

BID SOLICITATION



City of Chattanooga
 101 East 11th Street, Suite G13
 Chattanooga, TN 37402

SEALED BIDS

Mail or submit two (2) signed copies of bid form to this office in the enclosed envelope. Retain one copy for your file.

BID OPENING DATE AND TIME:
 18-SEP-18 at 2:00 PM

BID NUMBER: 305221

BUYER:
PHONE #: (423) 643-7230
DELIVERY REQUIRED:

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City of Chattanooga
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 Chattanooga, TN 37402

Item	Class-Item	Quantity	Unit	Unit Price	Total
Requisition No: 175539 Ordering Dept: Fire Department Buyer: William Tucker Fax: 423-643-7244 Email: wtucker@chattanooga.gov ***** Items Being Purchased: Extrication Tools ***** ATTACHMENTS: Specifications (33 pages) Instructions to Bidders (3 pages) ***** ***BIDS MUST BE RECEIVED NO LATER THAN ** *** 02:00 PM EST on SEPTEMBER 18, 2018 *** ***** SEALED BID: All Bids must be delivered to the Purchasing Office in a sealed envelope on or before the time and date specified above. DO NOT email or fax your Bid; such Bids cannot be considered. ***** Items being purchased are to be delivered to: Fire Inventory 3109 North Belle Arbor Avenue Chattanooga, TN 37406 Delivery Contact: Vanessa Meyer, Tel. 423-643-5688 ***** ALL ITEMS MUST BE QUOTED F.O.B DESTINATION ***** The City of Chattanooga Standard Terms and Conditions are incorporated herein by reference, and are available for review on the City's website at http://www.chattanooga.gov/purchasing/standard-terms-and-conditions . If you cannot access the document online, contact the Purchasing Office for a copy. Any requests for modification of the City's Terms and Conditions MUST be submitted with your Bid. ***** NOTE: ALL BIDS MUST BE SIGNED All bids received are subject to the terms and conditions contained herein and as listed in the above-referenced website. By submission of a Bid, the bidder acknowledges having reviewed the Standard Terms and Conditions, and agrees to be bound by such terms. ***** Any manufacture's names, trademarks, brand names, or catalog numbers used in the specifications are for the purpose of describing and establishing general quality levels. Such references are not intended to be restrictive. Bids will be considered for any brand which meets or exceeds the quality in the specifications listed for each item. ***** The City of Chattanooga reserves the right to reject any and/or all Bids, waive any informalities in the Bids received, and to accept any Bid which in its opinion may be for the best interest of the City. The City of Chattanooga will be non-discriminatory in the purchase of all goods and services on the basis of race, color, or national origin.					

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Item	Class-Item	Quantity	Unit	Unit Price	Total
<p>*****</p> <p>Vendor Contact Information:</p> <p>Vendor Name _____</p> <p>Contact Person _____</p> <p>Tel.: _____</p> <p>Fax: _____</p> <p>Email: _____</p> <p>Mailing Address: _____</p> <p>City, State, Zip: _____</p> <p>*****</p>					

NOTE: ALL BIDS RECEIVED ARE SUBJECT TO THE TERMS AND CONDITIONS

The City is Exempt from all Federal and State Tax.
 Bids will be received at the above mentioned address.

ALL BIDS MUST BE SIGNED – The undersigned offers the above quoted prices under the conditions contained herein.

TERMS OF PAYMENT: _____

TELEPHONE NUMBER: _____

COMPANY: _____

SIGNATURE: _____

NAME AND TITLE: _____

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Item	Class-Item	Quantity	Unit	Unit Price	Total
1	Lined Large Spreader	5	Each	_____	_____
2	Lined Large Cutter	5	Each	_____	_____
3	Lined Small Ram	5	Each	_____	_____
4	Lined Large Ram	5	Each	_____	_____
5	Hydraulic Power Unit	5	Each	_____	_____
6	High-Pressure Hydraulic Mono Hoses	25	Each	_____	_____
7	Battery-Powered Spreader w 2 Lithiom-Ion Batteries and A Charger	5	Each	_____	_____
8	Battery-Powered Cutter w/2 Lithiom-Ion Batteries and a charger	5	Each	_____	_____
9	Battery-Powered Ram w/2 Lithiom-Ion Batteries and a Charger	5	Each	_____	_____
10	Battery Powered Combination Tool w/2 Lithiom-Ion Batteries and a charger	5	Each	_____	_____

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Item	Class-Item	Quantity	Unit	Unit Price	Total
11	Battery Powered RIT Tool 2/2 Lihiom-Ion Batteries and a charger	5	Each	_____	_____
12	Bank Charger	5	Each	_____	_____
13	Mounting Brackets	55	Each	_____	_____
14	Additional Hydraulic Fluid Bottles	10	Each	_____	_____
15	Ram Support Plates	5	Each	_____	_____
16	Spreader Lifting Plate	5	Each	_____	_____
17	Service Agreement-annual service for all high-pressure lined equipment, power units and hoses	5	Each	_____	_____
18	Service Agreement-annual service for all battery-powered hydraulic tools and equipment	6	Each	_____	_____
19	Corded 110-volt Battery Adapter	5	Each	_____	_____

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Instructions to Bidders

(1) Bid documents can be downloaded from the City's website at www.chattanooga.gov. At the left side of that page is a link labeled "Bid Solicitations." Click that link, and a page will open with a list of the City's current Bid Solicitations, with links that will display a PDF version of the bid documents suitable for printing.

(2) Any Addenda will be published in the list of Bid Solicitations mentioned above. Bidders should check this list before submitting their bids, to see whether any Addendum has been issued.

(3) Bid documents should be submitted to the following address:

Purchasing Office, Suite G-13
City Hall
101 East 11th Street
Chattanooga, TN 37401

(4) Sealed Bids should be submitted in a sealed envelope. No particular envelope is required, but the Bid Solicitation number should be marked on the outside of the envelope. This is a six-digit number starting with a "3".

(5) Any questions regarding the specifications or bidding process should be directed to the Buyer, preferably by email, to the following address: wtucker@chattanooga.gov.

The Buyer will, if possible find answers to the submitted questions and will issue an Addendum so that all potential bidders will have access to the answers.

