

FRAC SHACK™

HAND OVER AGREEMENT		DATE: 06-20-19
FRAC SHACK UNIT: XPX96	TRAILER:	PLATE:
GENERATOR UNIT:	TRAILER:	PLATE:
RT UNIT:	TRAILER:	PLATE:
OTHER:	OTHER:	OTHER:

FROM: FRAC SHACK <u>Inc</u>	TO: FRAC SHACK <u>FSI</u>
<u>Rob Metzinger</u>	<u>Dustin Neubauer</u>
RESPONSIBLE REPRESENTATIVE	RESPONSIBLE REPRESENTATIVE

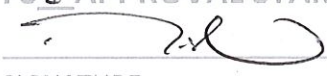
✓	Production documentation provided by FSH	✓	Reviewed by FSI/FSA
✓	Initial demob documentation provided by FSH	✓	Reviewed by FSI/FSA
		✓	Demob verified by FSI/FSA
✓	Frac Shack unit visually inspected by FSH	✓	Visually inspected by FSI/FSH
N/A	Generator unit tested/visually inspected by FSH	N/A	Inspected by FSI/FSA
N/A	NG Reel trailer inspected by FSH (if applicable)	N/A	Inspected by FSI/FSA

NOTES AND DEFICIENCIES:
Turbine Meters Calibrated based on numbers provided by Rob Metzinger, Test Sheet included

ACTIONS TAKEN OR REQUIRED:
COMPLETED _____
COMPLETED _____
COMPLETED _____
COMPLETED _____

APPROVED FOR HAND-OVER

FSH APPROVAL STAMP OR	
	6/28/19
SIGNATURE:	DATE:

FSI APPROVAL STAMP OR	
	6/28/19
SIGNATURE:	DATE:

SKID DELIVERY AND INSPECTION RECORD

VISUAL CHECKLIST

☒	2" Butterfly valve on pump inlet is installed
☒	10HP Motor, Gearbox and Pump assembly mounted and aligned
☒	Gear pinch point cover installed between pump and motor
☒	3/4" TOL for temperature switch is present on pipe spool between pump and 3-way ball valve
☒	3 Port 2-Way ball valve installed on pipe spool
☒	Cimtek triple filter housing installed on pipe spool
☒	2 Winter Gauges 4" 300LB Pressure gauges mounted on pipe spool, one on each side of flow meter
☒	567LPM flow meter mounted, bolted to stand and facing towards the inside of the skid
☒	Flow direction of flow meter confirmed to be correct and flowing towards fuel manifold
☒	2" Butterfly valve installed in pipe spool for each fuel rail manifold (one upper and one lower)
☒	Upper and lower manifolds have 3" flange blinds installed on pipe spool — <i>NA</i>
☒	Hose reel guide brackets shipped with skid and have been placed on skid platform — <i>NA</i>
☒	Anti-slip coating present on flooring
☒	Plug installed in the secondary containment port.
IF ANY OF THE ITEMS ABOVE ARE NON-CONFORMING AND THE ACTION ITEM DOES NOT OR WILL NOT CORRECT THE NON-CONFORMANCE, PLEASE NOTE THE ISSUE IN COMPLETE DETAIL BELOW AND INFORM YOUR SUPERVISOR FOR CORRECTION AND FOLLOW UP.	

ASSEMBLER NOTES

INSPECTOR OR SUPERVISOR NOTES

Paul Lambert

may/28/19

PR-6005 – XPX PRODUCTION AND ASSEMBLY CHECKLIST

PHYSICAL CHECKLIST

☒	All nuts and studs on piping and manifold flanges have been checked for tightness with wrenches
☒	All threaded unions have been checked for tightness with pipe wrench
☒	Install 3" cap on pump inlet if not already present
☒	Install 2" cap on two-way ball valve if not already present
☒	~~Install plugs into all TOL ports on the fuel manifolds with thread tape and pipe dope~~ AA
☒	Remove triple filter canisters to confirm filter elements have been installed
☒	Reset flow meter to all zeros.
☒	Apply pinch point decal to gear box/pump guard.

EQUIPMENT RECORD

Equipment	Manufacturer	Model #	Serial #
Motor Record	marathon	TUK 215 TTFAD161524AL	MC546086-1-09/20-19
Gearbox Record	Bonfiglioli	CON 2E15 106Q1	03190009283711001
Pump Record	Blackmer	2197927 18/12	44040151 000021
Flow Meter Record	veeder-root	0788702-701	1901751561

ASSEMBLER NOTES

INSPECTOR OR SUPERVISOR NOTES

CW

Assembler Print

Assembler Signature

Date

Inspector Print

Inspector Signature

Date

REEL INSTALLATION RECORD

PRE-INSTALLATION CHECKLIST

☒ All reels inspected for damage and operation	☒ Tools are available, clean and inspected
☒ Properly trained and comfortable to perform this task	
STOP – If all the above are not checked stop this task and see your area supervisor or manager.	

INSTALL CHECKLIST

	1	2	3	4	5	6	7	8	9	10	11	12	Initial
No visible signs of damage on reel	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Reel spins/turns freely without contacting	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Swivel is not equipped with grease nipple	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Reel is equipped with left hand crank	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
All bolts installed with a washer on each side and nylock nuts have been used	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Reel number label applied to reel on bottom left corner	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL

COMPONENT RECORDS

	HANNAY REEL MODEL #	HANNAY REEL SERIAL #	Initial
Line 1	~~2807490~~ 6018-33-34 L13	2807504	PL
Line 2	~~2807491~~ 6018-33-34 L13	2807481	PL
Line 3	~~2807504~~ 6018-33-34 L13	2807490	PL
Line 4	6018-33-34 L13	2807505	PL
Line 5	6018-33-34 L13	2807532	PL
Line 6	6018-33-34 L13	2807533	PL
Line 7	6018-33-34 L13	2807547	PL
Line 8	6018-33-34 L13	2807538	PL
Line 9	6018-33-34 L13	2807539	PL
Line 10	6018-33-34 L13	2807488	PL
Line 11	6018-33-34 L13	2807489	PL
Line 12	6018-33-34 L13	2807540	PL

CW

Assembler Print

Assembler Signature

Date

Inspector Print

Inspector Signature

Date

FUEL RAIL BUILD RECORD

PRE-BUILD CHECKLIST

☒ Workbench is clear from unnecessary clutter	☒ Tools are available, clean and inspected
☒ Properly trained and comfortable to perform this task	
STOP – If all the above are not checked stop this task and see your area supervisor or manager.	

BUILD CHECKLIST

	1	2	3	4	5	6	7	8	9	10	11	12	Initial
Thread tape & dope used on all threads	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	RA <i>ml</i>
Ball valve packing tightened and tested	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	RA <i>ml</i>
Solenoid valve arrows pointing in direction of flow	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	RA <i>ml</i>
Turbine meter arrows pointing in direction of flow	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	RA <i>ml</i>
Fuel rail has been installed, tightened and numbered	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	RA <i>ml</i>

COMPONENT RECORDS

	Turbine Serial	Calibration Factor	Initial
Line 1	137427	857.85	RA <i>ml</i>
Line 2	136638	876.49	RA <i>ml</i>
Line 3	137633	875.58	RA <i>ml</i>
Line 4	138998	840.05	RA <i>ml</i>
Line 5	139137	885.37	RA <i>ml</i>
Line 6	139146	870.68	RA <i>ml</i>
Line 7	137615	850.36	RA <i>ml</i>
Line 8	137519	856.91	RA <i>ml</i>
Line 9	137425	878.91	RA <i>ml</i>
Line 10	137631	875.87	RA <i>ml</i>
Line 11	137639	856.35	RA <i>ml</i>
Line 12	139007	862.50	RA <i>ml</i>

Walter P.

Assembler Print

Assembler Signature

May 29 2019

Date

Ethan Bisgard

Inspector Print

Inspector Signature

June 18/19

Date

FUEL RAIL INSTALLATION RECORD

PRE-INSTALL CHECKLIST

☒ Unit is clear from unnecessary clutter	☒ Tools are available, clean and inspected
☒ Properly trained and comfortable to perform this task	
STOP – If all the above are not checked stop this task and see your area supervisor or manager.	

