SECTION : 501-25a Body Repairs - General Information

VEHICLE APPLICATION : 2008.0 Falcon

CONTENTS

DESCRIPTION AND OPERATION

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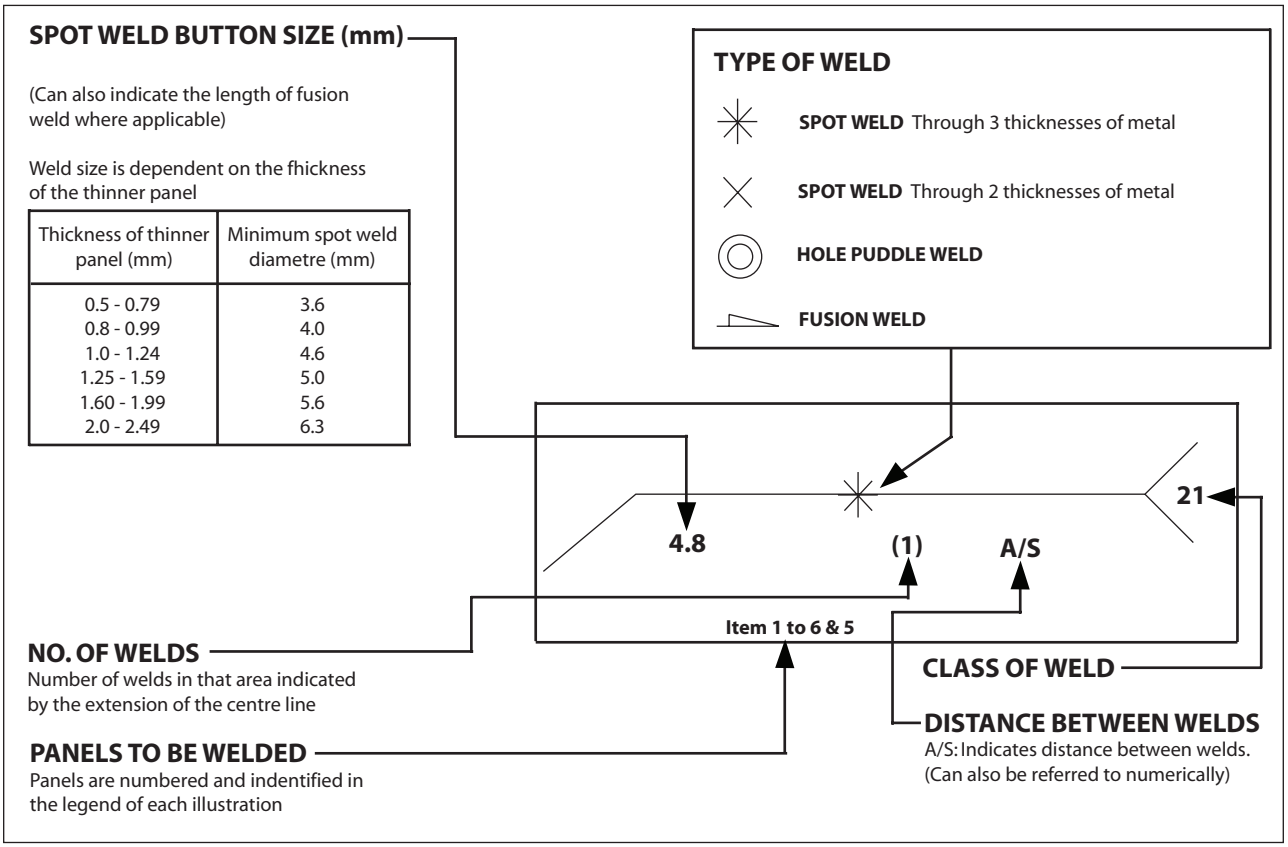
Description and usage of Body Repair literature.