(6) Tennessee law prohibits municipalities from contracting with business entities which engage in investment activities in Iran. A list of such prohibited entities can be viewed at

https://www.tn.gov/content/dam/tn/generalservices/documents/cpo/cpo-library/public-information-library/List_of_persons_pursuant_to_Tenn._Code_Ann._12-12106_Iran_Divestment_Act_updated_7.7.17.pdf

A form entitled "Vendor Disclosure and Acknowledgement" is attached, which asks the Bidder to affirm that it is not on the list of prohibited entities. This form should be completed and submitted with your Bid.

(7) A Form titled "No Contact/No Advocacy" is attached, regarding contact with City representatives during the evaluation of Bids. Bidders are required to submit this completed Form with their Bids.

Chapter No. 817 (HB0261/SB0377). "Iran Divestment Act" enacted.
Vendor Disclosure and Acknowledgement

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to § 12-12-106.

(SIGNED) _____

(PRINTED NAME) _____

(BUSINESS NAME) _____

(DATE) _____

No Contact/No Advocacy

Notice Receipt

City of Chattanooga

Purchasing Division

For Submission with Sealed Bid Solicitation Responses:

_____ (Vendor Agent name), states that:

(1) He/She is the owner, partner, officer, representative, or agent of _____
_____ (Business name), the Submitter of the
attached sealed solicitation response to Solicitation # _____, and said

Business has taken notice, and will abide by the following No Contact and No Advocacy clauses:

NO CONTACT POLICY: After the posting of this solicitation, a potential submitter is prohibited from directly or indirectly contacting any City of Chattanooga representative concerning the subject matter of this solicitation, unless such contact is made with the Purchasing Division.

NO ADVOCATING POLICY: To ensure the integrity of the review and evaluation process, companies and/or individuals submitting sealed solicitation responses, as well as those persons and/or companies formally/informally representing such submitters, may not directly or indirectly lobby or advocate to any City of Chattanooga representative.

Any business entity and/or individual that does not comply with the No Contact and No Advocating policies may be subject to the rejection or disqualification of its solicitation response from consideration.

Submitter Signature:

Printed Name:

Title: _____

Date: _____

FROM: CHATTANOOGA FIRE DEPARTMENT

CONTACT: Capt. David Tallent, Special Operations Division

Cell: (423) 667-0631

E-mail: dtallent@chattanooga.gov

DATE: 08-24-18

RE: Extrication Tool Specifications

Below are a list of the tools the Chattanooga Fire Department would like to receive a bid on. The Chattanooga Fire Department reserves the right to determine whether the company's item meets the specifications for each line item.

Lined (Conventional) Tools

001 Lined Large Spreader - 1 for each rescue company, total of 5

Item Description(s)	YES	NO	Equivalency (if needed)
A. The tool is a designed hydraulically activated piston with two equal, opposite spreader arms that are symmetrically opened by mechanical joints, thereby spreading objects. Closing the spreader arms is also carried out hydraulically and mechanically by reverse order of the piston.			
B. The body of the tool shall be made of forged 7075 aviation grade anti-corrosive light aluminium alloy for its lightweight, strength and long life.			
C. The spreading can produce a maximum <i>maximum</i> spreading force of 134,900 lbf. (600 kN).			

D.	The tool shall produce a maximum minimum spreading distance of 32 in (813 mm) measured at the tips.			
E.	In accordance with NFPA testing standards the HSF test point shall produce 19,110 lbf (85 kN), the LSF test point produced 13,260 lbf (59 kN).			
F.	In accordance with NFPA testing standards the HPF test point produced 11,016 lbf (49 kN), the LPF test point produced 6,744 lbf (30 kN).			
G.	The tool shall produce a pulling distance of 25.8 in (655 mm) on mounting borehole for chain set.			
H.	The tips are to be removable, multifunctional tips that can be used for spreading, squeezing and pulling without the need to be changed.			
I.	The removable tips shall have a machined aggressive design for maximum performance and gripping capability.			
J.	The tips shall be easily removed by depressing spring loaded "button" style detent pins.			
K.	The arms of the tool should be made of aluminium alloy and attach via removable links for ease of repair, efficient power transmission and smooth operation. The arms shall include a metal protective and gripping squeezing plate on both the inside and the outside of each arm.			
L.	The tool is suitable for underwater use at a depth of up to 131 ft. (40 m).			
M.	The tool shall have two 20 in (0.5 m) connection hoses consisting of steel reinforced nylon thermoplastic covered tube hoses with a safety factor of 4:1 burst pressure rating of no less than 40,000 psi (2800 bar),			

	equipped with plastic bend restrictors to prevent kinking and mono-coupling with dust cap.			
N.	The tool shall be equipped with a mono-coupling made of machined aluminium and hardened steel. The mono-coupling system shall have an interlocking capability allowing twin line hose to be connected into a single coupling for safe and quick connection of hydraulic hoses. The tool can be coupled under pressure provided the equipment is not activated.			
O.	The tool will be equipped with a dual pilot check valve. This is to prevent accidental movement of the arms in the event of power loss.			
P.	The tool shall be protected by a pressure relief valve that prevents it from being over pressurized.			
Q.	The tool shall be able to tolerate an ambient temperature range of -4°F (-20°C) up to +131°F (+55°C).			
R.	The tool must be NFPA 1936; 2015 Edition certified and shall be labelled as such bearing the mark of the testing agency.			
S.	The tool will not weigh more than 45 lbs. including hydraulic fluid.			

