

ITEM OPPORTUNITY SYNOPSIS

Name of the item to be scouted: Brake Control Unit

State item to be used in: California

Describe the Item:

Please describe the item application/the end use of item. Brake control unit (BCU) including train control devices, disc brake equipment, tread brake equipment, brake valves, parking brake units and brake mechanics.

Supplier Information:

Type of Supplier being sought (select from list below)

Manufacturer

Contract Manufacturer

Distributor

Other (please specify)

Reason for scouting submission (select from list below)

2nd Supplier

Price

Re-Shore

Past supplier no longer available

New Product Startup

Other (please specify) BABA

Summary of Technical Specifications and Performance Requirements:

Describe the manufacturing processes (elaborate to provide as much detail as possible). TBD - see 49 CFR Part 232 (<https://www.ecfr.gov/current/title-49/subtitle-B/chapter-II/part-232>)

Provide dimensions / size / tolerances / performance specifications of the item. TBD - see 49 CFR Part 232 (<https://www.ecfr.gov/current/title-49/subtitle-B/chapter-II/part-232>)

List required materials needed to make the product, including materials of product components, if applicable. TBD - see 49 CFR Part 232 (<https://www.ecfr.gov/current/title-49/subtitle-B/chapter-II/part-232>)

Are there applicable certification requirements?

Yes

No

Please Explain: Association of American Railroads (<https://www.aar.org/>)

Are there any applicable regulations that apply to the production of this item?

Yes

No

Please Explain: FRA Buy America (<https://railroads.dot.gov/legislation-regulations/buy-america/buy-america>)

Are there any other standards, requirements?

Yes

No

Please Explain: see 49 CFR Part 232 (<https://www.ecfr.gov/current/title-49/subtitle-B/chapter-II/part-232>)

Additional Comments:

Additional technical comments: This equipment collectively forms a service-proven friction brake control system of the trainset with cardinal quality and safety demonstrated through field testing and millions of kilometers of revenue service. They operate as a system, integrated with the traction control system, and are available from a very limited number of qualified suppliers. The equipment is currently not manufactured in the U.S. and attempting to create such domestic manufacturing capability would add risk to the schedule and potentially compromise safety, reliability and delivery of the trainsets; as well as increasing the cost of those trainsets.

Volume and Pricing:

Estimated Potential Business Volume (i.e. #Units per day, month, year): 10 units, 1 per Trainset

Estimated Target Price / Unit Cost Information: \$32,000 per unit (ESTMIATED PRICE)

Delivery Requirements:


When is it needed by? (Immediate, 30 days, 6 months, etc) TBD - ESTIMATED at June 2025 with scheduled deliveries of BCUs for one half trainset per month each month until completion, unless specified differently by Alstom.

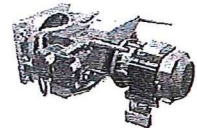
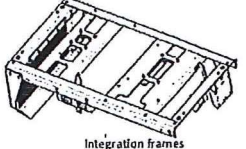
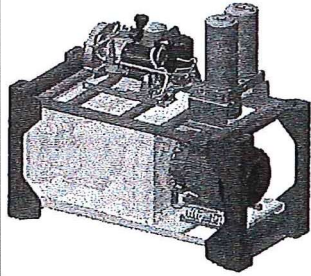
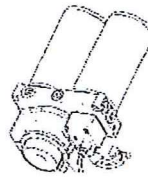
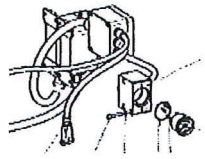
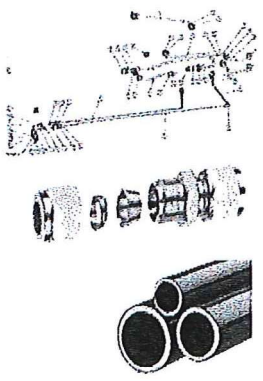

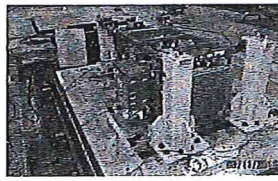
Describe packaging requirements (i.e., individually/ group packaging). Disposable wooden crate, palletized for forklift lifting capability, and 4 eyebolts for additional lifting.

Where will this item be shipped? Hornell, NY

Additional Comments:

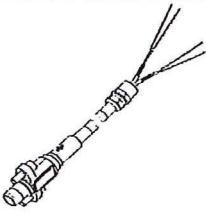
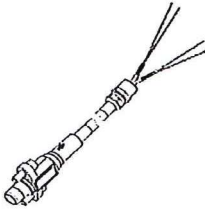
Is there other information you would like to include? Alstom will be available to answer any/all technical, logistical, packaging questions.

