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(54) **Domestic appliance with a button holder**

Haushaltsgerät mit einem Knopfhalter

Appareil ménager doté d'un support de bouton

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(56) References cited:
EP-A1- 2 360 308 WO-A2-2007/013023
DE-A1- 19 950 829 DE-C1- 10 044 448
US-A- 5 931 151

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Description

[0001] The present invention concerns a button holder element to retain buttons positioned on the front panel of domestic appliances such as gas cookers in order to control certain parameters.

[0002] Domestic appliances are equipped with one or more buttons which control various operating parameters. Thus, as disclosed in prior art document US 5 931 151 A, a front panel on a domestic appliance can have a large number of apertures to accommodate a large number of buttons.

[0003] Push-buttons are used for the purpose of ignition in cookers, especially gas ovens. Cookers equipped with this type of button have a button holding component which is attached to the panel and serves as a fixing. Said button holder components, as well as holding the buttons on the cooker, also attach the valves to which the button is connected, usually by a twist-type connection.

[0004] Cooking appliances which operate by gas provide a flow from the gas valve to the burners where the combustion process takes place and the cooking appliance may contain within it an ignition system for lighting the gas ring. The burner rings ignited by push-buttons are usually ignited by the user pushing the button. The push-buttons used on most cookers and ovens also have a field of application in domestic appliances such as washing machines and dishwashers. The assembly of the holder components used in order to retain this type of button in the panel requires delicate workmanship and increases the assembly cost.

[0005] An example of the current state of the art in German patent certificate number DE 10 2005 035 464 describes button holder components to protect said buttons, and a panel in which the buttons on the cooker are located. The button holder component includes projections which coincide with a suitable receptacle in the rear surface of the panel. In said document, a second plate in addition to the front panel is required for the fixing of the button holder component in the panel.

[0006] Meanwhile, especially in cooker appliances, there is an internal plate in the section facing the interior of the front panel and double sided adhesive tape is used to carry out the connection of said internal plate to the front panel and for the attachment of said buttons.

[0007] In order to provide a control panel for a household appliance, which allows the fastening of a holding frame with a button holder component without any additional fixing element, prior art document EP 2 360 308 A1 discloses a holding frame, namely a toggle box (paragraph [0040] and Fig 6 of prior art document EP 2 360 308 A1), which can be clamped between a top wall and a bottom wall of the front panel (paragraph [0040] and Fig 2 of prior art document EP 2 360 308 A1). Moreover, for being fixed to the front panel, the holding frame comprises holding elements (12) being engageable with corresponding elements (38) of the front panel (Figs 6, 7A,

7B, 7C, 8A, 8B, 8C of prior art document EP 2 360 308 A1).

The purpose of the present invention is the provision of a button holder component for domestic appliances as described in claim 1 in order to resolve problems in the current state of the art by minimizing labor procedures during assembly and by reducing assembly costs.

[0008] Another purpose of the present invention is to provide a holder element in which materials and assembly labor costs are reduced by eliminating components such as double sided adhesive tape and an internal plate.

[0009] Another purpose of the present invention, in addition to the reduction of labor and costs, is to provide a holder element which provides assembly time savings, and to provide a domestic appliance equipped with such holder elements by ensuring ease of assembly in a practical fashion.

[0010] The present invention concerns a domestic appliance which comprises a front panel, at least one button located on said front panel in order to control various parameters, and at least one button holder element for the purpose of fixing said button onto said front panel. Said domestic appliance includes at least one panel folded to form a panel flap and a front panel with a connection face which permits attachment of the button holder element with this panel flap. Also, said front panel includes at least one fixing hole which permits the connection face to coincide with at least one panel connection hole on the panel flap. The button holder element is cylindrical in form, and includes at least two feet extending in a direction perpendicular to said cylindrical form. The connection face is in the form of a flat projection which unites said feet.