002 Lined Large Cutter - 1 for each rescue company; total of 5

	Item Description(s)	YES	NO	Equivalency (if needed)
A.	The tool is designed to be a hydraulically operated piston activating mechanical joints symmetrically to open or close a set of two opposite blade arms whereby cutting surfaces go on top of each other without			

<p>making contact thus enabling objects/material to be cut, sheared or severed.</p>			
<p>B. The body of the tool shall be made of forged 7075 T6 – 83,000 pounds tensile strength aviation grade anti-corrosive light aluminum alloy for its lightweight, strength and long life.</p>			
<p>C. The maximum cutter opening at the tips will be greater than 8”.</p>			
<p>D. The cutter will be of C-curved blade for pulling the debris away and to the center with intelligent cutter geometry reducing tool movement and providing maximum cutting performance.</p>			
<p>E. The engineered C-curved blades with sophisticated geometry close at the tips and then pull the object to be cut towards the point where the maximum cutting force is applied to the relevant working range providing superior cutting performance and significantly reducing cutter wear and optimized for increasingly thicker material.</p>			
<p>F. The blades shall be made of shock-resistant tool steel that has been heat treated using a four step tempering process making the blades chip and dent resistant while maintaining ductility. The blades of the tool should be attached to the piston rod via removable links for ease of repair, efficient power transmission and smooth operation. The pivot points of the blades shall have a rubber booted hand guard for safety purposes.</p>			
<p>G. The cutting performance of the tool shall be able to cut up to 1.77 in (45 mm) diameter round stock.</p>			

H.	The tool shall have a low profile center bolt to provide better access into narrow spaces.			
I.	The tool shall have two (2) handles. One located at the center of the tool and the other located below the control mechanism.			
J.	The tool shall have a dual pilot check valve to prevent accidental movement of the blades in the event of power loss.			
K.	The tool is suitable for underwater use at a depth of up to 131 ft (40 m).			
L.	The control mechanism shall be have 360 ° operations in any position. The mechanism shall be separate and independent from the handle to provide added control in close-quarter operation.			
M.	The tool must provide a non-interflow shear seal “dead man” actuator, whereby the unit stops functioning when control mechanism is released.			
N.	The opening and closing positions are clearly marked with a directional decal.			
O.	The tool shall be protected by a pressure relief valve that prevents it from being over pressurized.			
P.	The tool shall have two (2) 20 in (0.5 m) connection hoses consisting of steel reinforced nylon thermoplastic covered tube hoses with a safety factor of 4:1 burst pressure rating of no less than 40,000 psi (2800 bar), equipped with plastic bend restrictors to prevent kinking and a mono-coupling with dust cap.			

Q.	The tool shall be equipped with a mono-coupling made of machined aluminum and hardened steel. The mono-coupling system shall have an interlocking capability allowing twin hose to be connected into a single coupling for same and quick connection of hydraulic hoses. The tool can be coupled under pressure provided the equipment is not activated.			
R.	The tool dimensions without connection hoses shall not be any longer than 32.6 in. (828 mm) or wider than 11.5 in. (291 mm) or higher than 7.4 in (188 mm).			
S.	The allowable pressure of the tool will be 10,000 psi (70 MPa) (700 bar).			
T.	The ambient temperature range for tool in operation shall not exceed -4°F (-20°C) to +131°F (+55°C).			
U.	The tool must be NFPA 1936; 2015 Edition certified and shall be labelled as such bearing the mark of the testing agency			
V.	Cutting classification should be no less than A9 / B9 / C9 / D9 / E9 as defined in NFPA 1936; 2015 and certified by a 3 rd party testing agency.			
W.	The tool will not weigh more than 50 lbs. including hydraulic fluid.			

003 Lined Small Ram - 1 for each rescue company; total of 5

	Item Description(s)	YES	NO	Equivalency (if needed)
A.	The rescue ram is a double-acting hydraulic cylinder. Extension and retraction is carried out hydraulically.			

B.			
C.			
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J.			
K.			

L. The tool is to have two (2) 20 in (0.5 m) connection hoses consisting of steel reinforced nylon thermoplastic covered tube hoses with a safety factor of 4:1 burst pressure rating of no less than 40,000 psi (2800 bar), equipped with plastic bend restrictors to prevent kinking and mono-coupling with dust cap.			
M. The tool is suitable for underwater use at a depth of up to 131 ft. (40 m).			
N. The tool shall be equipped with a mono-coupling made of machined aluminium and hardened steel. The mono-coupling system shall have an interlocking capability allowing twin hose to be connected into a single coupling for same and quick connection of hydraulic hoses. The tool can be coupled under pressure provided the equipment in not activated.			
O. The tool dimensions without connection hoses shall not be any wider than 4.41 in (112 mm) or higher than 8.7 in (221 mm).			
P. The maximum operating pressure to the tool will be 10,153 psi (70 MPa) (700 bar).			
Q. The tool shall be protected by a pressure relief valve that prevents it from being over pressurized.			
R. The tool shall be able to tolerate an ambient temperature range of -4°F (-20°C) up to +131°F (+55°C).			
S. The tool must be NFPA 1936; 2015 Edition certified and shall be labelled as such bearing the mark of the testing agency.			
T. The tool will not weigh more than 37.0 lbs (16.8 kg) including hydraulic fluid.			

004 Lined Large Ram - 1 for each rescue company, total of 5

Item Description(s)	YES	NO	Equivalency (if needed)
A. The rescue ram is a double-acting hydraulic cylinder. Extension and retraction is carried out hydraulically.			
B. The tool cylinder shall be made of forged 7075 T6 – 83,000 lbs tensile strength aviation grade anti-corrosive light aluminium alloy for its lightweight, strength and long life.			
C. The rescue ram is a multi-stage cylinder for applying pressure with varying pressure forces depending on the piston stage. The pressure force remains constant within one piston stage.			
D. The ram shall extend to a distance of up to 59.1 in (1500 mm). The retracted length is to be no less than 24.6 in (625 mm).			
E. The ram shall feature a two stage stroke. The maximum stroke for piston 1 shall be 17.5 in (445 mm) producing up to 60,474 lbf (269 kN) force. The maximum stroke for piston 2 shall be 16.9 in (430 mm) producing up to 30,124 lbf (134 kN) force. The piston stroke overall shall be 34.5 in (875 mm).			
F. For ease of operation and high tensile strength there shall be a limit of one solid steel rod per tool.			
G. The tool shall include heat-treated, investment-cast steel ram claw feet on the piston side and on the cylinder side for durable gripping and minimizing slippage.			
H. The tool shall have a dual pilot check valve to prevent accidental movement of the piston rod in the event of power loss.			

