

HISTORIC AMERICAN ENGINEERING RECORD

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SPACE TRANSPORTATION SYSTEM, SOLID ROCKET
BOOSTERS

HAER TX-116-K

Johnson Space Center, 2101 NASA Parkway
Houston
Harris County
Texas

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NASA - Photo Operations Group - JSC, photographer, June 2011

- TX-116-K-1 General view of a fully assembled Solid Rocket Booster sitting atop the Mobile Launch Platform in the Vehicle Assembly Building at Kennedy Space Center
- TX-116-K-2 General view looking out from the Fixed Service Structure at Launch Complex 39 B at Kennedy Space Center. This view shows a Solid Rocket Booster (SRB) attached to the External Tank (ET) as well as the Orbiter Discovery attached to the ET for a complete launch stack assembly being prepared for launch. The most prominent features of the SRB shown in this view id the ET Attach Ring in the lower center of the view and the Systems Tunnel running vertically from the Aft Skirt Assembly, beyond the lower edge of this view, to the Forward Skirt near the Frustum at the top center of this view.
- TX-116-K-3 General view inside of the Vehicle Assembly Building at Kennedy Space Center looking at the pair of Solid Rocket Boosters mounted on the Mobile Launch Platform and attached to the External Tank (ET). The Orbiter will be attached to the ET on the side opposite to the side in this view.

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- TX-116-K-4 Close-up view of the Solid Rocket Booster Frustum and Nose Cap assembly undergoing preparations and close-out procedures in the Solid Rocket Booster Assembly and Refurbishment Facility at Kennedy Space Center. The Nose Cap contains the Pilot and Drogue Chutes and the Frustum contains the three Main Parachutes, Altitude Switches and forward booster Separation Motors.
- TX-116-K-5 Close-up view of the Solid Rocket Booster Frustum and Nose Cap assembly undergoing preparations and assembly procedures in the Solid Rocket Booster Assembly and Refurbishment Facility at Kennedy Space Center. The Nose Cap contains the Pilot and Drogue Chutes and the Frustum contains the three Main Parachutes, Altitude Switches and forward booster Separation Motors. In this view the assembly is rotated so that the four Separation Motors are in view and aligned with the approximate centerline of the image.
- TX-116-K-6 Close-up view of the Solid Rocket Booster (SRB) Nose Caps mounted on ground support equipment in the Solid Rocket Booster Assembly and Refurbishment Facility at Kennedy Space Center as they are being prepared for attachment to the SRB Frustum. The Nose Cap contains the Pilot and Drogue Chutes that are deployed prior to the main chutes as the SRBs descend to a splashdown in the Atlantic Ocean where they are recovered refurbished and reused.

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- TX-116-K-7 Close-up view of the Solid Rocket Booster (SRB) Frustum mounted on ground support equipment in the Solid Rocket Booster Assembly and Refurbishment Facility at Kennedy Space Center as it is being prepared to be mated with the Nose Cap and Forward Skirt. The Frustum contains the three Main Parachutes, Altitude Switches and forward booster Separation Motors. The Separation Motors burn for one second to ensure the SRBs drift away from the External Tank and Orbiter at separation. The three main parachutes are deployed to reduce speed as the SRBs descend to a splashdown in the Atlantic Ocean where they are recovered refurbished and reused. In this view the assembly is rotated so that the four Separation Motors are in view and aligned with the approximate centerline of the image.
- TX-116-K-8 Close-up view of the Solid Rocket Booster (SRB) Frustum mounted on ground support equipment in the Solid Rocket Booster Assembly and Refurbishment Facility at Kennedy Space Center as it is being prepared to be mated with the Nose Cap and Forward Skirt. The Frustum contains the three Main Parachutes, Altitude Switches and forward booster Separation Motors. The Separation Motors burn for one second to ensure the SRBs drift away from the External Tank and Orbiter at separation. The three main parachutes are deployed to reduce speed as the SRBs descend to a splashdown in the Atlantic Ocean where they are recovered refurbished and reused.
- TX-116-K-9 Close-up view of the Solid Rocket Booster (SRB) Forward Skirt sitting on ground support equipment in the Solid Rocket Booster Assembly and Refurbishment Facility at Kennedy Space Center while being prepared for mating with the Frustum-Nose Cap Assembly and the Forward Rocket Motor Segment. The prominent feature in this view is the Forward Thrust Attach Fitting which mates up with the Forward Thrust Attach Fitting of the External Tank (ET) at the ends of the SRB Beam that runs through the ET's Inter Tank Assembly.