DURING INSTALL CHECKLIST

	1	2	3	4	5	6	7	8	9	10	11	12	Initial
Thread tape & dope used on all threads	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Ball valve packing tightened and tested	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Solenoid valve arrows pointing in direction of flow	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Turbine meter arrows pointing in direction of flow	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Fuel rail has been installed, tightened and numbered	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Serial numbers and K factors recorded in Fuel rail build sheet.	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Flow meter sheets are hole punched and in binder	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Ball valves facing correct way and tight	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL

Paul Lambert
Assembler Print

[Signature]
Assembler Signature

May 29/2019
Date

Klara Holawa
Inspector Print

[Signature]
Inspector Signature

May 29 2019
Date

HOSE INSTALLATION RECORD

PRE-INSTALLATION CHECKLIST

☒ Work area is clean and uncongested	☒ Tools are available, clean and inspected
☒ Properly trained and comfortable to perform this task	
STOP – If all the above are not checked stop this task and see your area supervisor or manager.	

INSTALL CHECKLIST

Task List	1	2	3	4	5	6	7	8	9	10	11	12	Initial
Install 1" to ¾" bushing	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Install ¾" hose swivel fitting into reel bushing	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Reel 250ft of ¾" BC Cold flex hose on to each hose reel.	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Install ¾" male DNP fitting on the end of each line.	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
All connections were made using thread tape and pipe dope	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Ensure the reel number label is applied to the reel identifying the reel number in lower left-hand corner.	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL
Use grease / paint marker/etcher to label hose end and quick connect identifying the line/reel number.	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	PL

Notes:

Paul Lambert
Assembler Print

[Signature]
Assembler Signature

May 29 / 2019
Date

Wesley Doyle
Inspector Print

[Signature]
Inspector Signature

May 29 / 2019
Date

WALL STRUCTURE ASSEMBLY RECORD

PRE-BUILD CHECKLIST

☒ Work area is clear from clutter	☒ Tools are available, clean and inspected
☒ Two people required for this task	☒ Additional PPE and Hazards identified
☒ Power tools inspected for cleanliness, condition and operation. Failed components replaced.	
☒ Main builder is properly trained and comfortable to perform this task and offer mentoring and instruction to secondary builder if required.	
☒ Secondary builder understands task, risks and hazards and is comfortable to proceed.	
STOP – If all the above are not checked stop this task and see your supervisor or manager.	

BUILD CHECKLIST

☒ Bottom "C" channel installed with self-tapping screws used every 8 inches into skid floor.
☐ Excess screw threads removed with grinder, leaving no sharp edges.
☒ Vertical panels secured in bottom channel every 6 inches with rivets.
☒ All wall panels installed between tongue and grooves and secured to each other on the seams every 8 inches with self-sealing rivets on exterior.
☒ Wall panels secured to each other on the seams every 8 inches on interior with self-sealing rivets.
☒ Corner flashing installed on each corner between panels and secured to panels on each side every 8 inches with self-sealing rivets.
☒ Roof flashing fastened to walls every 6 inches with self-sealing rivets.
☒ Roof flashing fastened to roof panels every 8 inches with self-sealing rivets.
☒ Roof panels secured to each other on seams every 8 inches except for centre 3 ft with self-sealing rivets.
☒ Seam tape applied and rolled securely on to all roof panel seems and flashing edges.
☒ First coating of liquid rubber applied in a thick, heavy coating using one full bucket.
☒ Doorway cut out (verify cut-out size and location by reviewing equipment drawings)
☒ Door mounted in door frame
☒ Door check chain outfitted with clip for quick disconnection
☒ Door handle hardware installed and tested

CUT OUTS

☒ Four cut outs for exterior light fixtures	☒ One cut out for 2" line inlet
☒ Two hose distribution cut outs	
☒ One power receptacle cut out	
(verify cut-out size and location for all above by reviewing equipment drawings)	

PR-6005 – XPX PRODUCTION AND ASSEMBLY CHECKLIST

COMPONENT MOUNTING

- ☒
- Four exterior light fixture housings have been installed and sealed with caulking on exterior

FLASHING

- ☒
- All cut-outs have been flashed
-
- ☒
- Man door cut out has been flashed
-
- ☒
- Four exterior light fixtures have been flashed on the interior to cover bottom gap

SEALING / CAULKING

- ☒
- Exterior light fixtures have been caulked on the interior of building

ACCESS DOORS

- ☒
- 2" Inlet access door has been built, flashed and installed with barrel bolt and rubber tie
-
- ☒
- 2 x Hose distribution access doors have been built, flashed and installed with barrel bolts and ties

ASSEMBLER NOTES**DATE:**

Mohamed Aden
Assembler Print[Signature]
Assembler SignatureJune 29, 2019
DateMike Gaudet
Inspector Print[Signature]
Inspector SignatureJune 20, 18
Date

PR-6005 – XPX PRODUCTION AND ASSEMBLY CHECKLIST

Roof Coating

Tasks	Initial	Date/Time
Roof has been sanded, All rivet stems and other pieces swept off.	WT	June 20 2019
Roof Tape Applied	WT	June 20 2019
First coat of Liquid rubber or another Roof coating applied	WT	June 20 2019
Second coat of Liquid rubber or another Roof coating applied	WT	June 20 2019
Third coat of Liquid rubber or another Roof coating applied	WT	June 20 2019

NOTES

Wesley Byler
Assembler Print

Wesley Byler
Assembler Signature

June 20 2019
Date

Ethan Bisgard
Inspector Print

[Signature]
Inspector Signature

June 20/19
Date

STAGE GATE – REVIEW AND SIGN OFF

INSPECTIONS

DATE:

☒ All rivets installed and appropriately positioned in wall and roof structure	
☒ Door handles and locks are installed properly and functional	
☒ All cut-outs have been properly flashed and caulked	
☒ Seam tape properly applied	
☒ Sensor head holders mounted on brackets	
☐ REWORK REQUIRED	

ACTION ITEMS	COMPLETE DATE / INITIAL

Kevin Taylor

Main Assembler Print



Main Assembler Signature

June 20 2019

Date

Mohamed Aden

Secondary Assembler Print



Secondary Assembler Signature

June 20, 2019

Date

Mike Gaudot

Supervisor Print



Supervisor Signature

June 20, 2019

Date

FILLER HEAD ASSEMBLY RECORD

PRE-BUILD CHECKLIST

☒ Workbench is clear from unnecessary clutter	☒ Tools are available, clean and inspected
☒ Properly trained and comfortable to perform this task	
STOP – If all the above are not checked stop this task and see your area supervisor or manager.	

FILLER COMPONENTS

Each Patented fuel filler head contains	
☒ 3" Machined Filler Head	☒ Breather with 90° elbow
☒ Ball Valve to 45° elbow for fill inlet	☒ Male Camlock 3/4" on Breather
☒ Female Dry-disconnect	☒ 48" Fuel Overflow / Vent Hose "Spit Tube"
☒ 24" Fuel Stinger Hose	

BUILD CHECKLIST

	1	2	3	4	5	6	7	8	9	10	11	12	Initial
Thread tape & dope used on all threads	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	FS
Ball valve packing tightened and tested	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	
Ball valve is facing up towards operator and the handle points down when open	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	
Accutech sensors installed and programmed appropriately based on shack unit number	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	
Fuel head labelled with shack number and unit ID number	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	

COMPONENT RECORDS

COMPONENT RECORDS		Initial	COMPONENT RECORDS		Initial
Line 1 Accutech Serial #	5278655		Line 7 Accutech Serial #	5278638	
Line 2 Accutech Serial #	5278615		Line 8 Accutech Serial #	5281113	
Line 3 Accutech Serial #	5276587		Line 9 Accutech Serial #	5279551	
Line 4 Accutech Serial #	5278664		Line 10 Accutech Serial #	5278633	
Line 5 Accutech Serial #	5278651		Line 11 Accutech Serial #	5276325	
Line 6 Accutech Serial #	5276026		Line 12 Accutech Serial #	5276485	

Field Staff

Assembler Print

Assembler Signature

Date

Ethan Bisgara



June 19/19

Inspector Print

Inspector Signature

Date

ELECTRICAL INSPECTION

Electrical installation is to be performed by a journeyman electrician or registered apprentice working off of the electrical drawings and design layout as work instructions. This is a skilled trade subject to external regulations and requirements outside the scope of this check list. The below are items to be inspected after the electrical installation has been completed for quality assurance only.

