AD 2014-04-05. All provisions of AD 2014-04-05 that are not specifically referenced in the above statement remain fully applicable and must be complied with.

# G. Manpower

The table below shows an estimate of the task hours necessary to do this inspection and change for each airplane. This estimate is for direct labor only, done by an experienced crew. Adjust the estimate with operator task hour data if necessary. The estimate does not include lost time. These are some examples of lost time:

- Time to adjust to the workplace
- Time to schedule the work
- Time to inspect the work
- Time to cure the materials
- Time to make the parts
- Time to find the tools.

### Group 1:

Task	Number of Persons	Task Hours	Elapsed Hours
Gain Access	1	0.50	0.50
FIGURE 1	1	0.25	0.25
FIGURE 2	1	0.75	0.75
Close Access	1	0.50	0.50
TOTAL FOR EACH AIRPLANE		2.00	2.00

#### Group 2:

Task	Number of Persons	Task Hours	Elapsed Hours
Gain Access	1	0.50	0.50
FIGURE 3	1	0.25	0.25
FIGURE 4	1	0.75	0.75
Close Access	1	0.50	0.50
TOTAL FOR EACH AIRPLANE		2.00	2.00

#### H. Weight and Balance Changes

None.

#### I. Electrical Load Data

Not changed.

#### J. References

- 1. Existing Data:
  - a. Engineering Change Memo PRR 35005-309R
  - b. Federal Aviation Administration (FAA) Airworthiness Directive (AD) AD 2014-04-05
  - c. Boeing Service Related Problem (SRP) 737-SRP-21-0186
  - d. Service Bulletin Index D6-19567
  - e. Standard Overhaul Practices Manual (SOPM) 20-50-01
  - f. Standard Wiring Practices Manual (SWPM) 20-10-11, 20-10-12, 20-10-13, 20-10-19
  - g. 737-100/200 Aircraft Maintenance Manual (AMM) 21-22-09, 25-11-21
  - h. 737-300/400/500 Aircraft Maintenance Manual (AMM) 21-22-09, 25-11-21
- 2. Data Supplied with this Service Bulletin:

None.

3. Installation Drawings Used in the Preparation of this Service Bulletin:

Drawing Number	Title
65-52958	TEMP SENSOR INSTL - CONTROL CABIN, AIR CONDITIONING
65-55402	TEMP SENSOR INSTL - CONTROL CABIN, AIR CONDITIONING
65-54415	DIFFUSER INSTL - OVERHEAD DISTRIB, CONTROL CABIN
69-42753	DUCT INSTL - INDIVIDUAL AIR CONTROL CABIN

The table above lists applicable drawings used to prepare this service bulletin. The drawings are not necessary to make the specified changes, and are not supplied with this service bulletin. The drawings may not be applicable to all airplane configurations or operators.

#### K. Publications Affected

#### 1. Publications:

Publication	Chapter-Section	
737 Aircraft Maintenance Manual	21-22	
737 Illustrated Parts Catalog	21-00, 21-20, 21-22, 21-23, 21-60	

# 2. Damage Tolerance Based Structural Inspections:

Boeing has evaluated the repairs and/or changes in this service bulletin for effects on Fatigue Critical Structure (FCS) and for changes to Damage Tolerance Inspections (DTI) required in the Maintenance Program. This service bulletin does not affect FCS, therefore DTIs are not necessary.

## L. Interchangeability and Intermixability of Parts

Accomplishment of this service bulletin does not affect interchangeability or intermixability of parts.

# M. Software Accomplishment Summary

Not affected.

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#### 2. MATERIAL INFORMATION

#### A. Material - Price and Availability

The operator can supply the parts and materials shown in Paragraph 2.C., Parts Necessary for Each Airplane. As an alternative, operators can purchase the parts from Boeing Spares. This service bulletin does not show the Boeing price and supply data.

#### **B.** Industry Support Information

Boeing warranty remedies are not available for the inspection and repair procedure given in this service bulletin.

#### C. Parts Necessary for Each Airplane

1. Kits/Parts

None.

#### 2. Parts and Materials Supplied by the Operator

The following parts or materials are necessary to do the change in this service bulletin. Parts and materials in the manuals given in Paragraph 1.J., References, can also be necessary. Examine operator part and material supply to make sure all necessary parts and materials are available.