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- TX-116-K-10 Close-up view of the Solid Rocket Booster (SRB) Forward Skirt sitting on ground support equipment in the Solid Rocket Booster Assembly and Refurbishment Facility at Kennedy Space Center while being prepared for mating with the Frustum-Nose Cap Assembly and the Forward Rocket Motor Segment. The prominent feature in this view is the electrical, data, telemetry and safety systems terminal which connects to the Aft Skirt Assembly systems via the Systems Tunnel that runs the length of the Rocket Motor.
- TX-116-K-11 Close-up view of the Solid Rocket Booster (SRB) Forward Skirt, Frustum and Nose Cap mated assembly undergoing final preparations in the Solid Rocket Booster Assembly and Refurbishment Facility at Kennedy Space Center. In this view the access panel on the Forward Skirt is removed and you can see a small portion of the interior of the Forward Skirt.
- TX-116-K-12 Close-up view of the Solid Rocket Booster (SRB) Forward Skirt, Frustum and Nose Cap mated assembly undergoing final preparations in the Solid Rocket Booster Assembly and Refurbishment Facility at Kennedy Space Center. The prominent feature in this view is the Forward Thrust Attach Fitting which mates up with the Forward Thrust Attach Fitting of the External Tank (ET) at the ends of the SRB Beam that runs through the ET's Inter Tank Assembly.
- TX-116-K-13 General view of the Solid Rocket Booster's (SRB) Solid Rocket Motor Segments in the Surge Building of the Rotation Processing and Surge Facility at Kennedy Space Center awaiting transfer to the Vehicle Assembly Building and subsequent mounting and assembly on the Mobile Launch Platform.
- TX-116-K-14 General view in the transfer aisle of the Vehicle Assembly Building at Kennedy Space Center looking at one of a pair of Forward Segments of the Solid Rocket Motor of the Solid Rocket Booster awaiting hoisting and mating to the Solid Rocket Booster assembly on the Mobile Launch Platform.

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- TX-116-K-15 General view in the transfer aisle of the Vehicle Assembly Building at Kennedy Space Center looking at one of a pair of Forward Segments of the Solid Rocket Motor of the Solid Rocket Booster awaiting hoisting and mating to the Solid Rocket Booster assembly on the Mobile Launch Platform.
- TX-116-K-16 General view in the transfer aisle of the Vehicle Assembly Building at Kennedy Space Center looking at one of a pair of Forward Center Segments of the Solid Rocket Motor of the Solid Rocket Booster awaiting hoisting and mating to the Solid Rocket Booster assembly on the Mobile Launch Platform.
- TX-116-K-17 General view in the transfer aisle of the Vehicle Assembly Building at Kennedy Space Center looking at one of a pair of Forward Center Segments of the Solid Rocket Motor of the Solid Rocket Booster awaiting hoisting and mating to the Solid Rocket Booster assembly on the Mobile Launch Platform.
- TX-116-K-18 General view in the transfer aisle of the Vehicle Assembly Building at Kennedy Space Center looking at one of a pair of Aft Center Segments of the Solid Rocket Motor of the Solid Rocket Booster awaiting hoisting and mating to the Solid Rocket Booster's Aft Segment on the Mobile Launch Platform.
- TX-116-K-19 General view in the transfer aisle of the Vehicle Assembly Building at Kennedy Space Center looking at one of a pair of Aft Center Segments of the Solid Rocket Motor of the Solid Rocket Booster awaiting hoisting and mating to the Solid Rocket Booster's Aft Segment on the Mobile Launch Platform.
- TX-116-K-20 General view of the Aft Solid Rocket Motor Segment mated with the Aft Skirt Assembly and External Tank Attach Ring in the Rotation Processing and Surge Facility at Kennedy Space Center and awaiting transfer to the Vehicle Assembly Building where it will be mounted onto the Mobile Launch Platform.