INITIAL

ELECTRICIAN SIGN OFF

Installer Inspector

☒ All conduits/flexes/cables are properly installed (5 threads) and straight	AG	KU
☒ All conduit/flex/cable straps are tight and within proper distance	AG	KU
☒ All terminations in CP are tight and properly tagged	AG	KU
☒ All terminations in Power Disconnect panel are tight	AG	KU
☒ All terminations in devices are tight and properly tagged	AG	KU
☒ Screw-on fittings and covers are properly lubricated with STL or HTL	AG	KU
☒ ESD, bonding and interconnected to E-Unit where applicable		KU

VISUAL ELECTRICAL INSPECTION

Installer Inspector

☒ XP Lights (interior and exterior) installed and functional (4 ext., 1 int.)	AG	KU
☒ All panels hung properly and are secured	AG	KU
☒ All devices installed correctly and secured	AG	KU
☒ All conduit/flex/cable connectors, fittings, and hubs are tight	AG	KU
☒ All fittings have covers installed and tightened	AG	KU
☒ No visible scarring or damage to cables, wires, or conduits	AG	KU
☒ Holes around conduits and fittings exiting shack are sealed	AG	KU

COMPONENT POWER UP

Installer Inspector

☒ Power to UPS	AG	KU
☒ UPS Battery Charging System OK	AG	KU
☒ Power to PLC	AG	KU
☒ Power to BR20	AG	KU
☒ Power to Base Engineering unit	AG	KU
☒ Power to CP Ventilation fan and thermostat set to 20C (blows out)	AG	KU
☒ Power to CP Heater and thermostat set to 5C	AG	KU
☒ Power to VFD	AG	KU
☐ Power to Shack Heater and thermostat set to 5C	AG	KU

☒ Preformed on hoses
☒ Preformed on Frac Shack
☒ Preformed on Reels
☒ Preformed on Grounding

ACCESSORIES

☒ 3 X Disconnect fuses (in disconnect)		
☒ Included Electrical Service Kit consisting of:		
5 x ATM 10A Fuses	10 x GMA 100mA Fuses	5 x GMA 500mA Fuses
10 x GMA 1A Fuses	5 x GMA 2A Fuses	10 x 5A Fuses
5 x GMA 6A Fuses	1 x Suppressor Gas Fuse	1 x Multimeter
1 x Terminating Screwdriver	1 x Philips Screwdriver	5 x GMA 250 mA Fuses
2 x Battery Blade Fuses		

ELECTRICAL NOTES

[illegible]

Andrew Goodman
Electrician Name

Signature

6/10/19
Date

Inspector Name Kunt Mamta

Signature

June 17, 2019
Date

PR-6005 – XPX PRODUCTION AND ASSEMBLY CHECKLIST

PROGRAMMING

☒ PLC Programmed and functional	INITIAL: <i>KW</i>
Version <i>1.19</i>	

☐ HMI Programmed and functional (STANDALONE ONLY) <i>N/A</i>	INITIAL:
Version	

☒ BR20 DIP switches properly set and communicating with PLC
☒ BR20 Radio Programmed and functional – Channel <u><i>161</i></u>
☒ VFD Programmed and functional
☒ Modem installed and functional
☒ Modem configuration file uploaded
☒ Modem IP set to shack number (128.1.XX.32)
☒ Modem connected to internet
☒ Information Labels Affixed to inside of Cabinet
☒ HMI's IP, Subnet, Gateway, and DNS address set

HPXi INSTALLATION RECORD**CHECKLIST** *N/A*

☐ PC name been set correctly: hpxi
☐ Windows update and settings turned off
☐ Signed in with no Microsoft account
☐ Removed New created user.
☐ Loaded applicable HPXi Projects.
☐ SQL Script ran for all HPXi projects.
☐ If applicable, are Projects merged correctly? Example (E20, and XP15)
☐ If applicable, standalone units: explorer config file has been adjusted? Example (E20) or (XP15)
☐ "Newest HPXi Agent" (aka "DataSyncTool") Installed?
☐ "LabTech Agent" Installed?
☐ "OpenDNS" Installed?

PR-6005 – XPX PRODUCTION AND ASSEMBLY CHECKLIST

☐ "TeamViewer", Has TeamViewer been setup for Unattended Access? Both commercial and Personal use, has Master password been set? Has TeamViewer ID been recorded?

TViD: _____

☐ Has Processor been adjusted?

☐ Has all sleep and hibernation settings been disabled/ set to never.

☐ Has Local reports been setup on the HMI? Can they connect to SQL? Has security settings been Implemented?

IF ANY OF THE ITEMS ABOVE ARE NON-CONFORMING AND THE ACTION ITEM DOES NOT OR WILL NOT CORRECT THE NON-CONFORMANCE, PLEASE NOTE THE ISSUE IN COMPLETE DETAIL BELOW AND INFORM YOUR SUPERVISOR FOR CORRECTION AND FOLLOW UP.

INSTALLER NOTES

INSPECTOR OR SUPERVISOR NOTES

Kurt Newman
Programmer Name

ZA ZAS
Signature

June 11, 2019
Date

Ethan Bisgard
Inspector Name

[Signature]
Signature

June 20/19
Date

PR-6005 – XPX PRODUCTION AND ASSEMBLY CHECKLIST

FINAL PREPARATION**BASIC FUNCTION TESTING**

☒	Solenoid function testing via HMI (Line 1, Activates Solenoid 1, etc.)
☒	Pump turns on and operates with correct rotation
☒	Pump remote control functions and activates pump
☒	BR20 reports all heads online, all heads reporting online on HMI
☒	Interior and Exterior ESD buttons function properly
☒	HMI soft ESD button functions properly
☒	Temperature switch functions properly

ADVANCED FUNCTION TESTING

☒	Modem remote connectivity tested
☒	Remote connectivity to PLC tested
☒	Remote connectivity to HMI tested
☒	Manual remote pump operation tested (Base engineering receiver) (Min 100 ft away)
☒	Main flow meter reads and functions properly
☒	Data report polling check
☒	Distance test on sensor heads (Min 200ft away, through obstructions example go to front of building with all sensor heads)

SHACK PREPARATION

☒	Day tank fill and suction camlock installed, complete with caps
☒	3" Female camlock installed on inlet with cap
☒	3" double female short fuel hose from day tank to shack cut to fit complete with plugs
☒	2" male camlock installed on 3 port 2-way ball valve with cap
☒	Verify all holes in piping and manifold are filled / plugged
☒	4 x BC Cold Flex 75ft extensions in shack, complete with male and female disconnects
☒	Verify all hose lines have 3/4" dry disconnect male ends installed
☒	Verify all lines are clearly labelled and easy to identify (Line 1, Line 2, Line 3, etc.)
☒	2 x Fuelling nozzles with 3/4" female dry disconnect
☒	Exterior antenna plate has been mounted

Sensor head Check

☒	Spare sensor Serial number recorded on build sheet and is in demob, checked for it functions
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PR-6005 – XPX PRODUCTION AND ASSEMBLY CHECKLIST

EXTERIOR INSPECTION

☒	Frac Shack™ Logo and Frac Fueller™ Logo on both Diesel unit and daytank
☒	Correct telephone number if shack is for US/Canada – If unknown, left blank
☒	Canadian, US and Australian patent decal present
☒	Unit Number

Ethan B. Good

Assembler Print

Assembler Signature

June 18/19

Date

Rhett Ellingson

Inspector Print

Inspector Signature

JUNE 18/19

Date

ACCUTECH SENSOR HEAD TESTING

1. Turn "ON" Accutech sensor heads one at a time, starting with number 1.
2. Look at the HMI to ensure line 1 on the screen becomes enabled and shows online.
3. If correct, install sensor head into the test tank as required and repeat for the next head.
4. Continue procedure until all heads are online and tested as operational.
5. When successful and all heads are functioning as expected, initial each line number below.

LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6
EB	EB	EB	EB	EB	EB
LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12
EB	EB	EB	EB	EB	EB

TURBINE METER CALIBRATION

TURBINE CALIBRATION FACTORS

LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6
EB	EB	EB	EB	EB	EB
LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12
EB	EB	EB	EB	EB	EB

PR-6005 – XPX PRODUCTION AND ASSEMBLY CHECKLIST

HMI "K" FACTOR ENTRY RECORD					
The following values were entered into the HMI for volume calculations.					
LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6
EB	EB	EB	EB	EB	EB
LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12
EB	EB	EB	EB	EB	EB

*USE COMMISSION TEST PROCEDURE 7.0 TURBINE CALIBRATION SPREADSHEET [FORM PA-6014] TO GENERATE APPROPRIATE HMI K FACTOR. ATTACH PRINTED SPREADSHEET WITH TURBINE CALIBRATIONS.

Notes:

Ethan Bisgaard

Assembler Print



Assembler Signature

June 18/19

Date

Rhett Ellingson

Inspector Print



Inspector Signature

JUNE 18/19

Date

PR-6005 – XPX PRODUCTION AND ASSEMBLY CHECKLIST

PRIME FUEL PUMP

See Commission Test Procedure 2.0 for detail and procedure.

☒ This process followed appropriately as set out in instructions.**INITIATE ALL FUEL LINES**

See Commission Test Procedure 3.0 for detail and procedure.

☒ This process followed appropriately as set out in instructions.**PRESSURE AND LEAK TEST**

See Commission Test Procedure 4.0 for detail and procedure.

☒ This process followed appropriately as set out in instructions.**MANUAL MODE TEST HH**

See Commission Test Procedure 6.0 for detail and procedure.

☒ This process followed appropriately as set out in instructions.**TEST BUZZER**☒ The buzzer is working**Notes:**Ethan Bisgaard

Assembler Print



Assembler Signature

June 18/19

Date

Rhett Ellingsen

Inspector Print



Inspector Signature

JUNE 18/19

Date

FUEL METER ACCURACY RECORD

Reset main inlet flow meter to 0, reset lines to 0, run a 100L flow test on each line and record the results below. Reset all meters back to 0 before testing the next line. HMI "k" factor must be entered before running this test.

LINE 1		LINE 2		LINE 3	
FLOW METER	TURBINE	FLOW METER	TURBINE	FLOW METER	TURBINE
100	102.8	100	100.6	100	101.1

LINE 4		LINE 5		LINE 6	
FLOW METER	TURBINE	FLOW METER	TURBINE	FLOW METER	TURBINE
100	105.0	100	101.1	100	103.8

LINE 7		LINE 8		LINE 9	
FLOW METER	TURBINE	FLOW METER	TURBINE	FLOW METER	TURBINE
100	106.7	100	107.9	100	102.5

LINE 10		LINE 11		LINE 12	
FLOW METER	TURBINE	FLOW METER	TURBINE	FLOW METER	TURBINE
100	105.0	100	108	100	104.0

Ethan Bisgard

Assembler Print



Assembler Signature

June 18/19

Date



Inspector Print

Rhett Ellingson

Inspector Signature

JUNE 18/19

Date

DIESEL PRESSURE/FLOW TEST

LINE	OPERATING PRESSURE	DEADHEAD PRESSURE	FLOWMETER L/PM	ISSUES FOUND AND ACTIONS REQUIRED IF NO ISSUES FOUND ON A LINE WRITE "GOOD" IN THIS FIELD THEN INITIAL AND DATE THE LAST COLUMN	ACTION COMPLETE	INITIAL & DATE
1	75	80	51.6	Bottom of ball valve to manifold leaking (Fixed)	✓	EB June 19/19
2	75	80	53.0	Good		EB June 18/19
3	75	80	54.3	Good		EB June 18/19
4	75	80	52.7	O-rings were missing in solenoid (Fixed)	✓	EB June 19/19
5	75	80	52.7	Good		EB June 18/19
6	75	80	53.8	Good		EB June 18/19
7	75	80	54.6	Bottom of ball valve to manifold leaked (Fixed)	✓	EB June 19/19
8	75	80	53.7	Good		EB June 19/19
9	75	80	52.4	Good		EB June 19/19
10	75	80	52.6	Diaphragm was filled with debris & pipe dope (Fixed)	✓	EB June 18/19
11	75	80	51.4	Good		EB June 19/19
12	75	80	53.7	Good		EB June 18/19

PR-6005 – XPX PRODUCTION AND ASSEMBLY CHECKLIST

PRESSURE AND LEAK TEST NOTES

FUNCTION TEST

- See Commission Test Procedure 5.0 for full detail and procedure.
- **REMINDER:** Set Time/Date and Start New Project in Site/Config

HH – HIHI Level (Overfill)	H – HI Level (Stop)
LL – LOLO Level (Fill)	M – Manual Mode Test

LINE	HH	✓
	H	✓
1	LL	✓
	M	✓

LINE	HH	✓
	H	✓
2	LL	✓
	M	✓

LINE	HH	✓
	H	✓
3	LL	✓
	M	✓

LINE	HH	✓
	H	✓
4	LL	✓
	M	✓

LINE	HH	✓
	H	✓
5	LL	✓
	M	✓

LINE	HH	✓
	H	✓
6	LL	✓
	M	✓

LINE	HH	✓
	H	✓
7	LL	✓
	M	✓

LINE	HH	✓
	H	✓
8	LL	✓
	M	✓

LINE	HH	✓
	H	✓
9	LL	✓
	M	✓

LINE	HH	✓
	H	✓
10	LL	✓
	M	✓

LINE	HH	✓
	H	✓
11	LL	✓
	M	✓

LINE	HH	✓
	H	✓
12	LL	✓
	M	✓

- ☒ Tested both manual fueling nozzles for operation.
- ☒ All Four extensions tested pressure tested by hooking into a line during pressure test.

Plett Ellingsen

Tester Print

[Signature]

Tester Signature

JUNE 20/19

Date

Ethan Bisgard

Inspector Print

[Signature]

Inspector Signature

JUNE 20/19

Date

PR-6005 – XPX PRODUCTION AND ASSEMBLY CHECKLIST

INVENTORY PACKING/DEMOB

☒	Greggs XPX Supply Skid
☒	Attach Greggs supply skid packing slip at the end of this document
☒	Attached completed demob at the end of this document
☒	Extra Black Hardhat, with ear muffs and face shield, for manual fuelling
☒	Spill Kit with granular absorbent – 1 keg Sphag Sorb
☒	2 Bundles of spill pads
☒	Micro-Blaze Sprayer & Product
☒	Grounding Rod Pounder
☒	1 x 25ft & 1 x 50ft ground cable with grounding connectors
MANUALS & FORMS	

Demob Completed by:

Date

HAND OVER AND DOCUMENT PACKAGE

- ☐ Reviewed production checklist for completeness and accuracy
- ☐ Completed hand over document (PA-6012) to transfer equipment to operating company

Form [PA-6012 Handover](#)

COMMISSION TEST PROCEDURES

1.0 ACCUTECH SENSOR HEAD TESTING

1. Turn "ON" Accutech sensor heads one at a time, starting with number 1.
2. Look at the HMI to ensure line 1 on the screen becomes enabled and shows online.
3. If correct, install sensor head into the test tank as required and repeat for the next head.
4. Continue procedure until all heads are online and tested as operational.
5. When successful and all heads are functioning as expected, initial each line number below.
6. Load all Sensor heads onto a pallet and take them 200ft minimum and have obstacles such as going to the other side of a building, Check screen while sensor heads are away from shack ensure they still read on the HMI. If no signal inform supervisor, or manager and have electrician trouble shoot.