Part Number / Specification	QTY	Name	Notes
BACS38K7	-	PLASTIC TIE STRAP	(a)
(a) Quantity required may vary for each airplane.			

#### 3. Parts Modified and Reidentified

None.

#### 4. Parts Removed and Not Replaced

None.

# D. Parts Necessary to Change Spares

None.

#### E. Special Tooling - Price and Availability

None.

# F. Special Tooling Necessary to do this Service Bulletin

No special tools or equipment are necessary to do the change in this service bulletin. But, maintenance and overhaul tools in the manuals given in Paragraph 1.J., References, can be necessary. Examine operator tool supply to make sure all necessary tools are available.

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#### 3. ACCOMPLISHMENT INSTRUCTIONS

#### A. GENERAL INFORMATION

**CAUTION:** 

KEEP THE WORK AREA, WIRES AND ELECTRICAL BUNDLES CLEAN OF METAL PARTICLES OR CONTAMINATION WHEN YOU USE TOOLS. UNWANTED MATERIAL, METAL PARTICLES OR CONTAMINATION CAUGHT IN WIRE BUNDLES CAN CAUSE DAMAGE TO THE BUNDLES. DAMAGED WIRE BUNDLES CAN CAUSE SPARKS OR OTHER ELECTRICAL DAMAGE.

- **NOTE:** 1. Manual titles are referred to by acronyms. Refer to Paragraph 1.J., References, for definition of the acronyms.
  - Obey all of the warnings and cautions given in the specified manual sections.
  - 3. Unless shown differently, these dimensions and tolerances are used:
    - Linear dimensions are in inches
    - Tolerance on linear dimensions, other than rivet and bolt edge margins, is plus or minus 0.03 inch
    - Tolerance on rivet and bolt edge margin is plus or minus 0.05 inch
    - Angular tolerance is plus or minus 2 degrees
    - Hole dimensions for standard solid rivets and fasteners are in Structural Repair Manual (SRM) Chapter 51
    - Torque Values:
      - Values for structural fasteners are given in 737 Structural Repair Manual, Chapter 51.
      - Values for airframe maintenance tasks are included in Chapter 20 of 737
         Aircraft Maintenance Manual (AMM).
      - Values for electrical maintenance tasks are included in Chapter 20 of Standard Wiring Practices Manual (SWPM).
      - Values for engine maintenance tasks are included in Chapter 70 of 737
         Aircraft Maintenance Manual (AMM).
      - Non-standard torque values for maintenance tasks are included in the applicable installation step.
  - 4. Use the approved fastener, process and material substitutions in accordance with SRM Chapter 51.
  - Refer to the SWPM 20-10-11 and SWPM 20-10-12 for the wire installation procedures, and SWPM 20-10-19 for the wire separation requirements, as accepted procedures.
  - 6. The necessary conditions for selection of clamp type and size are included in SWPM 20-10-12. If any wire bundle support clamp specified in this service bulletin does not make a correct fit on the wire bundle, refer to SWPM 20-10-12 as an accepted procedure to select a clamp that fits correctly.

- 7. If the length of any fastener specified in this service bulletin does not meet installation standards given in SRM Chapter 51, then a fastener of the same specification, or an approved substitute, with a length which meets the installation standards given in SRM Chapter 51 may be used. In addition, washers may be installed for fastener grip length in accordance with SRM Chapter 51. Refer to SOPM 20-50-01 for alternate full threaded fasteners (screws) needed for installation in this service bulletin.
- 8. A General Visual Inspection is defined as: A visual examination of an interior or exterior area, installation or assembly to detect obvious damage, failure or irregularity. This level of inspection is made from within touching distance unless otherwise specified. A mirror may be necessary to enhance visual access to all exposed surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight or drop-light and may require removal or opening of access panels or doors. Stands, ladders or platforms may be required to gain proximity to the area being checked.
- 9. These work instructions refer to procedures included in other Boeing documents. When the words "refer to" are used and the operator has an accepted alternative procedure, the accepted alternative procedure can be used. When the words "in accordance with" are included in the instruction, the procedure in the Boeing document must be used.
- 10. If it is necessary to remove more parts for access, you can remove those parts. If you can get access without removing identified parts, it is not necessary to remove all of the identified parts. Jacking and shoring limitations must be observed.
- 11. Where the work instructions include installation of a kept part, a new or serviceable part with the same part number can be installed as an alternative to the kept part.
- 12. Use of colors in Figures is based on guidance from the ATA e-Business Program (ATA) iSpec 2200.
- 13. The compliance times for the actions in Paragraph 3.B., WORK INSTRUCTIONS are in Paragraph 1.E., Compliance.
- 14. Some steps in the Work Instructions are identified as Required for Compliance (RC). If this service bulletin is mandated by an Airworthiness Directive (AD), then the steps identified as RC must be done to comply with the AD. Alternative procedures for steps not identified with RC can be used if the RC steps can still be done as specified, and the airplane can be put back in a serviceable condition. An Alternative Method of Compliance (AMOC) is not necessary for deviations to steps that are not identified as RC.