<p>I. The tool must provide a "dead man" actuator whereby the unit stops functioning when hand pressure is released.</p>			
<p>J. The extend piston and retract piston are clearly marked.</p>			
<p>K. To maximize the ram capability the unit should include an optional Ram Support and/or a Ram Attachment set thus allowing increased versatility.</p>			
<p>L. The tool is to have two (2) 20 in (0.5 m) connection hoses consisting of steel reinforced nylon thermoplastic covered tube hoses with a safety factor of 4:1 burst pressure rating of no less than 40,000 psi (2800 bar), equipped with plastic bend restrictors to prevent kinking and mono-coupling with dust cap.</p>			
<p>M. The tool is suitable for underwater use at a depth of up to 131 ft. (40 m).</p>			
<p>N. The tool shall be equipped with a mono-coupling made of machined aluminium and hardened steel. The mono-coupling system shall have an interlocking capability allowing twin hose to be connected into a single coupling for same and quick connection of hydraulic hoses. The tool can be coupled under pressure provided the equipment in not activated.</p>			
<p>O. The tool dimensions without connection hoses shall not be any wider than 4.41 in (112 mm) or higher than 8.7 in (221 mm).</p>			
<p>P. The maximum operating pressure to the tool will be 10,153 psi (70 MPa (700 bar)).</p>			
<p>Q. The tool shall be protected by a pressure relief valve that prevents it from being over pressurized.</p>			

R.	The tool shall be able to tolerate an ambient temperature range of -4°F (-20°C) up to +131°F (+55°C).			
S.	The tool must be NFPA 1936, 2015 Edition certified and shall be labelled as such bearing the mark of the testing agency.			
T.	The tool will not weigh more than 46.3 lbs (21.0 kg) including hydraulic fluid.			

005 Hydraulic Power Unit - 1 for each rescue company; total of 5

	Item Description(s)	YES	NO	Equivalency (if needed)
A.	The power unit will consist of a hydraulic radial piston pump which conveys the fluid from the reservoir and builds up the pressure. The distribution of the fluid is controlled by two mounted valves. The power unit is driven by an engine with both a low pressure and a high pressure circuit.			
B.	The reservoir capacity for hydraulic oil must be no more than 1.37 gal (5.2 liters) with a usable volume of no less than 1.32 gal (5 liters). Operation of unit should not exceed an angle of 20° to guarantee maximum safety and fluid withdrawal.			
C.	The engine is to be driven by an internal 4 stroke/cycle 2.95 HP (2.22 KW at 3800 rpm) gasoline Honda GX100 combustion engine. The engine shall carry a manufacturer's warranty of two (2) years.			
D.	The hydraulic pump is to be a two-stage radial piston pump. The two-flow pumps used are equipped with two pressure cycles per pump capacity. The maximum working pressure to the pump will be limited by a pressure control valve set to 10,000 psi (70 MPa). The changeover			

<p>pressure from low to high shall be 2,000 psi (14 MPa) or (140 bar) for faster operation. Switch-over from low to high pressure mode is carried out automatically within the pump.</p>			
<p>E. With the engine in standard speed of 3000 rpm the oil flow rate shall be 2 x 0.15 gallons (0.55 liters) per minute at the high pressure stage of no less than 10,000 psi (70 MPa) and 2 x 0.63 gallons (2.4 liters) per minute on the low pressure stage of no less than 2,000 psi (14 MPa). With the engine in high speed of 3800 rpm the oil flow rate shall be 2 x 0.19 gallons (0.7 liters) per minute at the high pressure stage and 2 x 0.79 gallons (3.0 liters) per minute on the low pressure stage. In the turbo mode the flow rate shall be 1 x 0.36 gallons (1.35 liters) per minute at the high pressure stage and 1 x 1.53 gallons (5.8 liters) per minute at the low pressure stage.</p>			
<p>F. The unit shall be equipped with a simultaneous operation control valve block which provides two (2) individual oil flows to each individual two pressure circuit allowing the connection of up to two (2) tools. The individual circuit lines can be operated simultaneously and will be able to obtain full pressure and flow without interrupting or decreasing the performance of the other circuits. The capability of switching from simultaneous two (2) operation to single turbo mode with increased flow shall be achieved with a shift lever located between the two outlets. Supplying double the quantity of fluid increases the operating speed of the connected device.</p>			
<p>G. The unit shall be equipped with two (2) mono-coupling connections.</p>			
<p>H. The mono-couplings shall be made of machined aluminum and hardened steel. The mono-coupling system shall have an interlocking push-twist positive locking capability allowing the twin hose to be</p>			

connected into a single coupling for safe and quick connection of hydraulic hoses.			
I. The unit shall be protected by a heavy-duty tubular steel roll cage frame surrounding the engine and panels to protect the reservoir, specially designed to protect the unit from external influences. The power unit is to have anti-vibration isolators to limit unwanted movement.			
J. The power unit shall be no longer than 17.3" (440 mm) or wider than 17.3" (440 mm) or higher than 17.5" (445 mm).			
K. The power unit shall be able to tolerate an ambient temperature range of -4°F (-20°C) up to +131° F (+55°C).			
L. Noise emissions with 3000 rpm measuring distance 13ft (4 m) idle no-load running produces 73 dB(A) with full load producing 77 dB(A). Noise emissions with 3800 rpm measuring distance 13 ft (4 m) idle no-load running produces 77 dB(A) with full load producing 80 dB(A).			
M. The gasoline capacity is 0.2 gallons (0.77 L)			
N. The power unit shall be certified as compliant with NFPA 1936, 2015 Edition and shall be labeled as such bearing the mark of TUV, the independent testing agency.			
O. The power unit shall not weigh more than 71.7 lbs (32.5 kg) including hydraulic fluid and gasoline.			

006 High-Pressure Hydraulic Mono Hoses - 5 per rescue company; total of 25

Item Description(s)	YES	NO	Equivalency (if needed)
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<p>A. Operating pressure of 10,000 psi, with a safety factor of 4:1 burst pressure rating of no less than 40,000 psi (2800 bar), mono-coupling with dust cap, 30 ft. minimum length, the mono-coupling system shall have an interlocking capability allowing twin hose from the tools to be connected into a single coupling for same and quick connection of hydraulic hose, hose is not to be an exposed twin line, the pressure line is to be housed internally inside the return line. The tool can be coupled under pressure provided the equipment is not activated.</p>		
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Battery-Powered Tools