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- TX-116-K-21 General view of the Aft Skirt Assembly and the Aft Solid Rocket Motor Segment mated together in the Vehicle Assembly Building at Kennedy Space Center and being prepared for mounting onto the Mobile Launch Platform and mating with the other Solid Rocket Booster segments.
- TX-116-K-22 Close-up view of an Aft Skirt being prepared for mating with sub assemblies in the Solid Rocket Booster Assembly and Refurbishment Facility at Kennedy Space Center. The most prominent feature in this view are the six Thrust Vector Control System access ports, three per hydraulic actuator.
- TX-116-K-23 Close-up view of an Aft Skirt being prepared for mating with sub assemblies in the Solid Rocket Booster (SRB) Assembly and Refurbishment Facility at Kennedy Space Center. The most prominent feature in this view are the four Aft Booster Separation Motors on the left side of the skirt in this view. The Separation Motors burn for one second to ensure the SRBs drift away from the External Tank and Orbiter at separation.
- TX-116-K-24 Close-up view of the interior of an Aft Skirt being tested and prepared for mating with sub assemblies in the Solid Rocket Booster (SRB) Assembly and Refurbishment Facility at Kennedy Space Center. This view is showing the SRB Thrust Vector Control (TVC) System which includes independent auxiliary power units for each actuator to pressurize their respective hydraulic systems. When the Nozzle is mated with the Aft Skirt the two actuators, located on the left and right side of the TVC System in this view, can swivel it up to 3.5 degrees to redirect the thrust to steer and maintain the Shuttle's programmed trajectory.
- TX-116-K-25 Detail view of an Aft Skirt being prepared for mating with sub assemblies in the Solid Rocket Booster (SRB) Assembly and Refurbishment Facility at Kennedy Space Center. This detail is showing the four Aft Booster Separation Motors. The Separation Motors burn for one second to ensure the SRBs drift away from the External Tank and Orbiter at separation.

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- TX-116-K-26 General view of a Solid Rocket Motor Nozzle in the Solid Rocket Booster (SRB) Assembly and Refurbishment Facility at Kennedy Space Center, being prepared to be mated with the Aft Skirt. In this view you can see the attach brackets where the Thrust Vector Control System actuators connect to the nozzle which can swivel the nozzle up to 3.5 degrees to redirect the thrust to steer and maintain the Shuttle's programmed trajectory.
- TX-116-K-27 Close-up view of an External Tank (ET) Attach Ring undergoing preparations in the Processing Building of the Rotation Processing and Surge Facility at Kennedy Space Center. After preparations are complete the ET Attach Ring will be mated to the top of the Aft Motor Segment. The most prominent features in this view are the ET/Solid Rocket Booster Struts in the center and left in the view and the Aft Integrated Electronics Assembly located on the right side of the ring in this view.
- TX-116-K-28 General view of a Solid Rocket Motor Forward Segment in the process of being offloaded from its railcar inside the Rotation Processing and Surge Facility at Kennedy Space Center.
- TX-116-K-29 General view of a Solid Rocket Motor Forward Segment in the process of being offloaded from its railcar inside the Rotation Processing and Surge Facility at Kennedy Space Center.
- TX-116-K-30 General view of the Aft Rocket Motor mated with the External Tank Attach Ring and Aft Skirt Assembly being transported from the Rotation Processing and Surge Facility to the Vehicle Assembly Building at Kennedy Space Center.
- TX-116-K-31 General view of the Aft Rocket Motor mated with the External Tank Attach Ring and Aft Skirt Assembly in the process of being mounted onto the Mobile Launch Platform in the Vehicle Assembly Building at Kennedy Space Center.

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General view of the Nose Cap, Frustum and Forward Skirt assembly being hoisted and mated with the previously assembled Solid Rocket Booster segments on the Mobile Launch Platform in the Vehicle Assembly Building at Kennedy Space Center.