#### **B. WORK INSTRUCTIONS**

#### **Group 1-2:**

- Gain access to the hoses that attach to the Air Conditioning Temperature Sensor, Gasper Air Outlet and Diffuser at the left side of the Control Cabin, STA 259.5. Refer to 737-100/200 AMM 25-11-21 or 737-300/400/500 AMM 25-11-21 as an accepted procedure.
- RC Do a General Visual Inspection (GVI) of the hoses for metal clamp and plastic tie strap installations in accordance with the figures in the table below:

Group 1	Group 2
FIGURE 1	FIGURE 3

a. Condition 1 - Metal clamp found

Remove and replace with a plastic tie strap in accordance with the figures in the table below:

Group 1	Group 2
FIGURE 2	FIGURE 4

b. Condition 2 - Plastic tie strap found installed with head not pointed towards the panel.

Remove and replace with a plastic tie strap in accordance with the figures in the table below:

Group 1	Group 2	
FIGURE 2	FIGURE 4	

c. Condition 3 - Plastic tie strap found installed with head pointed towards the panel.

No further action is necessary.

- RC Do a GVI of the wire bundles adjacent to the hoses of the Air Conditioning Temperature Sensor, Gasper Air Outlet and the Diffuser on the left side of the Control Cabin at STA 259.5 for damage or chafing.
  - a. Condition 4 Wire bundles found damaged, chafed, or both.

Repair wire bundle. Refer to SWPM 20-10-13 as an accepted procedure.

b. Condition 5 - Wire bundles found not damaged and not chafed.

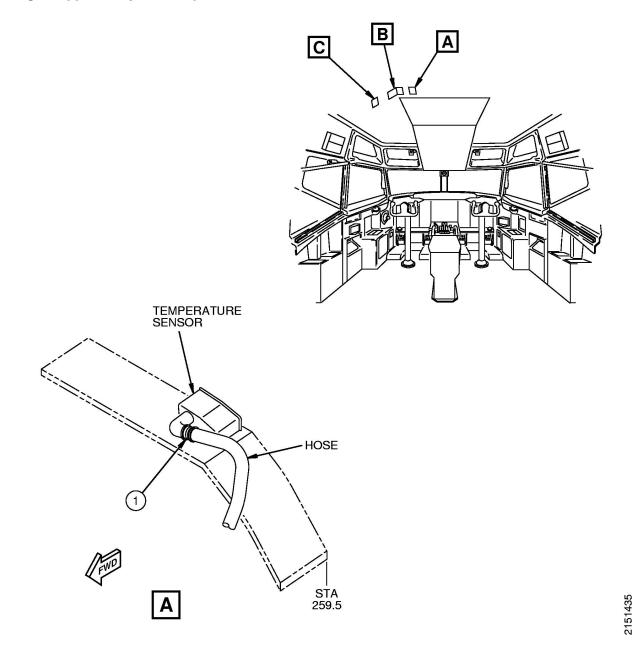
No further action is necessary.

- 4. Close access to the hoses that attach to the Air Conditioning Temperature Sensor, Gasper Air Outlet and Diffuser at the left side of the Control Cabin, STA 259.5. Refer to 737-100/200 AMM 25-11-21 or 737-300/400/500 AMM 25-11-21 as an accepted procedure.
- 5. Put the airplane back to a serviceable condition.