NFPA 1936 Compliant

007 Battery-Powered Spreader w/ 2 Lithium-Ion Batteries and a Charger - 1 for each rescue company, total of 5

Item Description(s)	YES	NO	Equivalency (if needed)
<p>A. The tool is a designed hydraulically activated piston with two equal, opposite light metal alloy spreader arms that are symmetrically opened by mechanical joints, thereby spreading objects. Closing the spreader arms is also carried out hydraulically and mechanically by reverse order of the piston.</p>			
<p>B. Electro-hydraulic devices do not need to be connected to an external hydraulic source. Generation of the required hydraulic pressure takes place within the body of the device by either a quick exchange lithium/ion battery or an external power supply.</p>			
<p>C. The electro-hydraulic tool is equipped with lights to facilitate work under poor lighting conditions. For simplicity, the lights must be powered by the same Lithium-Ion battery that powers the electro-hydraulic tool and not a secondary battery.</p>			

<p>D. The cylinder of the tool shall be a one piece design made of anti-corrosive light aluminum alloy for its lightweight, strength and long life. The body of the tool shall have a high impact, non-metallic housing. The housing shall have ventilation holes on both sides of the unit for cooling the motor.</p>			
<p>E. The spreader can produce a maximum spreading force of up to 147,924 lbf. (658 kN).</p>			
<p>F. The tool shall produce a maximum spreading distance of 28.7 in (730 mm).</p>			
<p>G. According to NFPA testing standards the HSF test point produced 16,186 lbf (72 kN), the LSF test point produced 11,016 lbf (49 kN).</p>			
<p>H. To maximize the capability of the spreader the unit should include an optional chain and shackle package for pulling operations, use only HURST chain set KSV 11. This should not require the removal of the tips for attachment. According to NFPA testing standards the HPF test point produced 10,341 lbf (46 kN), the LPF test point produced 6,295lbf (28 kN).</p>			
<p>I. The tool shall produce a pulling distance of 22.4 in (569 mm).</p>			
<p>J. The tips are to be removable, multifunctional tips that can be used for spreading, squeezing and pulling without the need to be changed.</p>			
<p>K. The removable tips shall have machined aggressive design for maximum performance and gripping capability.</p>			
<p>L. The tips shall be easily removed by depressing spring loaded "button" style detent pins.</p>			

<p>M. The arms of the tool should be made of aluminum alloy and attach via removable links for ease of repair, efficient power transmission and smooth operation. The arms shall include a metal protective and gripping squeezing plate on both the inside and the outside of each arm.</p>			
<p>N. The control mechanism shall feature a star-grip control actuator for ease of operation by allowing 360 ° operations in any position. The tool must provide a non-interflow shear seal “dead man” actuator, whereby the unit stops functioning when thumb pressure is released. The star grip automatically returns to the central position, guaranteeing the full load-holding.</p>			
<p>O. The tool shall have two handles. One located at the center of the tool and the other located below the control mechanism. The center crossbar handle allows easy ergonomic manipulation from the center or either side.</p>			
<p>P. The tool will be equipped with a dual pilot check valve. This is to prevent accidental movement of the arms in the event of power loss.</p>			
<p>Q. The tool shall be protected by a pressure relief valve that prevents it from being over pressurized.</p>			
<p>R. The tool dimensions without the battery shall not be any longer than 39.4 in (1002 mm), wider than 10.4 in (265 mm) or higher than 11 in (280 mm).</p>			
<p>S. The nominal electrical voltage (with power supply) is 24 V. The nominal electrical voltage (with lithium/ion battery) is 25.2 V.</p>			
<p>T. The tool shall be able to tolerate an ambient temperature range of -49F (-20°C) up to +131°F (+55°C).</p>			

U.	The tool must be NFPA 1936; 2015 Edition certified and shall be labelled as such bearing the mark of the testing agency.			
V.	The tool shall have an IP protection class rating of IP54.			
W.	The tool will not weigh more than 44.1 lbs (20 kg) excluding the power supply.			

008 Battery-Powered Cutter w/ 2 Lithium-Ion Batteries and a Charger - 1 for each rescue company; total of 5

	Item Description(s)	YES	NO	Equivalency (if needed)
A.	The tool is designed to be a hydraulically operated piston activating mechanical joints symmetrically to open or close a set of two opposite blade arms whereby cutting surfaces go on top of each other without making contact thus enabling objects to be cut.			
B.	Electro-hydraulic devices do not need to be connected to an external hydraulic source; generation of the required hydraulic pressure takes place within the body of the device by either a quick exchange lithium/ion battery or an external power supply.			
C.	The electro-hydraulic tool is equipped with light-emitting diodes attached on the operating side to facilitate work under poor lighting conditions. For simplicity, the lights must be powered by the same Lithium-Ion battery that powers the electro-hydraulic tool and not a secondary battery.			
D.	The cylinder of the tool shall be made of anti-corrosive light aluminum alloy for its lightweight, strength and long life. The body of the tool shall			

	have a high impact, non-metallic housing. The housing shall have ventilation holes on both sides of the unit for cooling the motor.			
E.	The maximum cutter opening at the tips will be greater than 8".			
F.	The cutter will be of slightly curved blade geometry for pulling the debris away and to the center with intelligent cutter geometry reducing tool movement and providing maximum cutting performance.			
G.	The blades shall be made of dropped-forged steel which has a glass-pearl blasted finish and are regrindable. The blades of the tool should be attached to the piston rod via removable links for ease of repair, efficient power transmission and smooth operation. The pivot points of the blades shall have a rubber bootted hand guard for safety purposes.			
H.	The engineered curved blades with sophisticated geometry close at the tips and then pull the object to be cut towards the point where the maximum cutting force is applied to the relevant working range providing superior cutting performance and significantly reducing cutter wear.			
I.	The cutting performance of the tool shall be able to cut up to 1.77 in (45 mm) diameter round stock steel.			
J.	The tool shall have a dual pilot check valve to prevent accidental movement of the blades in the event of power loss.			
K.	The control mechanism shall feature a star-grip control actuator for ease of operation by allowing 360 ° operations in any position. The mechanism shall be separate and independent from the handle to provide added control in close-quarter operation.			