[0011] The front panel on the domestic appliance which is the subject of the invention may have a large number of apertures to accommodate a large number of buttons. The same front panel may include one or more brackets attached to its lateral surfaces. The panel flap is set at an angle to the vertical axis of the domestic appliance. It may be equipped with a button washer which will be located between a button used in the domestic appliance and the front panel. On the connection face of the button holder element, there may be one or more claws which coincide with the panel flap. Said button holder element may comprise at least two components which can be disassembled.

[0012] The button holder element which is the subject of the present invention has been shown in the attached figures in order that it may be better understood, but said figures are attached to provide better explanation of the invention only, and shall not be restrictive of the invention. On this basis, in the attached figures:

Figure 1 presents an exploded perspective view showing the assembly of the button holder according to the present invention within a cooker assembly.

Figure 2 presents an exploded perspective view

showing the assembly of a button holder component within a cooker according to the current state of the art.

Figure 3 presents a perspective view together with the panel in which the button holder component according to the present invention will be installed.

[0013] The present invention proposes the construction of a button holder element (9) for use in domestic appliances, especially cookers. It includes one or more buttons for controlling various parameters on said domestic appliances, and especially on gas-operated ovens.

[0014] Figure 2 shows a button holder component (2) used in cookers as an example of the current state of the art. In cookers, when said button holder components (2) are installed on the front panel (1) of the cooker, the panel internal plate (3) is attached to the front panel (1) by means of double sided adhesive tape (4). At a subsequent stage, the button washers (5) are loosely positioned in front of the button holder components (2), and the button holder components (2) which have a washer (5) placed at the front can be locked between the front panel (1) and the internal plate (3) by the mechanism on the front section. The element to prevent rotation (6) on the front panel prevents the present holder component (2) from turning on its own axis. The button holder component (2) thus locked serves to protect and retain push-buttons (8) within the panel. A shaft (7a) which coincides with the push-button within the panel is located so that it lies behind the button holder component (2). Said shaft (7a) can be used within a switch (14) for use in an ignition system on cookers.

[0015] Figure 1 shows a button holder element (9) developed to replace the button holder component (2) in the current state of the art. In a preferred embodiment of the invention, the panel internal plate (3) known in the current state of the art, and also the double sided adhesive tape (4) used to fix said internal plate (3) to the front panel (1) are eliminated by the proposed button holder element (9). Thus, in place of said eliminated components, the newly designed holder element (9) is located, together with the button washer (5), behind the button apertures on the front panel (1).

[0016] The button holder element (9) has an external body which is cylindrical in form, and includes feet (15) in the form of a projection extending outward in a perpendicular fashion from this external body, as well as a connection face (10) in the form of a flat projection which unites said feet (15). The connection face (10) includes at least one fixing hole (9a). Said fixing holes (9a) are attached by means of suitable connection elements to at least one panel attachment hole (11) located on the panel flap (13). Said panel flap is folded, preferably to form an angle of 80-100° to the vertical axis of the panel flap (13). In this way, the internal plate (3) is eliminated. In order to fix said front panel (1) to the frame of the cooker, it has

usually been carried on lateral faces by means of brackets (12) behind the front panel (1). Said bracket (12) can be attached to the lateral faces of the front panel (1) by a spot welding process.

[0017] Push-buttons (8) used in cookers usually coincide with a shaft on the end of the switches used in the ignition system. The button holder element (9) has an aperture in its base face in order to permit said shaft (7a) to pass through it. As a result of the high pressing forces applied by the user on the push-button over the course of time, said button holder element may in some cases be damaged and become unable to perform its function. In order to prevent this, said button holder element (9) is fixed through the underside, where the connection face (10) is located, and a certain degree of angle is provided to said panel flap (13). The degree of such an angle is preferably set between 0° and 15°.

[0018] Various methods can be used in order to fix said holder element (9) to the front panel (1). For this purpose, instead of locating said holder element (9) on the panel flap (13) and screwing through the fixing holes (9a) to the panel flap (13), said holder element (9) can be fixed to the front panel (1) through the lateral faces and/or through an upper surface. In addition to this, instead of using a connection element which passes through the fixing holes (9a) of the holder element (9), a claw-like structure can be added to the connection face (10), or the number of pins in the base can be increased to provide attachment of the holder element (9) to the front panel (1). Also, said pin holes (9a) can be expanded or reduced according to the diameter.