2.0 PRIME FUEL PUMP

1. Connect the fuel lines to the appropriate sensor heads (filler heads) E.G.: Line 1 to head 1, line 2 to head 2, etc.
2. Fill inlet hose to the pump with diesel from a Jerry can or another source as applicable. Pay close attention to not over fill the hose and have spill containment and absorbent pads near by.
3. Once you have put diesel in the inlet hose, pull the hose up to diesel the fuel into the pump. This will help lubricate the pump, vanes and seals. This helps the pump create suction and be able to pull fuel out of the daytank.
4. Carefully reconnect the inlet hose to the daytank suction port.
5. Ensure the suction valve is open, the pump inlet valve is open, manifold valves are open and the valve on sensor head 1 is open.
6. Put the shack into "Manual Mode" and enable line one.
7. Activate pump with the remote control to allow the pump to start sucking fuel from the daytank, this may take up to a minute until you have a smooth fuel flow.
8. Once the pump and line is primed, stop the pump.

3.0 INITIATE ALL FUEL LINES

1. Put the shack into "AUTO" mode and allow fuel to flow on all lines to remove the air out of the system and prime the entire manifold and all fuel lines.
2. Once steady flow on all lines is established put the shack into "PUMP DISABLED" mode.

4.0 PRESSURE AND LEAK TESTS

1. Put shack into "MANUAL" mode and enable line 1.

PR-6005 – XPX PRODUCTION AND ASSEMBLY CHECKLIST

2. Press the start button on the remote to begin fueling.
3. Once steady flow is established;
 - a. Note the flow rate of the fuel line from the HMI and record it on the table below. **IF BELOW 45L/M INFORM SUPERVISOR.**
 - b. Note the operating pressure on the pressure gauges by the flow meter and record it on the table below.
4. Have an assistant close the sensor head valve on line 1.
 - a. Note the "Deadhead" pressure on the pressure gauges by the flow meter and record it on the table.
5. Close the valve on the fuel rail of line 1.
6. Press the stop button on the remote to stop the pump. You have now pressurized the fuel rail, reel and hose assembly.
7. Repeat this process (steps 1 – 5) on all remaining lines until every line has been completed and is pressurized, add the extensions that are to be shipped with shack into system by connecting them in to the main fuel line and to the sensor head. It can be done through different lines or on one line.
8. Carefully look for leaks starting at the fuel rails for each line, check the reels and hose for leaks and then inspect the fuel sensor heads (filler heads).
9. Make a note of all issues found below, including as many details as you can then release the pressure by opening all the valves on the fuel rails and at the sensor heads.
10. Make repairs to the lines as necessary, noting the repairs made below and retest the faulty line(s) as required. Use the same procedure above until all lines are functional without any leaks.

5.0 FUNCTION TEST

1. Set time/date on HMI
2. On the HMI go to "VOLUME TOTALS" -> "CONFIGURE STAGE/JOB" and start a new project using these details below:
PROJECT NAME: EG##/XP## BOL ## is to be replaced by the unit number example (EG43/XP21 BOL).
CLIENT NAME: FSH
3. Select Job 1, Stage 1, press "CONFIRM" then "START TOTALIZING".
4. On HMI go to "TANK DETAIL" and ensure all tanks are set to default set points.

URV 25.0	HH 17.0	STOP 15.0	START 11.0	LL 9.0	LRV 0.0
----------	---------	-----------	------------	--------	---------
5. Ensure the test trailer tanks are empty, if not pump out the tanks and turn off the pump.
6. Put shack into "AUTO" mode and enable line 1.
7. You should see a "LO" alarm and the pump will kick in and begin filling.
8. Once the line hits 15" ensure line shuts down.
9. Empty the test trailer tanks again, once empty turn off the trailer pump and test the remaining lines (2 – 12) using the same steps above (step 5 -7).
10. Once complete, pick two lines (each line must be in a separate tank of the test trailer) and switch them for the cross over line test. Example: connect line 1 to filler head 5.
11. Enable line 1 to begin filling. The HMI will not show an increasing fuel level on line 1, but it will show an increasing level on line 5.
12. When line 5 hits the HH level (17") you will receive an HH alarm, and the pump will shut down. This test was successful.
13. Record the testing results on the table.
14. Move job to the next stage and test XP (if applicable)

PR-6005 – XPX PRODUCTION AND ASSEMBLY CHECKLIST

15. Move job to the next stage and then end the job (after XP is tested if applicable)
16. Inform data poller (or supervisor) once the job is completed. Do not shut shack down until you receive confirmation that the service has been restarted and the data is polled.

7.0 MANUAL MODE HIGH HIGH TEST

1. Drain fuel tanks below preset High High level of 17".
2. Turn on Sensor head and put into tank.
3. In manual mode use demob manual nozzle to fill tank until High High alarm sounds.

8.0 TURBINE CALIBRATION

1. Gather all calibration sheets for all lines, numbered to correspond with Fuel rail it is installed in, record in check sheet.
2. Verify K-Factor on actual meters to ensure meter # and calibration sheets match.
3. Use a computer to pull up Excel sheet called "Calibration Factor Calculator" in the Master Document List.
4. Type the K factors found on the sheet to the boxes assigned to them in the excel sheet. Repeat until all lines calculated. Print sheet. (See Image 1)
5. Take "calibration Factor" that was calculated and record on K factor sheet in the check sheets binder.
6. Log into shack as admin on HMI, in "meter Details" screen where calibration factor listed, change each line to the new factor that has been calculated. (Image 2)
7. Save changes log out. shut down control panel, Power back up, confirm changes saved.
8. Include sheet in build binder.

Image 1

Image 2

Turbine "K" Factor Calculator

	Meter K Factor	HMI Input
Line 1	847.33	0.004467445
Line 2	900.21	0.004205019
Line 3	875.33	0.004324540
Line 4	847.33	0.004467445
Line 5	900.21	0.004205019
Line 6	875.33	0.004324540
Line 7	847.33	0.004467445
Line 8	900.21	0.004205019
Line 9	875.33	0.004324540
Line 10	847.33	0.004467445
Line 11	900.21	0.004205019
Line 12	875.33	0.004324540
Line 13	847.33	0.004467445
Line 14	900.21	0.004205019
Line 15	875.33	0.004324540
Line 16	847.33	0.004467445
Line 17	900.21	0.004205019
Line 18	875.33	0.004324540
Line 19	847.33	0.004467445
Line 20	900.21	0.004205019
Line 21	875.33	0.004324540
Line 22	847.33	0.004467445
Line 23	900.21	0.004205019
Line 24	875.33	0.004324540
Line 25	847.33	0.004467445
Line 26	900.21	0.004205019
Line 27	875.33	0.004324540
Line	847.33	0.004467445

The image shows four sequential screenshots of the HMI 'meter Details' screen for lines 1 through 4. Each screen displays the following fields: Channel (OK), Valid Data, Frequency (OK), Hz (0), GAL/MIN (0.0), CUTOFF (30), MULT (1.000), and K (0.00433600). The K factor is highlighted with a red box in each screenshot.

9.0 Testing Manual Fueling Nozzles

1. Have pump disabled before disconnecting any connection
2. Disconnect Head from its fuel line connect manual fueling nozzle
3. Turn on pump Confirm there is no leaks in nozzle connections and no flow out of end of nozzle
4. Put nozzle into port in test tank at an angle that you can see flow and wont spray diesel anywhere
5. Pull handle to allow flow and ensure opens fully and allows good flow, if it does not work tag out and talk to supervisor on getting it fixed or replaced.