L.	The tool must provide a non-interflow shear seal “dead man” actuator, whereby the unit stops functioning when the star grip control valve is released.			
M.	The opening and closing positions are clearly marked.			
N.	The tool shall be protected by a pressure relief valve that prevents it from being over pressurized.			
O.	The tool dimensions without the battery shall not be any longer than 39.8 (1010 mm), wider than 10.9 in (276 mm) or higher than 11.1 in (281 mm).			
P.	The operating pressure to the tool will be 10,000 psi (70 MPa).			
Q.	The nominal electrical voltage (with power supply) is 24 V. The nominal electrical voltage (with lithium/ion battery) is 25.2 V.			
R.	The current consumption should be 12 amp in idle mode and 40 amp at maximum load.			
S.	The tool shall be able to tolerate an ambient temperature range of -4°F (-20°C) up to +131°F (+55°C).			
T.	The tool must be NFPA 1936; 2015 Edition certified and shall be labelled as such bearing the mark of the outside testing agency.			
U.	Cutting classification should no less than A9 / B9 / C9 / D9 / E9 as defined in NFPA 1936; 2015 and certified by a 3rd party testing agency.			
V.	The tool will not weigh more than 55.8 lbs (25.3 kg) excluding the power supply.			

009 Battery-Powered Ram w/ 2 Lithium-Ion Batteries and a Charger - 1 for each rescue company; total of 5

Item Description(s)	YES	NO	Equivalency (if needed)
A. The rescue ram is a double-acting hydraulic cylinder. Extension and retraction is carried out hydraulically.			
B. The rescue ram is a multi-stage cylinder for applying pressure with varying pressure forces depending on the piston stage. The pressure force remains constant within one piston stage.			
C. The ram shall extend to a distance of up to 53 in (1347 mm). The retracted length is to be no less than 23.5 in.(313 mm).			
D. The ram shall feature a two stage stroke. The maximum stroke for piston 1 shall be 15.2 in (387 mm) producing up to 28,600 lbf (127 kN) force. The maximum stroke for piston 2 shall be 14.3 in (363 mm) producing up to 13,500 lbf (60 kN) force. The piston stroke overall shall be 29.5 in (750 mm).			
E. The tool shall include heat-treated, investment-cast steel ram claw feet on the piston side and on the cylinder side for durable gripping and minimizing slippage.			
F. The tool shall have a dual pilot check valve to prevent accidental movement of the piston rod in the event of power loss.			
G. The control mechanism shall feature a star-grip control for ease of operation by allowing 360° operation in any position. The mechanism shall be separate and independent from the handle to provide added control in close-quarter operation.			

H.	The tool must provide a "dead man" actuator whereby the unit stops functioning when hand pressure is released.			
I.	The extend piston and retract piston are clearly marked.			
J.	The tool must be NFPA 1936; 2015 Edition certified and shall be labelled as such bearing the mark of the testing agency.			
K.	The tool will not weigh more than 41.9 lbs (19 kg) excluding the power supply.			
L.	Electro-hydraulic devices do not need to be connected to an external hydraulic source; generation of the required hydraulic pressure takes place within the body of the device by either a quick exchange lithium/ion battery or an external power supply.			
M.	The electro-hydraulic tool is equipped with lights to facilitate work under poor lighting conditions.			
N.	The cylinder of the tool shall be made of anti-corrosive light aluminum alloy for its lightweight, strength and long life. The body of the tool shall have a high impact, non-metallic housing. The housing shall have ventilation holes on both sides of the unit for cooling the motor.			
O.	The tool shall be able to tolerate an ambient temperature range of -4°F (-20°C) up to +131°F (+55°C).			

010 Battery-Powered Combination Tool w/ 2 Lithium-Ion Batteries and a Charger - 1 for each rescue company; total of 5

Item Description(s)	YES	NO	Equivalency (if needed)
<p>A. The tool is a designed hydraulically activated piston with two equal, opposite blade arms that are symmetrically opened by mechanical joints, thereby spreading, squeezing, pulling or cutting objects.</p>			
<p>B. Electro-hydraulic devices do not need to be connected to an external hydraulic source, generation of the required hydraulic pressure takes place within the body of the device by either a quick exchange lithium/ion battery or an external power supply.</p>			
<p>C. The electro-hydraulic tool is equipped with light-emitting diodes to facilitate work under poor lighting conditions. For simplicity, the lights must be powered by the same Lithium-Ion battery that powers the electro-hydraulic tool and not a secondary battery</p>			
<p>D. The cylinder of the tool shall be made of anti-corrosive light aluminium alloy for its lightweight, strength and long life. The body of the tool shall have a high impact, non-metallic housing. The housing shall have ventilation holes on both sides of the unit for cooling the motor.</p>			
<p>E. The maximum spreading force shall be up to 337,230 lbf (1,500 kN). NFPA HSF test point produced 9,667 lbf (43 kN), the LSF test point produced 7,419 lbf (33 kN).</p>			
<p>F. The tool shall produce a spreading distance up to 14.5 in (368 mm) measured at the blade tips.</p>			
<p>G. The tool shall produce a maximum pulling force of 13,714 lbf (61 kN), NFPA HPF test point produced 13,940 lbf (62 kN), the LPF test point produced 9,667 lbf (43 kN).</p>			

<p>H. To maximize the capability of the combination tool the unit should include an optional chain and shackle package for pulling operations, use only chain set part # 541C054.</p>			
<p>I. The maximum cutter opening shall be 12.2 in (309 mm) and shall include a notch to focus maximum cutting force.</p>			
<p>J. The blades of the tool shall be of a straight serrated edge design for maximum cutting performance. The blades shall have removable tips for spreading applications. The blades of the tool shall contain shackle holes for pulling applications. The blades of the tool should be attached to the piston rod via removable links, for ease of repair, efficient power transmission and smooth operation. The blades shall be made of investment cast dropped-forged alloy tool steel sandblasted for long-life and quality. The blades are regrindable. The pivot points of the blades shall have rubber bootted hand guard for safety purposes.</p>			
<p>K. The control mechanism shall feature a star-grip control actuator for ease of operation by allowing 360 ° operations in any position. The tool must provide a non-interflow shear seal "dead man" actuator, whereby the unit stops functioning when thumb pressure is released from the control valve. The star grip automatically returns to the central position, guaranteeing the full load-holding.</p>			
<p>L. The tool shall have two handles. One located at the center of the tool and the other located below the control mechanism.</p>			
<p>M. The tool will be equipped with a dual pilot check valve. This is to prevent accidental movement of the arms in the event of power loss.</p>			
<p>N. The tool shall be protected by a pressure relief valve that prevents it from being over pressurized.</p>			