[0019] The button holder element (9) can be used in one-piece form or can be used in the form of two separate components which can be fitted to each other later. A two-part system can also readily be used, fitted to the lower body of the protective cylindrical receptacle into which the buttons (8) are inserted.

[0020] In order to reduce the effects on the holder component of the pressure applied by the user on the button (8), supporting feet are included in the holder element (9). Also the design of the component can be adapted in order to fix the button holder element (9) to the front panel (1) by means of double sided adhesive tape (4) and in this manner the strength of the component may be increased.

Reference Number

[0021]

1	Front panel
2	Button holder component
3	Panel internal plate
4	Adhesive tape
5	Button washer
6	Element to prevent rotation
7a	Shaft
8	Button

- 9 Button holder element
- 9a Fixing hole
- 10 Connection face
- 11 Panel attachment hole
- 12 Bracket
- 13 Panel flap
- 14 Switch
- 15 Foot

Claims

1. A domestic appliance which comprises a front panel (1), at least one button (8) located on said front panel (1) in order to control various parameters, and at least one button holder element (9) for the purpose of fixing this button (8) onto said front panel (1), wherein it comprises a panel flap (13) of the front panel (1) which is folded with regard to the front surface of the panel and a connection face (10) for attachment of the button holder element (9) to the panel flap (13), **characterized in that**

- the button holder element (9) is cylindrical in form, and includes at least two feet (15) extending in a direction perpendicular to said cylindrical form,
- the connection face (10) is in the form of a flat projection which unites said feet (15) and
- the connection face (10) comprises at least one fixing hole (9a) to permit the connection face (10) to coincide with at least one panel connection hole (11) in the panel flap (13).

2. The domestic appliance as claimed in claim 1, **characterized in that** said front panel (1) has a number of apertures for said buttons (8).
3. The domestic appliance as claimed in either one of the previous claims, **characterized in that** it includes at least one bracket (12) attached to the lateral surfaces of said front panel (1).
4. The domestic appliance as claimed in any one of the previous claims, **characterized in that** it includes a button washer (5) positioned between said button (8) and said front panel (1).
5. The domestic appliance as claimed in any one of the previous claims, **characterized in that** it includes a shaft (7a) attached to said button within the button holder element (9) of said domestic appliance.
6. The domestic appliance as claimed in any one of the previous claims, **characterized in that** said panel flap (13) is set at an angle to the vertical axis of the domestic appliance.

7. The domestic appliance as claimed in any one of the previous claims, **characterized in that** it includes at least one claw on the connection face (10) of said button holder element (9) which coincides with said panel flap (13).

8. The domestic appliance as claimed in any one of the previous claims, **characterized in that** said button holder element (9) may comprise at least two components which can be disassembled.

9. The domestic appliance as claimed in any one of the previous claims, **characterized in that** said button (8) is a push-button.

10. The domestic appliance as claimed in any one of the previous claims, wherein the appliance is a gas oven.

Patentansprüche

1. Haushaltsgerät, das eine Frontblende (1), mindestens eine Taste (8) an der Frontblende (1) zum Regeln verschiedener Parameter und mindestens ein Tastenhalterelement (9) umfasst, das zum Fixieren dieser Taste (8) an der Frontblende (1) dient, wobei es eine Blendenzunge (13) der Frontblende (1), die in Bezug auf die Vorderfläche der Blende abgekantet ist, und eine Verbindungsfläche (10) für das Anbringen des Tastenhalterelements (9) an der Blendenzunge (13) umfasst, **dadurch gekennzeichnet, dass**

- das Tastenhalterelement (9) zylinderförmig ist und mindestens zwei Füße (15) aufweist, die sich in einer senkrecht zu der Zylinderform verlaufenden Richtung erstrecken,
- die Verbindungsfläche (10) die Form eines flachen Vorsprungs aufweist, der die beiden Füße (15) miteinander verbindet, und
- die Verbindungsfläche (10) mindestens ein Fixierloch (9a) umfasst, so dass es möglich ist, dass die Verbindungsfläche (10) mit mindestens einem Blendenverbindungsloch (11) in der Blendenzunge (13) übereinstimmt.