Electronic Data Devices

P.O. Box 12128
Odessa, TX 79768
P - 432-366-8699
F - 432-366-106
sales@eddevices.com

1" X 1" THD METER

857.85

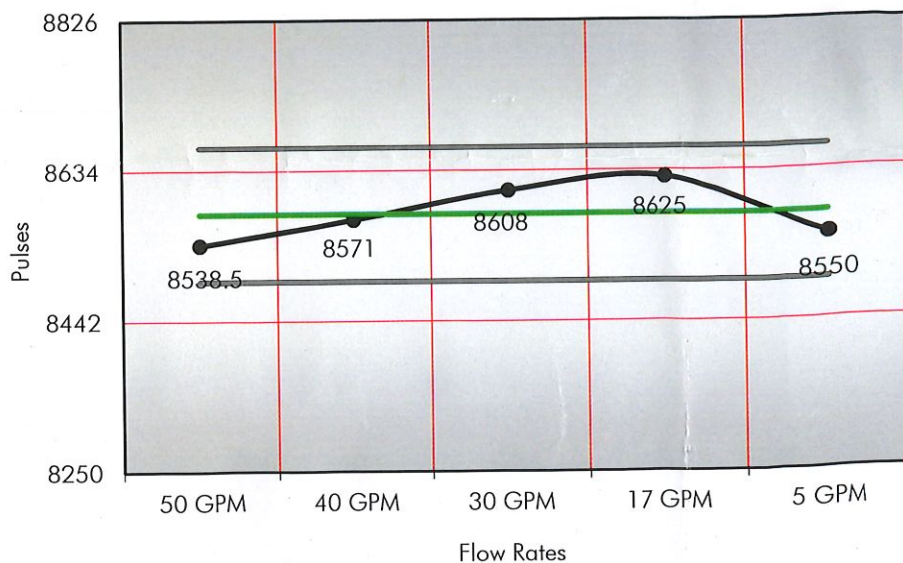
8-Feb-19

Calibration Data & Inspection Sheet

Calibration Factor :

857.85

Serial Number :	137427
Calibrated Item :	1" X 1" THD METER
Part Number :	NPT0100101
Material Grade :	A479316
Date :	8-Feb-19
Flow Range :	5 - 50 GPM



Flow Rate	Pulses
50 GPM	8540
50 GPM	8537
40 GPM	8565
40 GPM	8577
30 GPM	8608
30 GPM	8608
17 GPM	8620
17 GPM	8630
5 GPM	8586
5 GPM	8514

Total Pulses	85785
1%	8664.29
-1%	8492.72
Min. Value	8514
Max. Value	8630

This calibration data and inspection sheet certifies this meter's and/or repair kit's dimensions have been verified to be within drawing dimensions and tolerances, the product is free from physical defects and all required markings are present and correct. Welded in accordance to WPS: ED-GT-SS100. Hub material is A 479 31 6.

Calibrated By : JWR

Notes : WELDED BY MIKE JOLLY
HEAT No. -A05426



Electronic Data Devices

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1" X 1" THD METER

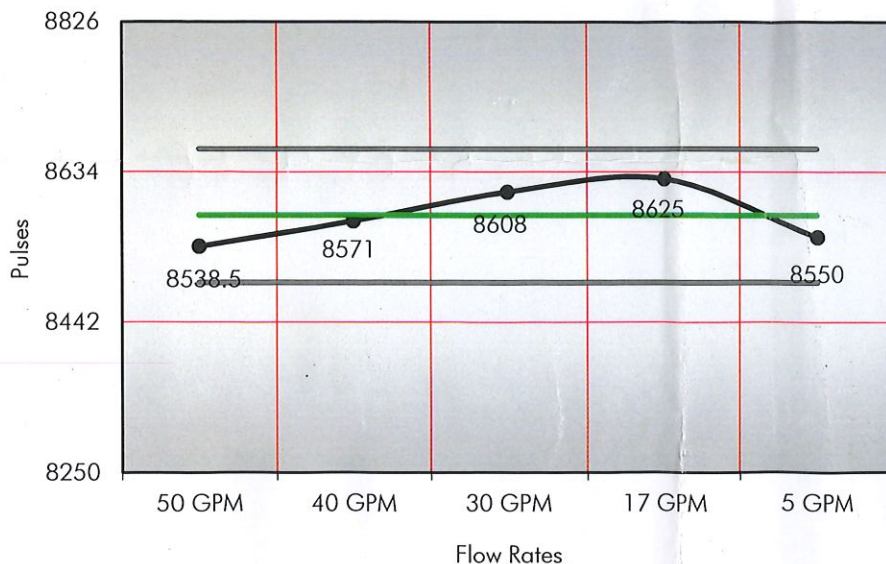
857.85

8-Feb-19

Calibration Data & Inspection Sheet

Calibration Factor : **857.85**

Serial Number :	137427
Calibrated Item :	1" X 1" THD METER
Part Number :	NPT0100101
Material Grade :	A479316
Date :	8-Feb-19
Flow Range :	5 - 50 GPM



Flow Rate	Pulses
50 GPM	8540
50 GPM	8537
40 GPM	8565
40 GPM	8577
30 GPM	8608
30 GPM	8608
17 GPM	8620
17 GPM	8630
5 GPM	8586
5 GPM	8514

Total Pulses	85785
1%	8664.29
-1%	8492.72
Min. Value	8514
Max. Value	8630

This calibration data and inspection sheet certifies this meter's and/or repair kit's dimensions have been verified to be within drawing dimensions and tolerances, the product is free from physical defects and all required markings are present and correct. Welded in accordance to WPS: ED-GT-SS100. Hub material is A 479 316.

Calibrated By : JWR

Notes : WELDED BY MIKE JOLLY
HEAT No. -A05426



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2

1" X 1" THD METER

876.49

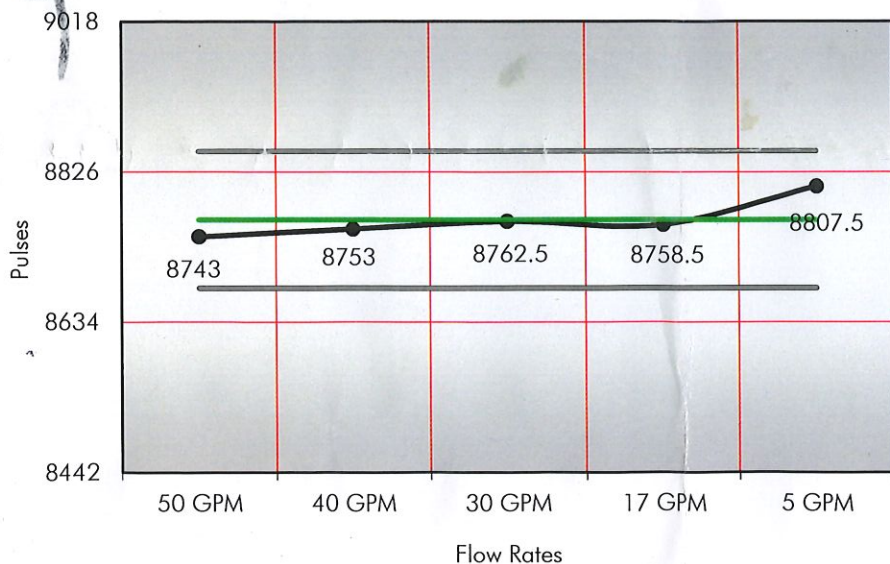
8-Feb-19

Calibration Data & Inspection Sheet

Calibration Factor : **876.49**

Serial Number :	136638
Calibrated Item :	1" X 1" THD METER
Part Number :	NPT0100101
Material Grade :	A479316
Date :	8-Feb-19
Flow Range :	5 - 50 GPM

9



Flow Rate	Pulses
50 GPM	8741
50 GPM	8745
40 GPM	8752
40 GPM	8754
30 GPM	8761
30 GPM	8764
17 GPM	8753
17 GPM	8764
5 GPM	8802
5 GPM	8813

Total Pulses	87649
1%	8852.55
-1%	8677.25
Min. Value	8741
Max. Value	8813

This calibration data and inspection sheet certifies this meter's and/or repair kit's dimensions have been verified to be within drawing dimensions and tolerances, the product is free from physical defects and all required markings are present and correct. Welded in accordance to WPS: ED-GT-SS100. Hub material is A 479 316.