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Imported Components/SubComponents/Materials	Components/Sub Components/Materials Made/procured in USA	Details of Substantial Modification in USA	Final Product delivered to Alstom
 Compressor Set	 Integration frames	<p>Production [1] of the integration frames at U.S. sub-supplier (highly critical)</p> <ul style="list-style-type: none"> - cutting/forming/bending of us-bought steel sheets. - welding of the sub-parts, acc. US standards. - NC-machining of the whole welded frame: milling, adaptations of fitting points, drilling, sawing, grinding. - surface treatment and painting of the whole frame. - Verification / documentation / shipment to KBC. 	 Air Supply Unit
 Air Dryer	 Electrical appliances	<p>Production [1] of cable Harnesses for the Air Supply Unit at Knorr Brake Company and/or at U.S. sub-supplier</p> <p>Manufacturing of cable harnesses, including:</p> <ul style="list-style-type: none"> - arrangement and connection of wires. - cutting of wires. - crimping of wires. - assembly of plugs. - final testing of finished cable harnesses. <p>Preparation of Production at Knorr Brake Company</p> <ul style="list-style-type: none"> - Incoming Inspection and Quality Insurance. - Compilation of all parts of BOM from warehouse. - Engraving name plates to identify each unit throughout the entire production process. 	
 Piping and tubing appliances		<p>Assembly [1] of Air Supply Unit at Knorr Brake Company</p> <p>Mech., Pneum. and electr. Interconnection of :</p> <ul style="list-style-type: none"> - Integration frame - Compressor Set. - Air Dryer. - Auxiliary Air Supply Unit. - Safety Valves incl. fixing material and accessories. - Piping, Hoses, Hose clamps - Holders, Supporting parts. - All electrical parts, cable harnesses, connectors, plugs. - Identification and serialization labelling. 	
 Fixings		<p>Routine testing [1] of Air Supply Unit at Knorr Brake Company (highly critical)</p> <ul style="list-style-type: none"> - Design and manufacturing of automated routine test tooling. - Electrical function test - High-voltage Test, incl. Insulation and Earthing. - Leakage test. - Shuttling cycle test. - Pressure governor Test. - Gas meter recording. - Creation of test report. - Final Inspection, packaging and shipment. <p>Type testing [1] of Air Supply Unit at external laboratories in the US (highly critical)</p> <p>Scope of type testing still under discussion with Alstom but basically possible locally:</p> <ul style="list-style-type: none"> - EMC test - Noise test - Vibration input test into train - IP tests - shock&vibration test (see bench below) - high and low-temperature tests 	

[1] welding, forming, material removal, interconnection, permanent adhesive joining, testing, finishing; FRA Buy America FAQ, section: General Requirements: substantial transformation
 Status: December 5th, 2016; based on scope defined in piping dwg. TA412659 rev9

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Imported Components/SubComponents/Materials	Components/Sub Components/Materials Made/procured in USA	Details of Substantial Modification In USA	Final Product delivered to Alstom
<p>Subcomponents representing less than 6% material value:</p> <ul style="list-style-type: none"> - Digi-Key - Mouser 	 <p>Speed sensor 49 CFR 661.11 compliant - see certificate</p>	<p><u>Production steps made by the Supplier in North Carolina facility and at local US subcontractors:</u></p> <ul style="list-style-type: none"> • All components are received into QC where components are inspected against IAR requirements • Cable is solder to PCB per [J Standard 001] • PCB is encapsulated into the stainless steel shell • Cable/shell assembly is over-molded for environmental protection • Cable is soldered into connector per [J Standard 001] • Cable/connector assembly is over-molded for environmental protection • Final assembly is inspected in QC against IAR requirements <p>Supplier facility video link : www.smith-systems-inc.com</p> <p><u>Production steps at Knorr Brake Company</u></p> <ul style="list-style-type: none"> - Incoming Inspection and Quality Insurance. - Repackaging/kitting acc. customer requirements. 	 <p>Speed sensor</p>
		<p><u>Type testing [1] of speed sensor (highly critical)</u></p> <ul style="list-style-type: none"> - Functional tests at static and dynamic commissioning 	

[1] welding, bending, material removal, interconnection, permanent adhesive joining, testing, finishing FPA Buy America FAD, section: General Requirements: substantial transformation
 States: January 26th, 2017 - Conditional to business award to US supplier