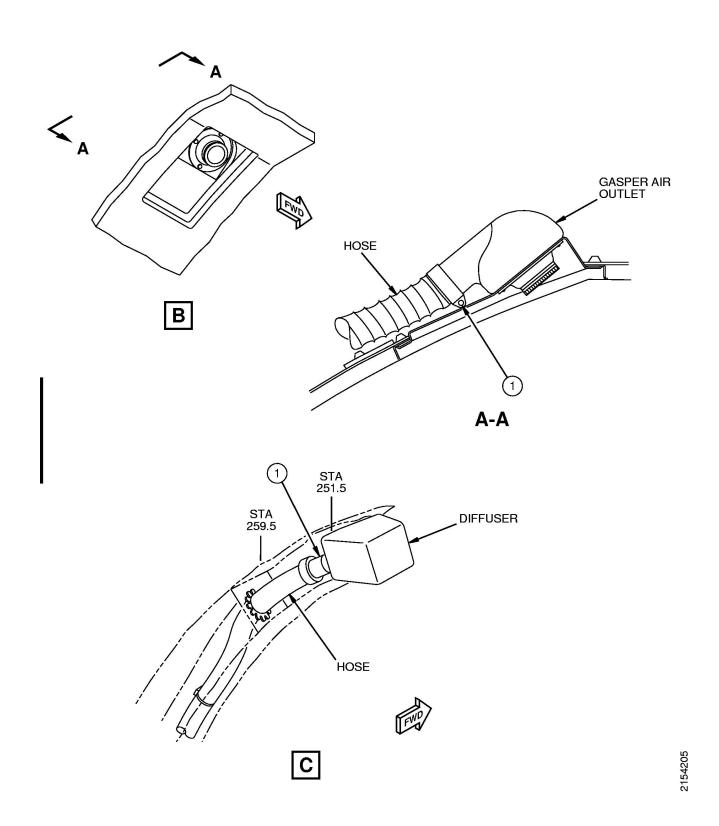
### Group 3:

 Boeing endorses the new Federal Aviation Administration (FAA) rules related to Limit of Validity (LOV) and recommends immediate and permanent removal from service of any airplane upon reaching the LOV, whether or not it is operated under FAA jurisdiction. Boeing no longer provides maintenance instructions for airplanes that have accumulated flight cycles beyond the LOV. Airplanes in Group 3 (line numbers 1-291) have accumulated flight cycles beyond the LOV of the maintenance program. Title 14, Code of Federal Regulations (14 CFR) 121.1115 and 129.115 prohibit operation of an airplane beyond its LOV.

## This Figure applies only to: Group 1.



# FIGURE 1: HOSE GENERAL VISUAL INSPECTION (SHEET 1 OF 3)



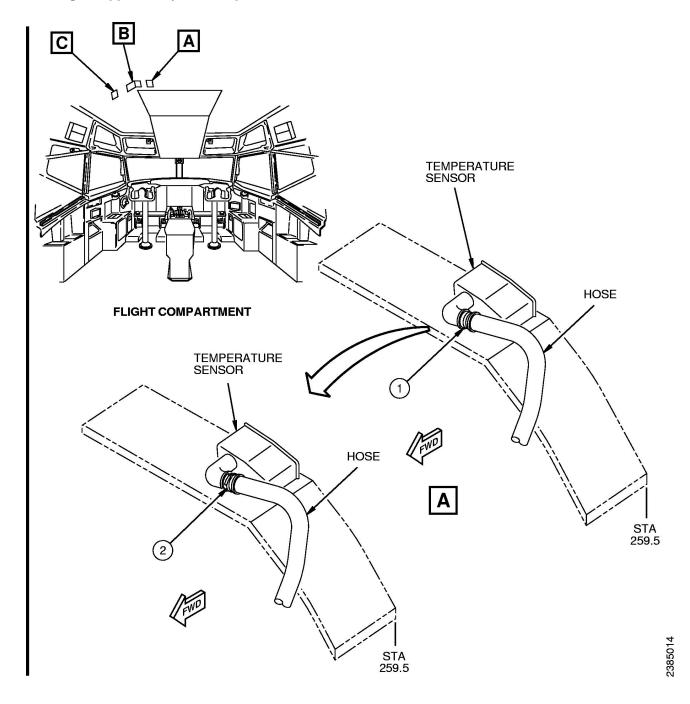
## FIGURE 1: HOSE GENERAL VISUAL INSPECTION (SHEET 2 OF 3)

The step numbers shown below agree with the numbers shown in the circle symbols in the figure.