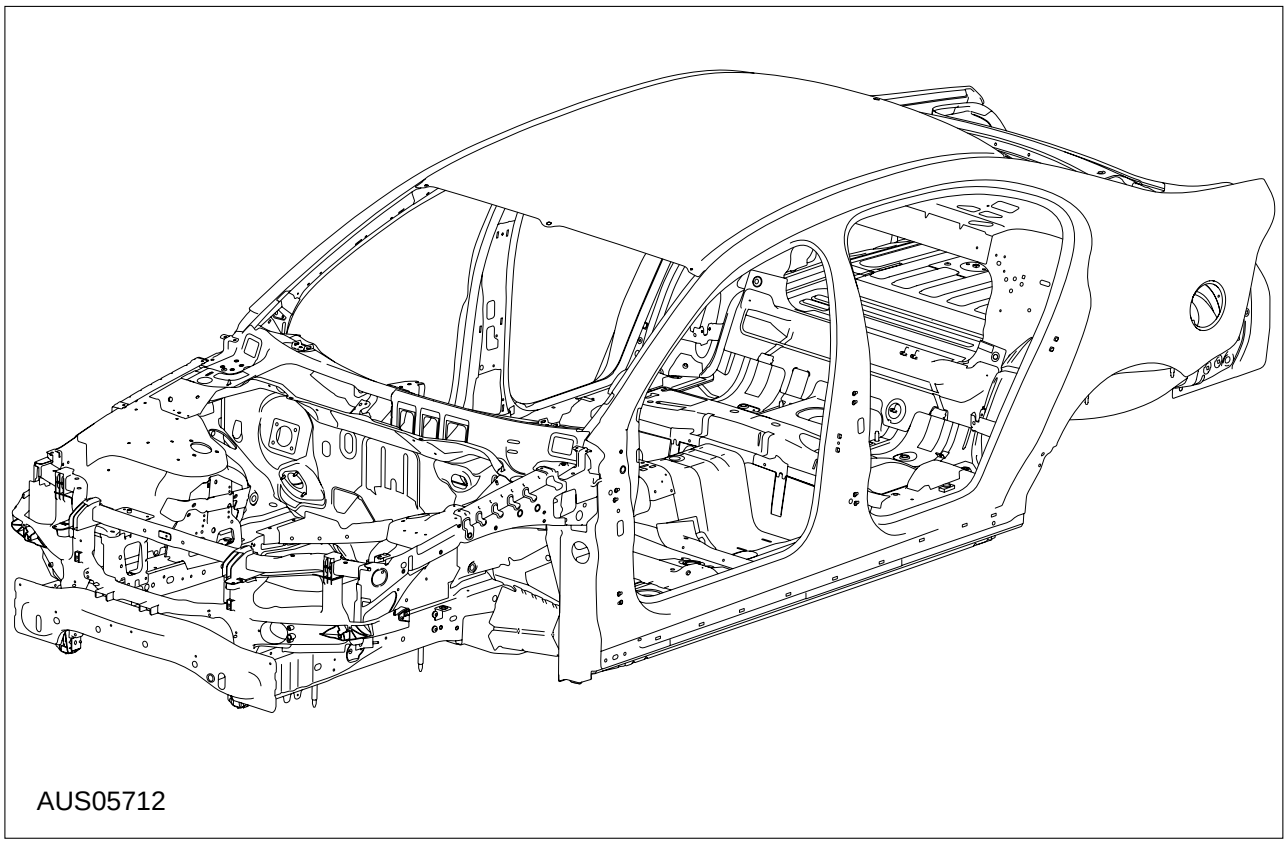
The purpose of this document is to inform the vehicle body specialist of the latest technology and also the materials and repair techniques currently used in body making.

Interpretation of Weld Symbols

The weld drawings in this section are provided to identify the type, size and sequence of the weld.

The illustration below shows the interpretation of labelling used in the weld drawings.





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Jigs and Measuring Equipment

It is recommended that any major deformation of the vehicle be repaired on controlled measuring equipment, such as a dedicated jig, variable mounting jig or a universal measuring system, jig brackets or guide charts specifically prepared to suit the vehicle. Due to the structure of the vehicle, impact forces can be transmitted through the whole body causing deformation in an area well away from the point of impact.

The principle of repair using reversal of impact forces, carried out an suitable equipment, will not only return the underframe to the original specifications, it should, if applied correctly square-up the complete body shell.

High strength and ultra high strength steel panels will often be returned to usefulness using this principal, but care must be exercised in repairing this material. It is recommended to replace any high strength and ultra high strength steels panels (refer below).

Panel Repairs

When performing repairs it is essential that the straightening or correcting of stress will not create regions, in the panel, which are stiff, brittle or weak when the metal has been returned back to its original position.

Particular attention must be given to mounting points for steering or suspension systems, when making the decision to straighten panels damaged.

Generally if there is a sharp crease across a mounting point, it is better not to attempt straightening.

High strength and ultra high strenght steels should be treated as a special case, high strength and ultra high strength steels are heat sensitive, therefore excessive deformation and straightening could be detrimental to the material strength, where any doubt exists the relevant panel must be replaced.

The side door strainers must not be repaired under any circumstances.

Replacement Body Panels

The use of genuine Ford panels in all repair situations is desirable.

Genuine Ford Original Equipment Manufacturer (OEM) parts are stamped from original sheet metal dies which ensure quality of size, fit, finish, strength and durability.

Sealants and Corrosion Protection

Various sealants and anti-corrosion treatments are used throughout the vehicle. Ensure the correct treatments are applied when carrying out body repairs. Refer to the Corrosion Protection section of this manual for sealant description and application.

Dust and Water Leaks

Sealer locations should be considered when checking for dust or water leaks. The forward motion of the vehicle causes any unsealed, small opening in the lower section of the body to permit air and dust to be drawn into the body. Opening the ventilator air ducts will equalize these pressures.

To eliminate dust leakage, determine the exact point at which the dust enters.

Under certain conditions, water can enter the body at any point where dust can enter.