O. The tool dimensions without the battery shall not be any longer than 37.7 (956 mm), wider than 9.3 in (237 mm) or higher than 10.9 in (278 mm).			
P. The maximum operating pressure to the tool will be 10,200 psi (70 MPa) (700 bar).			
Q. The nominal electrical voltage (with power supply) is 24 V. The nominal electrical voltage (with lithium/ion battery) is 25.2 V.			
R. The estimated current consumption at nominal voltage is 12 amps at idle mode and 40 amps at maximum load.			
S. The noise pressure level in idle mode shall be 69 dB(A) and 71 dB(A) in maximum load.			
T. The tool shall be able to tolerate an ambient temperature range of -4°F (-20°C) up to +131°F (+55°C).			
U. The tool must be NFPA 1936; 2015 Edition certified and shall be labelled as such bearing the mark of the testing agency.			
V. Cutting classification should be no less than A7 / B8 / C7 / D8 / E7 as defined in NFPA 1936; 2015 and certified by a 3 rd party testing agency.			
W. The tool will not weigh more than 41.5 lbs (18.8 kg) excluding the power supply.			

011 Battery-Powered RIT Tool w/ 2 Lithium-Ion Batteries and a Charger - 1 for each rescue company; total of 5

Item Description(s)	YES	NO	Equivalency (if needed)
<p>A. The tool is a hydraulically activated piston with two equal, opposite blade arms that are symmetrically opened by mechanical joints, thereby spreading, squeezing or cutting objects.</p>			
<p>B. Electro-hydraulic devices do not need to be connected to an external hydraulic source, generation of the required hydraulic pressure takes place within the body of the device by either a quick exchange lithium-ion battery or an external power supply.</p>			
<p>C. The cylinder of the tool shall be made of anti-corrosive light aluminum alloy for its lightweight, strength and long life. The body of the tool shall have a high impact, non-metallic housing. The housing shall have ventilation holes on both sides of the unit for cooling the motor. 4. The NFPA HSF test point shall produce 6,744 lbf (30 kN), and the LSF test point shall produce 5,395 lbf (24 kN).</p>			
<p>D. The tool shall produce a spreading distance up to 8.5 in (215 mm) measured at the blade tips with spreader tips.</p>			
<p>E. The tool shall be able to utilize two different style of tips that can be exchanged quickly by the use of 1in. diameter quick release buttons. One set of multifunctional tips that can be used for spreading, peeling, and squeezing without the need to be changed. These tips should be 1.772 in. wide measured at the base of the tip. The second set of tips shall be manufactured from cast high-strength steel. These tips must have 3 "teeth" on one tip and 2 "teeth" on the second tip. These "teeth" should be 0.975 in. each and form an interlocking "Jaw" the can be used to force items open as well as lift. Both tip types shall be made of an investment cast high-strength tool steel.</p>			

F.	The tool has been NFPA tested to cut 0.87 in (22.2 mm) diameter round stock steel material.			
G.	The maximum cutter opening shall be 8.15 in (215 mm) and shall include a notch to focus maximum cutting force.			
H.	The blades of the tool shall be of a straight serrated edge design for maximum cutting performance.			
I.	The control mechanism shall feature a star-grip control actuator for ease of operation by allowing 360° operation in any position. The tool must provide a non-interflow shear seal “dead man” actuator, whereby the unit stops functioning when thumb pressure is released. The star grip automatically returns to the central/neutral position, guaranteeing full load holding.			
J.	The tool shall have a 360° rotating handle that offers 4 locking positions.			
K.	The tool shall feature an on/off button that is lighted as well as stays recessed when the tool is in the on position.			
L.	The tool will be equipped with a dual pilot check valve. This is to prevent accidental movement of the arms in the event of power loss.			
M.	The tool shall be protected by a pressure relief valve that prevents it from being over pressurized.			
N.	Noise emissions at nominal voltage measured at idle mode generates 66 dB(A), max load generates 70 dB(A).			
O.	Minimum current consumption is 10 amps at idle mode and 43 amps at maximum load. The nominal electrical voltage (with lithium/ion battery) is 25.2 V.			

P.	The tool shall operate normally at an ambient temperature range of -4°F (-20°C) up to +131°F (+55°C).			
Q.	The tool, including battery, shall complete 3 successful rounds of NFPA 1936 2015 edition cut tests of A5/B3/C5/D6/E6 immediately after an exposure to 250°F for 9 minutes.			
R.	The tool, including battery, shall complete at least 5 full open/close cycles to full pressure a minimum of 30 minutes after being exposed to an ambient temperature of 300° for 7 minutes.			
S.	The tool dimensions without the battery shall not be any longer than 31.3 in (796 mm), wider than 7.7 in (195 mm) or higher than 8.3 in (210 mm) with spreader tips.			
T.	The tool must be certified as compliant with NFPA 1936, 2015 Edition and shall be labeled as such bearing the mark of the testing agency.			
U.	Cutting classification should be no less than A5 / B3 / C5 / D6 / E6 as defined in NFPA 1936:2015 and certified by a 3rd party testing agency.			
V.	The tool will not weigh more than 24.3 lbs (11 kg) with combi tips, excluding the power supply.			

Bank Chargers

	Item Description(s)	YES	NO	Equivalency (if needed)
012	Bank Chargers - 1 for each station with a rescue company; total of 5			

013 Corded 110-volt Battery Adapter - 1 for each rescue apparatus; total of 5

Item Description(s)	YES	NO	Equivalency (if needed)
<p>A. The power supply should be able to convert the voltage of the external power source in such a way that it can be used instead of a battery. The power supply MUST be capable of operating all current model electric over hydraulic rescue tools currently in operation, as well as new tools.</p>			
<p>B. With the power supply, the devices shall operate the tool in order to complete the vehicle rescue when connecting them to an external power source. The device is not designed for a continuous use or industrial application.</p>			
<p>C. The power supply should have an adapter on one side which can be simply inserted into the connection slot of the devices and locked. The other side of the power supply should have a 26.2' (8m) cord with a NEMA 5-15 Grounded Plug.</p>			
<p>D. The mains plug should be a NEMA 5-15 - 125 volt.</p>			
<p>E. The mains plug and adapter should both be connected by a cable to the inverter box. The cable connecting the adapter to the inverter box should be 26.2 ft (8 m) and the cable connecting the plug to the inverter box should be 16.4 ft (5 m).</p>			
<p>F. The cables are type H07RNF, with a cross section 3 x 1.5mm².</p>			
<p>G. The cables connecting to the filter box should be able to withstand an axial pulling force of min. 112.4 lbs (500 N).</p>			
<p>H. The inverter box should be made out of aluminum and have an IP rating of 67 or greater.</p>			

I. The integrated inverter is appropriate for the conversion of AC voltage to DC voltage. The input voltage shall be 110v, input frequency shall be 50 Hz/60Hz, and the output voltage shall be 25.2 Volt DC.		
J. The weight of the power supply shall not exceed 9.26 lbs (4.2 kg).		