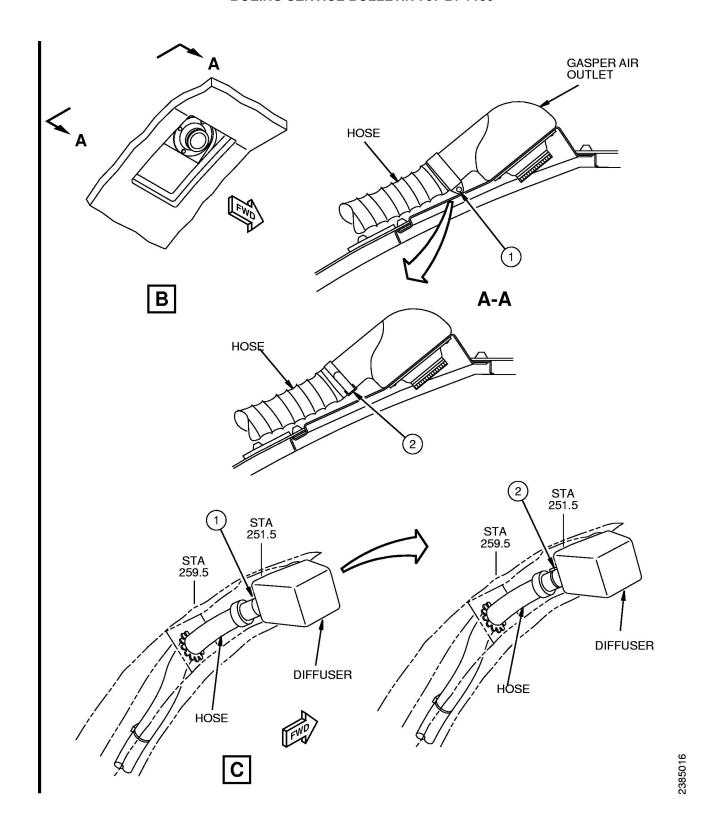
Step	Task	Name	Identification	Qty	More Data
1	Inspect	Metal Clamp or Plastic Tie Strap	-	-	(a) (b)

- (a) Do a General Visual Inspection (GVI) of hoses for metal clamps or improperly installed plastic tie straps.
- (b) An improperly installed plastic tie strap has the head pointed in any direction, except towards the panel. The correct installation is head of plastic tie strap towards the panel.

This Figure applies only to: Group 1.