2. Haushaltsgerät nach Anspruch 1, **dadurch gekennzeichnet, dass** die Frontblende (1) eine Anzahl Öffnungen für die Tasten (8) aufweist.

3. Haushaltsgerät nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** es mindestens eine Halterung (12) aufweist, die an den Seitenflächen der Frontblende (1) angebracht ist.

4. Haushaltsgerät nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** es einen Tastenunterlegling (5) aufweist, der zwischen

der Taste (8) und der Frontblende (1) angeordnet ist.

5. Haushaltsgesät nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** es eine Welle (7a) aufweist, die in dem Tastenhalterelement (9) des Haushaltsgesäts an der Taste angebracht ist.
6. Haushaltsgesät nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Blendenzunge (13) in einem Winkel zur vertikalen Achse des Haushaltsgesäts verläuft.
7. Haushaltsgesät nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** es mindestens eine Kralle an der Verbindungsfläche (10) des Tastenhalterelements (9) aufweist, die mit der Blendenzunge (13) übereinstimmt.
8. Haushaltsgesät nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das Tastenhalterelement (9) mindestens zwei Komponenten umfassen kann, die sich demontieren lassen.
9. Haushaltsgesät nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** es sich bei der Taste (8) um eine Drucktaste handelt.
10. Haushaltsgesät nach einem der vorhergehenden Ansprüche, wobei es sich bei dem Gesät um einen Gasherd handelt.

Revendications

1. Appareil ménager qui comprend un panneau frontal (1), au moins un bouton (8) situé sur ledit panneau frontal (1) afin de commander différents paramètres, et au moins un élément de support de bouton (9) pour fixer ce bouton (8) sur ledit panneau frontal (1), lequel appareil ménager comprend un volet de panneau (13) du panneau frontal (1) qui est plié par rapport à la surface frontale du panneau et une face de connexion (10) pour la fixation de l'élément de support de bouton (9) sur le volet de panneau (13), **caractérisé en ce que**
 - l'élément de support de bouton (9) est de forme cylindrique et inclut au moins deux pieds (15) s'étendant dans une direction perpendiculaire à ladite forme cylindrique,
 - la face de connexion (10) se présente sous la forme d'une saillie plate qui unit lesdits pieds (15) et
 - la face de connexion (10) comprend au moins un trou de fixation (9a) pour permettre à la face de connexion (10) de coïncider avec au moins un trou de connexion de panneau (11) dans le

volet de panneau (13).

2. Appareil ménager selon la revendication 1, **caractérisé en ce que** ledit panneau frontal (1) comporte un certain nombre d'ouvertures pour lesdits boutons (8).
3. Appareil ménager selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** inclut au moins un support (12) fixé aux surfaces latérales dudit panneau frontal (1).
4. Appareil ménager selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** inclut une rondelle de bouton (5) positionnée entre ledit bouton (8) et ledit panneau frontal (1).
5. Appareil ménager selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** inclut une tige (7a) fixée audit bouton à l'intérieur de l'élément de support de bouton (9) dudit appareil ménager.
6. Appareil ménager selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit volet de panneau (13) fait un angle par rapport à l'axe vertical de l'appareil ménager.
7. Appareil ménager selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** inclut au moins une griffe sur la face de connexion (10) dudit élément de support de bouton (9), qui coïncide avec ledit volet de panneau (13).
8. Appareil ménager selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit élément de support de bouton (9) peut comprendre au moins deux composants qui peuvent être démontés.
9. Appareil ménager selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit bouton (8) est un bouton-poussoir.
10. Appareil ménager selon l'une quelconque des revendications précédentes, dans lequel l'appareil est un four à gaz.