To determine the exact location of a dust leak, it may be necessary to remove interior or luggage compartment trims.

After removing the trim, the location of most leaks will be evident. The entrance of dust is usually indicated by a pointed shaft of dust or silt. Seal these leaks, then road test the vehicle on a dusty road to ensure all leaks are sealed.

After the road test, check for indications of a dust pattern around the door openings, cowl side trim panel, lower part of the quarter trim panel and in the luggage compartment.

Sometimes leaks can be located by putting bright lights under the vehicle with the above components removed, and checking the interior of the body joints and weld lines. A light will show through where leaks exist. A vacuum/air/water leak detector can be useful to locate dust leaks, wind and water leaks.

Wind Noise

Air entering or exiting the vehicle through small openings in the body can result in wind noise. Sources of wind noise are detected by driving the vehicle at highway speeds in four different directions. Listen for sources of wind noise with all windows closed, radio off, A/C blower motor turned off and ventilation ducts open. A stethoscope can be used to pinpoint the source of the noise.

Most wind noise-producing leaks will occur at the door and window seals or at sheet metal joints in the door or the door opening in the body.

Seal all leaks with sealant or by repositioning or replacing the seals. Road test the vehicle to make sure all leaks have been adequately sealed.

An alternate method of verifying corrective actions involves the use of Ultrasonic Leak Detector. After identifying the leak point through a road test, obtain a meter reading by using the leak detector. A check with the leak detector after repairing the leak will verify the effectiveness of the corrective action. A final road test may still be advisable to make sure that other objectionable leaks, not noticed because of a major leak, do not exist.

Personal Protection

Welding gases and grinding dusts can be harmful to the health. For this reason, make sure that rooms are well ventilated and work using the welding fumes extraction system.

Sealants, underbody protection and paint residues must not be burnt down with an unshielded flame, as this will produce gases which are damaging to health. A dedicated extraction system must always be used when welding or brazing.

When working with substances containing solvents, good ventilation must be provided, respiratory protection must be worn and an extraction system must be used. Do not weld in damp areas, if necessary use an insulation mat.

Welding and grinding work near the battery presents the danger of explosion. For this reason, it must be removed before the work is started.

Cutting, grinding and alignment work on metal panels can cause a noise level of 85 to 90 dB (A) or even more. For this reason, you must always wear ear defenders.

The various body areas are subject to very high forces during realignment work. Should any component suddenly become detached during this process, there is a very great danger of injury. For this reason, pulling chains and pulling shackles must be secured with arrester cables.

NOTE: Work on airbag systems may only be performed by persons who have a relevant certificate of competence.

Some special instructions must be followed when working on airbag systems:

- Always stand to the side of it when removing or installing an airbag.
- Always store an airbag or an airbag/steering wheel with the airbag side pointing upwards and in a safe place.

- Only install the airbag again when the vehicle is fully repaired and the complete electrical systems has been tested.
- Take into account the location of air curtains and shoulder airbags.

Protection of the Vehicle

Protect affected areas from weld spatter and dust during all welding and grinding work on the vehicle. If metallic dust stays on the vehicle for some time, there is the likelihood of film rust formation.

Grinding or sanding work produce tiny spots of damage to the paint surface, which may cause corrosion.

For this reason, make sure to:

- Use carbon fibre blankets to protect the vehicle body.
- Use covering film to protect the vehicle body from sanding dust and metal dust.

Use suitable protective measures to protect the interior when performing repair operations which relate to the inside of the vehicle.

Carbon fibre blankets are used directly around the working area. They offer maximum protection to the areas of the vehicle.

In addition, take into account:

- Remove fuel supply components as necessary.
- Protect working areas which are in danger of catching fire with a fireproof blanket.
- The welding must not cause components of the air conditioning system to become heated.
- Removal of any attached components in the space adjoining the repair area.
- Use covering paper to protect the interior from grinding dust.
- Create a definite barrier between the work area and the interior by using a carbon fibre blanket.

Protective Equipment

The following protective equipment must always be used:

- Protective helmet or welding mask.
- Ear defenders and breathing protection.
- Protective gloves and safety boots.
- Welding fume extraction.

Electronic Components

Increased use of comfort and safety electronics in modern motor vehicles also requires the greatest attention to be paid during body work.

Overvoltages produced during welding and in alignment work during bodyshell rectification may cause electronic systems to be damaged. In particular, the safety instructions for performing welding work on vehicles with airbag systems must be adhered to.

NOTE: After disconnecting the power supply and before performing further work, a wait time of 15 minutes must be maintained.

Work on airbag systems may only be performed by persons who have a relevant certificate of competence.

Pay attention to the following points:

- Disconnect the battery negative clamp and cover the battery terminal.
- Disconnect the electrical connector at the airbag control module.
- If welding is to be performed directly near a control module, it must be removed beforehand.
- Never connect the negative cable of the welder near an airbag or a control module.
- Connect the negative cable of the welder close to the location of the weld.