# FIGURE 2: PLASTIC TIE STRAP INSTALLATION (SHEET 1 OF 3)

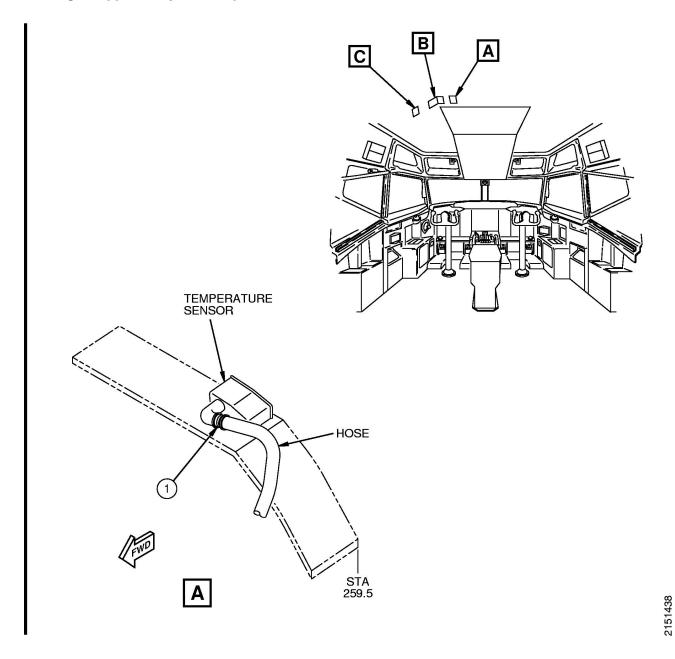


# FIGURE 2: PLASTIC TIE STRAP INSTALLATION (SHEET 2 OF 3)

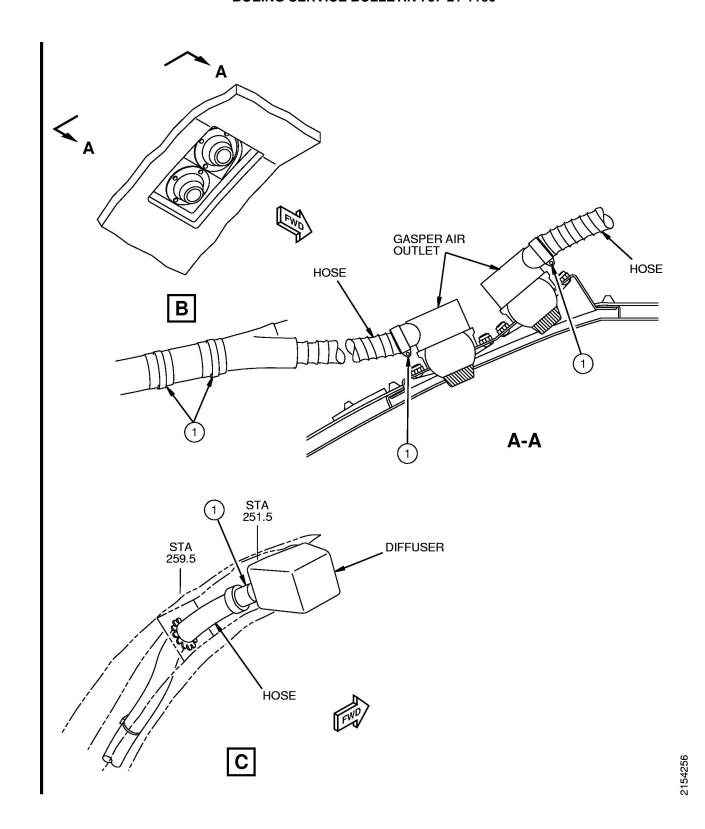
The step numbers shown below agree with the numbers shown in the circle symbols in the figure.

Step	Task	Name	Identification	Qty	More Data		
1	Remove	Metal Clamp or Plastic Tie Strap	-	-	(a)		
2	Install (New)	Plastic Tie Strap	BACS38K7	-	(b) (c)		
(a) Qu	(a) Quantity may vary for each airplane.						
(b) Install the plastic tie strap with head pointed towards panel. Refer to AMM 737-100/200 AMM 21-22-09 or 737-300/400/500 AMM 21-22-09 as an accepted procedure.							
(c) Us	(c) Use a tension setting between 18-22 inch pounds. Refer to SWPM 20-10-11 as an accepted procedure.						

## This Figure applies only to: Group 2.



# FIGURE 3: HOSE GENERAL VISUAL INSPECT (SHEET 1 OF 3)



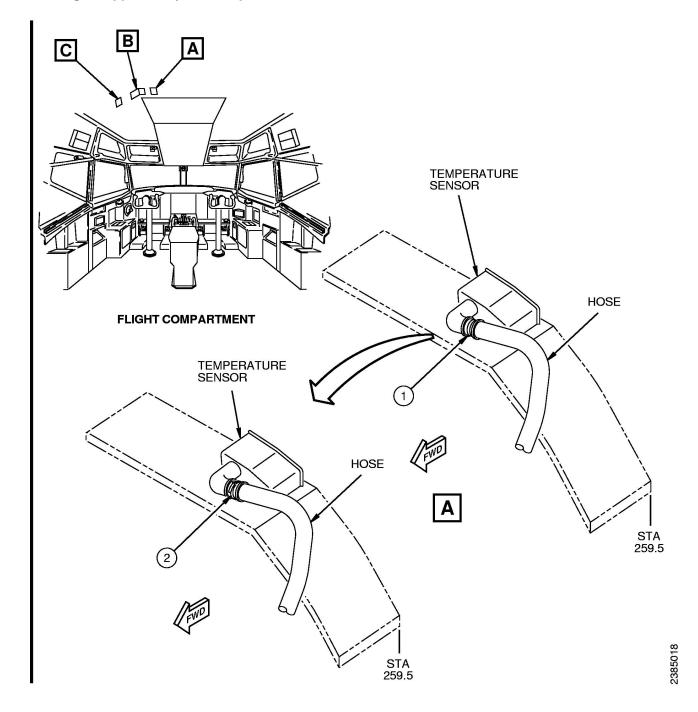
# FIGURE 3: HOSE GENERAL VISUAL INSPECT (SHEET 2 OF 3)

The step numbers shown below agree with the numbers shown in the circle symbols in the figure.