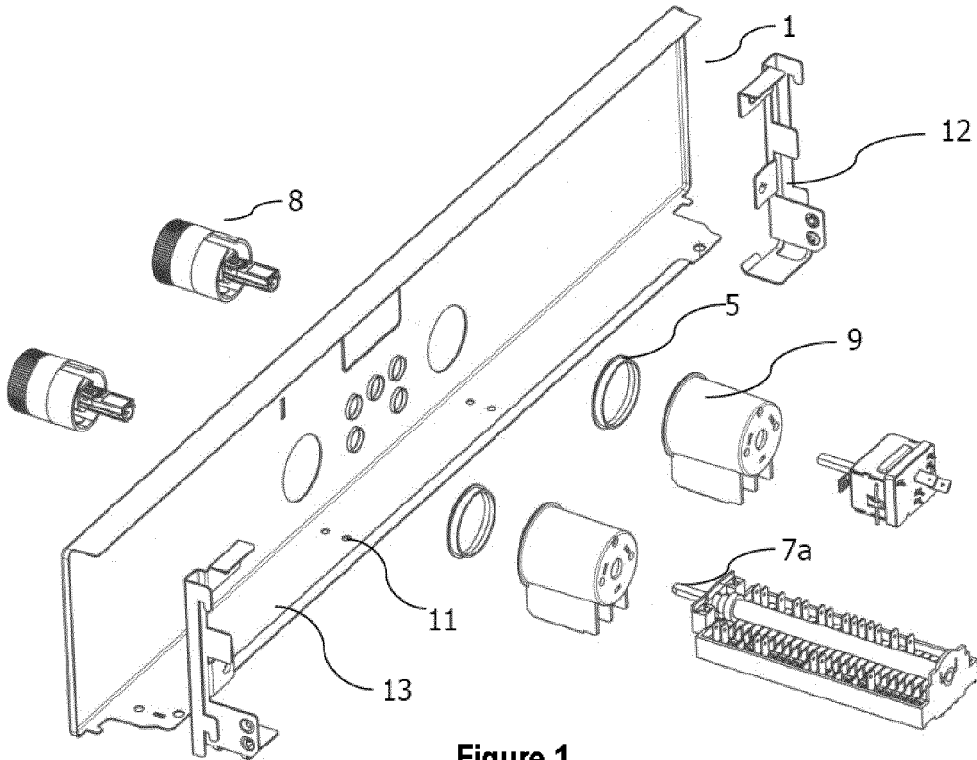


Figure 1

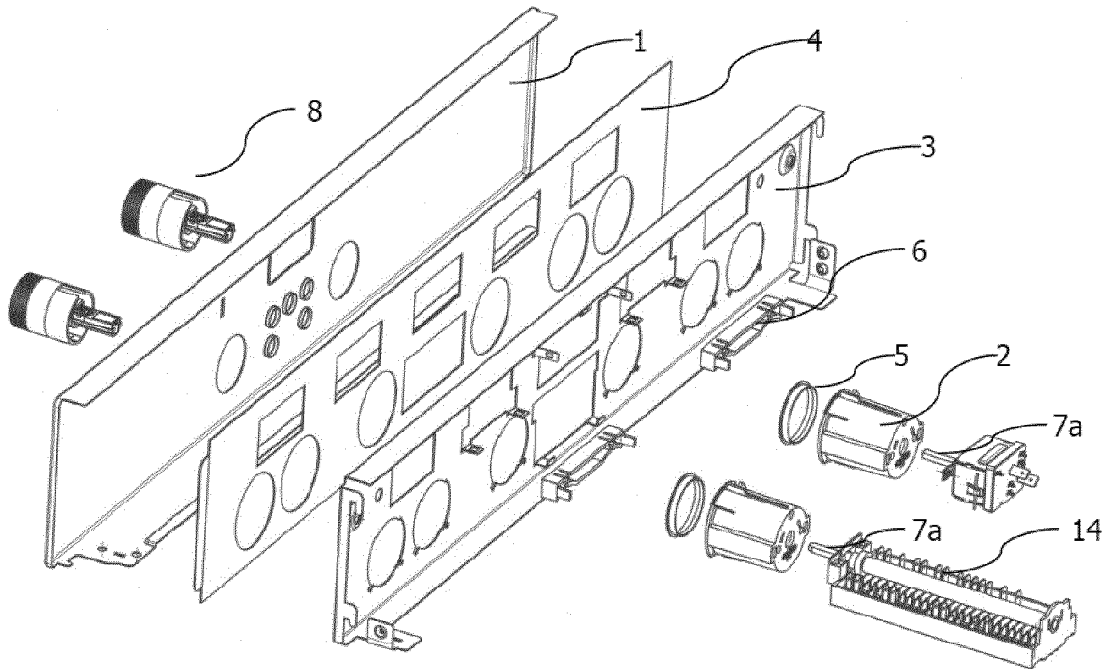


Figure 2 (KNOWN STATE OF THE ART)