Calibrated By :	JWR
Notes :	WELDED BY MIKE JOLLY HEAT No. -A05426



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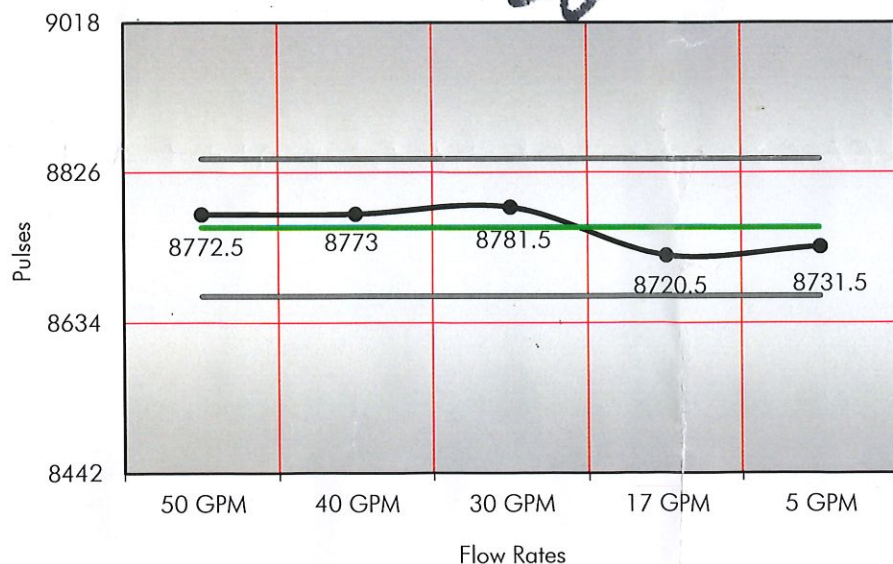
3

1" X 1" THD METER
875.58
18-Feb-19

Calibration Data & Inspection Sheet

Calibration Factor : **875.58**

Serial Number :	137633
Calibrated Item :	1" X 1" THD METER
Part Number :	NPT0100101
Material Grade :	A479316
Date :	18-Feb-19
Flow Range :	5 - 50 GPM



Flow Rate	Pulses
50 GPM	8778
50 GPM	8767
40 GPM	8768
40 GPM	8778
30 GPM	8777
30 GPM	8786
17 GPM	8711
17 GPM	8730
5 GPM	8724
5 GPM	8739

Total Pulses	87558
1%	8843.36
-1%	8668.24
Min. Value	8711
Max. Value	8786

This calibration data and inspection sheet certifies this meter's and/or repair kit's dimensions have been verified to be within drawing dimensions and tolerances, the product is free from physical defects and all required markings are present and correct. Welded in accordance to WPS: ED-GT-SS100. Hub material is A 479 316.

Calibrated By : JOHN RIDENOUR

Notes : WELDED BY MIKE JOLLY
HEAT No. -A05426



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1" X 1" THD METER

840.05

25-Apr-19

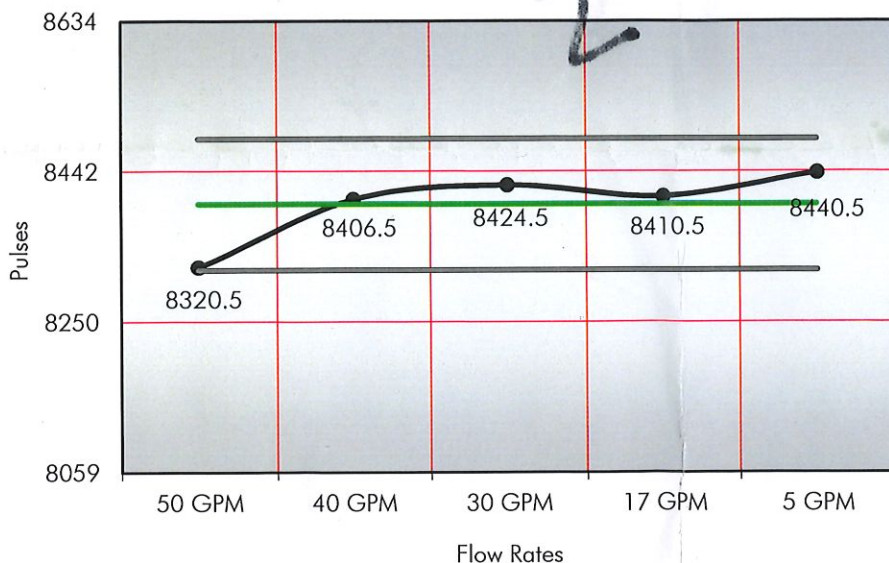
Calibration Data & Inspection Sheet

Calibration Factor : **840.05**

Calibration is valid from start of
service date:

Serial Number :	138998
Calibrated Item :	1" X 1" THD METER
Part Number :	NPT0100101
Material Grade :	A479316
Date :	25-Apr-19
Flow Range :	5 - 50 GPM

Flow Rate	Pulses
50 GPM	8318
50 GPM	8323
40 GPM	8395
40 GPM	8418
30 GPM	8420
30 GPM	8429
17 GPM	8411
17 GPM	8410
5 GPM	8423
5 GPM	8458



Total Pulses	84005
1%	8484.51
-1%	8316.50
Min. Value	8318
Max. Value	8458

This calibration data and inspection sheet certifies this meter's and/or repair kit's dimensions have been verified to be within drawing dimensions and tolerances, the product is free from physical defects and all required markings are present and correct. Welded in accordance to WPS: ED-GT-SS100. Hub material is A 479 316.

Calibrated By : JWR

Notes : WELDED BY MIKE JOLLY
HEAT No. -5U059

1" X 1" THD METER
885.37
1-May-19

Electronic Data Devices

P.O. Box 12128
Odessa, TX 79768
P - 432-366-8699
F - 432-366-106
sales@edddevices.com



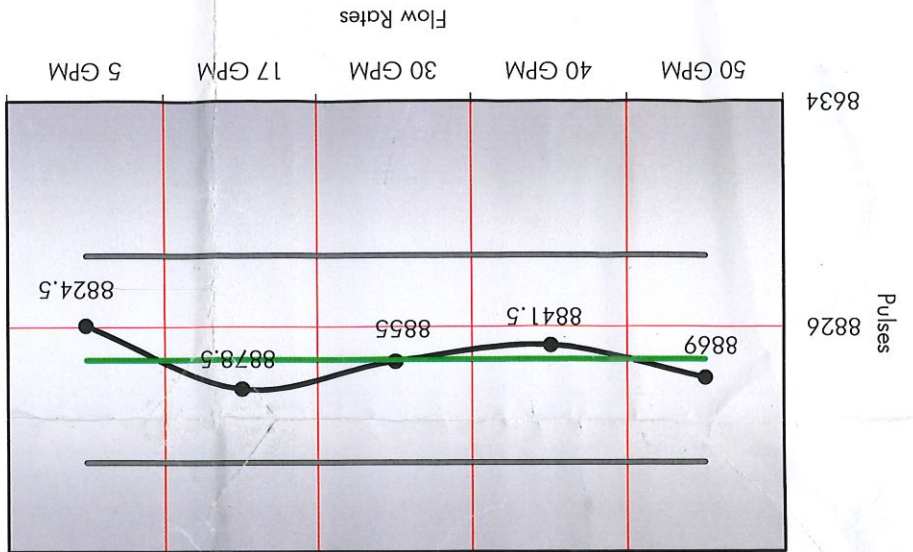
Calibration Data & Inspection Sheet

885.37

Calibration Factor :

Calibration is valid from start of
service date: _____

Serial Number :	139137
Calibrated Item :	1" X 1" THD METER
Part Number :	NPT0100101
Material Grade :	A479316
Date :	1-May-19
Flow Range :	5 - 50 GPM



Flow Rate	Pulses
50 GPM	8868
50 GPM	8870
40 GPM	8841
40 GPM	8842
30 GPM	8854
30 GPM	8856
17 GPM	8879
17 GPM	8878
5 GPM	8814
5 GPM	8835

88537	Total Pulses
8942.24	1%
8765.16	-1%
8814	Min. Value
8879	Max. Value

This calibration data and inspection sheet certifies this meter's and/or repair kit's dimensions have been verified to be within drawing dimensions and tolerances, the product is free from physical defects and all required markings are present and correct. Welded in accordance to WPS: ED-GT-SS100. Hub material is A 479 316.