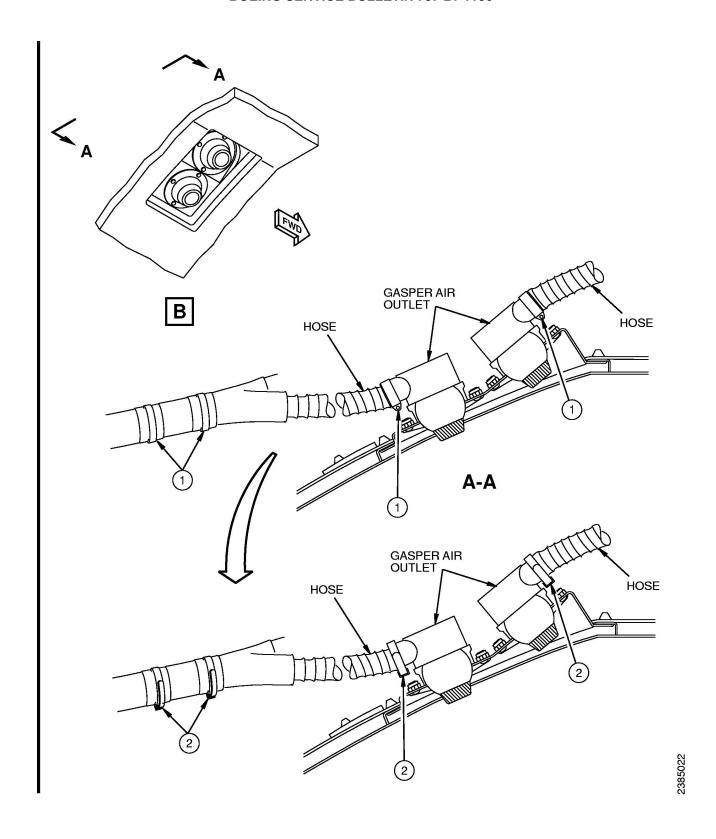
Step	Task	Name	Identification	Qty	More Data
1	Inspect	Metal Clamp or Plastic Tie Strap	-	-	(a) (b)

- (a) Do a General Visual Inspection (GVI) of hoses for metal clamps or improperly installed plastic tie straps.
- (b) An improperly installed plastic tie strap has the head pointed in any direction, except towards the panel. The correct installation is head of plastic tie strap towards the panel.

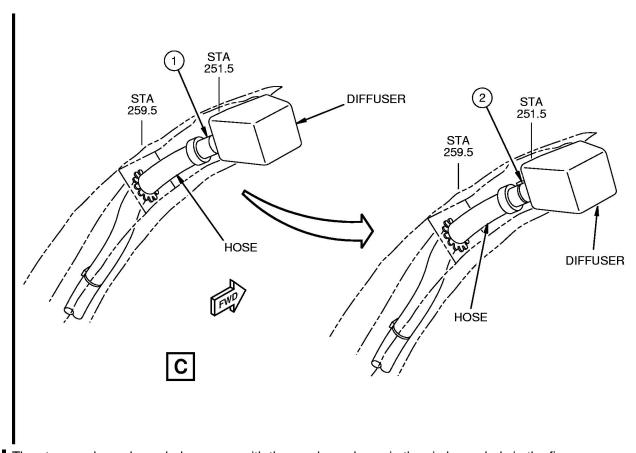
## This Figure applies only to: Group 2.



## FIGURE 4: PLASTIC TIE STRAP INSTALLATION (SHEET 1 OF 3)



# FIGURE 4: PLASTIC TIE STRAP INSTALLATION (SHEET 2 OF 3)



The step numbers shown below agree with the numbers shown in the circle symbols in the figure.

Step	Task	Name	Identification	Qty	More Data
1	Remove	Metal Clamp or Plastic Tie Strap	-	-	(a)
2	Install (New)	Plastic Tie Strap	BACS38K7	-	(b) (c)

- (a) Quantity may vary for each airplane.
- (b) Install the plastic tie strap with head pointed towards the panel. Refer to AMM 737-100/200 AMM 21-22-09 or 737-300/400/500 AMM 21-22-09 as an accepted procedure.
- (c) Use a tension setting between 18-22 inch pounds. Refer to SWPM 20-10-11 as an accepted procedure.

## FIGURE 4: PLASTIC TIE STRAP INSTALLATION (SHEET 3 OF 3)

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