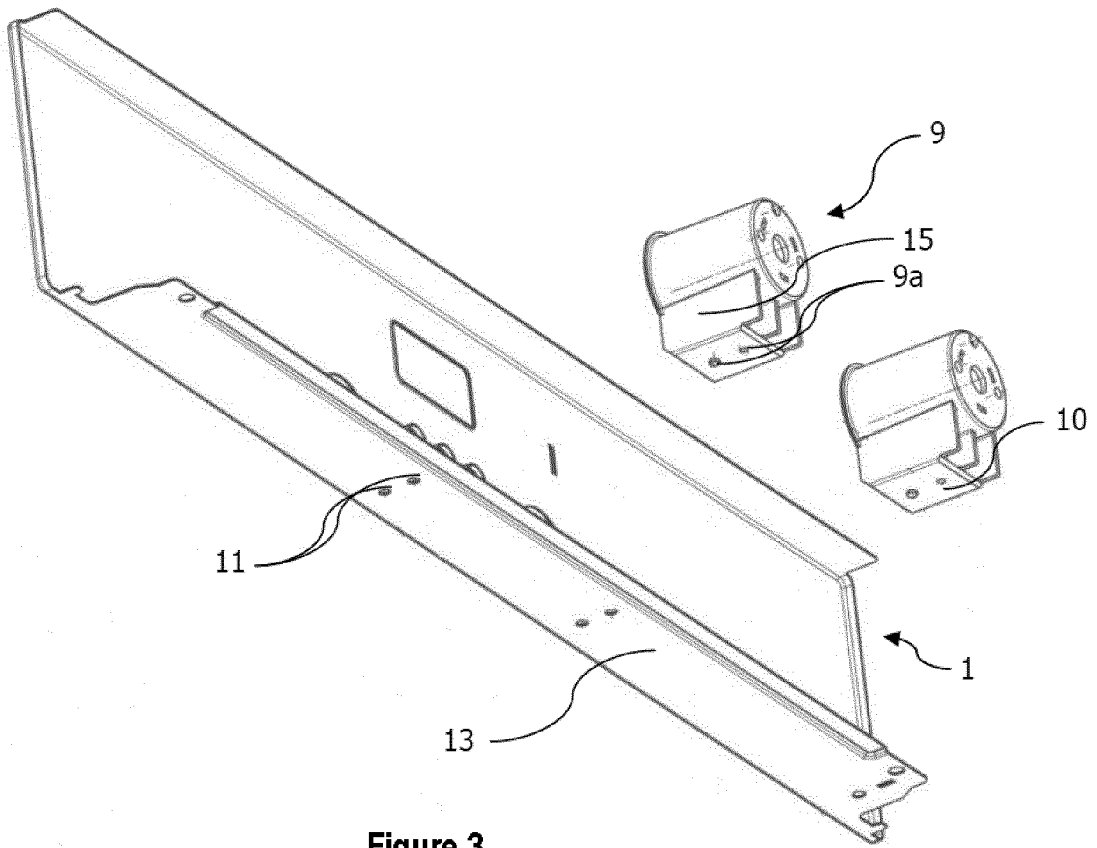


Figure 3

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 5931151 A [0002]
- DE 102005035464 [0005]
- EP 2360308 A1 [0007]