Additional Equipment

Brackets and Fluids

Item Description(s)	YES	NO	Equivalency (if needed)
014 Mounting brackets for all tools - 1 for each tool; total of 25			
015 Additional hydraulic fluids - 2 bottles for each rescue apparatus; total of 10			

016 Ram Support Plates - 1 for each rescue company; total of 5

Item Description(s)	YES	NO	Equivalency (if needed)
A. The ram support shall be constructed of a light weight electro-galvanizing welded steel utilizing adjustable settings.			
B. The two parts of the ram support shall not separate when being extended. The support shall have seven positions by pulling a knurled knob and rig pin to secure position of choice. There shall be a stop spring for each position to lock unit into a pre-defined notch requiring no			

	threading or removal of any original component. The notches shall have .62 inches (15.7 mm) between each position.			
	C. The upper part of the jaw shall be rounded with grooves on the end to provide secure gripping and support to the ram when applied to door sills.			
	D. The jaws of the support shall have serrated teeth to provide maximum gripping. The width of the jaws shall be no more than 7.87 inches (200 mm).			
	E. The opening and smallest lock position shall be no less than 5.5 inches (140 mm) and shall be no more than 9.84 inches (250 mm) at the widest locked position.			
	F. The device shall support a maximum ram push capacity of 26,977 lbs (120 kN) and support a maximum vertical load of 13,488 lbs (60 kN).			
	G. The support shall be as compact as possible in the retracted position for ease of storage. It cannot be any higher than 3.54 inches (90 mm) or wider than 10.43 inches (265 mm) or longer than 11.02 inches (280 mm).			
	H. The weight of the support shall be no more than 15.4 lbs (7 kg)			

017 Spreader Lifting Plate - 1 for each rescue company; total of 5

	Item Description(s)	YES	NO	Equivalency (if needed)
A.	The spreader stabilization lifting plate is an accessory that will attach to the tips of both the electric over hydraulic spreader, or the high pressure hose driven spreader without the removal of the spreader tip.			

B. The spreader stabilization lifting plate accessory is designed to make lifting operations with the spreader more stable in conjunction with the appropriate cribbing.			
C. The spreader stabilization lifting plate shall be made by the same manufacturer of the hydraulic hose driven rescue spreader and electric over hydraulic spreader.			
D. The spreader stabilization lifting plate shall be constructed of steel and not exceed 4.5" x 4.5" x 4.75".			
E. The spreader stabilization lifting plate shall feature a single pin design that connects to the tip of the spreader without removing the spreader tip.			
F. The spreader stabilization lifting plate shall feature 16 rows of "teeth" on the bottom to assist with grip and help the plate from sliding on the surface.			

Service Agreements

Item Description(s)	YES	NO	Equivalency (if needed)
018 Vendor agrees to provide annual service on all high-pressure line equipment, power units, and hoses on all rescue apparatus.			
019 Vendor agrees to provide annual service on all purchased and existing battery-powered hydraulic tools and equipment.			
020 Vendor agrees to provide replacement or "loaner" tools for downed equipment for the duration of repair; must also provide an estimated timeframe for repair.			

<p>021 Vendor agrees to provide copies of all warranty information on all tools, batteries, hoses, power units to include pumps and internal combustion engines and other additional equipment.</p>			
<p>022 Vendor agrees to provide initial training on preventive maintenance for all rescue company officers (30) and Special Operations Division personnel (3).</p>			

FROM: Chattanooga Fire Department

CONTACT: Captain David Tallent, Special Operations Division

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DATE: August 24, 2018

RE: Extrication Tool Specifications

Below are a list of the tools the Chattanooga Fire Department would like to receive a bid on. Please refer to the CFD Extrication Equipment Specifications for specific information regarding these items. The Chattanooga Fire Department reserves the right to determine whether the company's item meets the specifications for each line item.

Hydraulic Tools and Equipment

Line Item	Item Description (see specs for further details)	Unit of Issue	Quantity	Unit Price	Extended Price
001	Lined Large Spreader	ea	5		
002	Lined Large Cutter	ea	5		
003	Lined Small Ram	ea	5		
004	Lined Large Ram	ea	5		
005	Hydraulic Power Unit	ea	5		
006	High-Pressure Hydraulic Mono Hoses	ea	25		
007	Battery-Powered Spreader w/ 2 Lithium-Ion Batteries and a Charger	ea	5		
008	Battery-Powered Cutter w/ 2 Lithium-Ion Batteries and a Charger	ea	5		
009	Battery-Powered Ram w/ 2 Lithium-Ion Batteries and a Charger	ea	5		
010	Battery-Powered Combination Tool w/ 2 Lithium-Ion Batteries and a Charger	ea	5		
011	Battery-Powered RIT Tool w/ 2 Lithium-Ion Batteries and a Charger	ea	5		
012	Bank Charger	ea	5		
013	Corded 110-volt Battery Adapter	ea	5		
014	Mounting Brackets	ea	estimate - all		
015	Additional Hydraulic Fluid Bottles	ea	10		
016	Ram Support Plates	ea	5		
017	Spreader Lifting Plate	ea	5		
018	Service Agreement - annual service for all high-pressure lined equipment, power units, and hoses	ea	1		
019	Service Agreement - annual service for all battery-powered hydraulic tools and equipment	ea	1		
020	Service Agreement - "loaner" tools for downed equipment	ea	1		
021	Warranty - provide copies of warranty information for all components	ea	1		
022	Training Agreement - provide initial preventative maintenance training for all company officers and support personnel (approx 33 individuals)	ea	1		
				Total Bid Price	