Calibrated By : JWR

Notes :
WELDED BY MIKE JOLLY
HEAT NO. - 5U059



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P.O. Box 12128
Odessa, TX 79768
P - 432-366-8699
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6

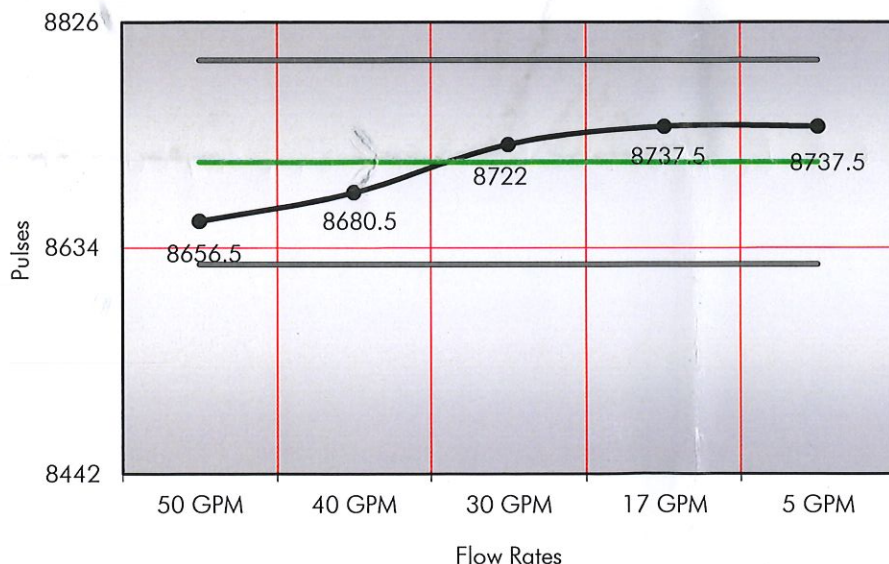
1" X 1" THD METER
870.68
1-May-19

Calibration Data & Inspection Sheet

Calibration Factor : **870.68**

Calibration is valid from start of
service date: _____

Serial Number :	139146
Calibrated Item :	1" X 1" THD METER
Part Number :	NPT0100101
Material Grade :	A479316
Date :	1-May-19
Flow Range :	5 - 50 GPM



Flow Rate	Pulses
50 GPM	8662
50 GPM	8651
40 GPM	8672
40 GPM	8689
30 GPM	8727
30 GPM	8717
17 GPM	8735
17 GPM	8740
5 GPM	8733
5 GPM	8742

Total Pulses	87068
1%	8793.87
-1%	8619.73
Min. Value	8651
Max. Value	8742

This calibration data and inspection sheet certifies this meter's and/or repair kit's dimensions have been verified to be within drawing dimensions and tolerances, the product is free from physical defects and all required markings are present and correct. Welded in accordance to WPS: ED-GT-SS100. Hub material is A 479 316.

Calibrated By : JWR

Notes :

HEAT No. - 5U059



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1" X 1" THD METER

850.36

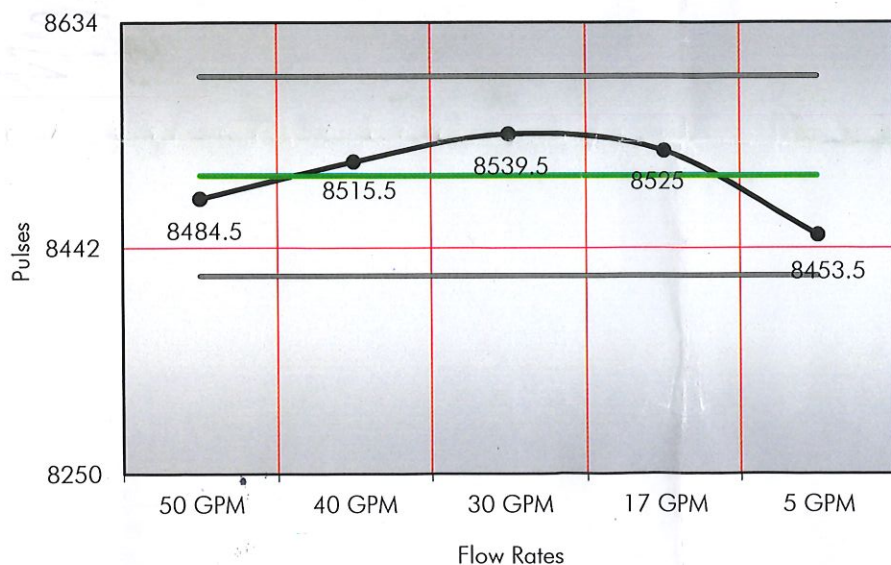
15-Feb-19

Calibration Data & Inspection Sheet

Calibration Factor : **850.36**

Serial Number :	137615
Calibrated Item :	1" X 1" THD METER
Part Number :	NPT0100101
Material Grade :	A479316
Date :	15-Feb-19
Flow Range :	5 - 50 GPM

Flow Rate	Pulses
50 GPM	8481
50 GPM	8488
40 GPM	8509
40 GPM	8522
30 GPM	8531
30 GPM	8548
17 GPM	8516
17 GPM	8534
5 GPM	8430
5 GPM	8477



Total Pulses	85036
1%	8588.64
-1%	8418.56
Min. Value	8430
Max. Value	8548

This calibration data and inspection sheet certifies this meter's and/or repair kit's dimensions have been verified to be within drawing dimensions and tolerances, the product is free from physical defects and all required markings are present and correct. Welded in accordance to WPS: ED-GT-SS100. Hub material is A 479 316.

Calibrated By : JOHN RIDENOUR

Notes : WELDED BY MIKE JOLLY
HEAT No. -AO5426



Electronic Data Devices

P.O. Box 12128
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P - 432-366-8699
F - 432-366-106
sales@eddevices.com

8

1 X 1 THD METER

856.91

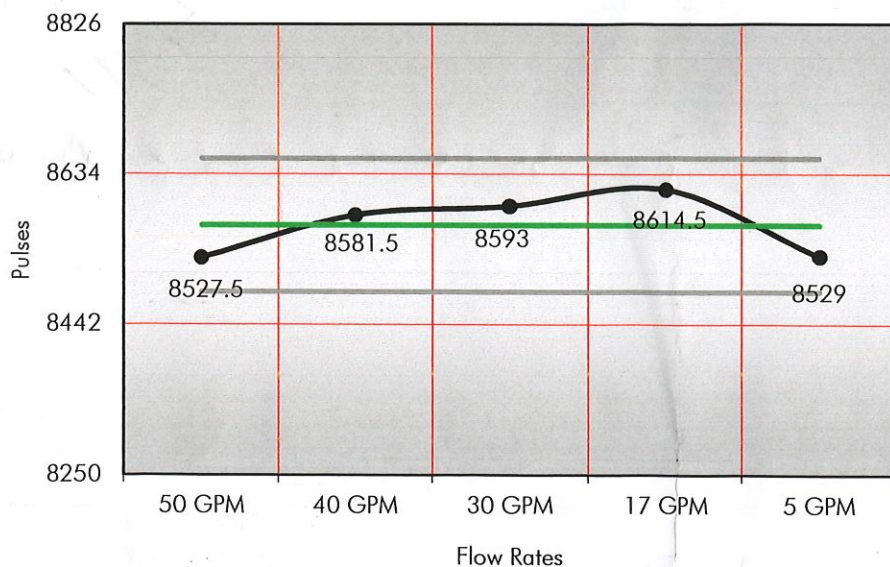
8-Feb-19

Calibration Data & Inspection Sheet

Calibration Factor : **856.91**

Serial Number :	137519
Calibrated Item :	1 X 1 THD METER
Part Number :	NPT0100101
Material Grade :	A479316
Date :	8-Feb-19
Flow Range :	5 - 50 GPM

Flow Rate	Pulses
50 GPM	8513
50 GPM	8542
40 GPM	8582
40 GPM	8581
30 GPM	8592
30 GPM	8594
17 GPM	8612
17 GPM	8617
5 GPM	8527
5 GPM	8531



Total Pulses	85691
1%	8654.79
-1%	8483.41
Min. Value	8513
Max. Value	8617

This calibration data and inspection sheet certifies this meter's and/or repair kit's dimensions have been verified to be within drawing dimensions and tolerances, the product is free from physical defects and all required markings are present and correct. Welded in accordance to WPS: ED-GT-SS100. Hub material is A 479 316.

Calibrated By :	JWR
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Notes :	WELDED BY MIKE JOLLY HEAT No. -A05426
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9

1" X 1" THD METER

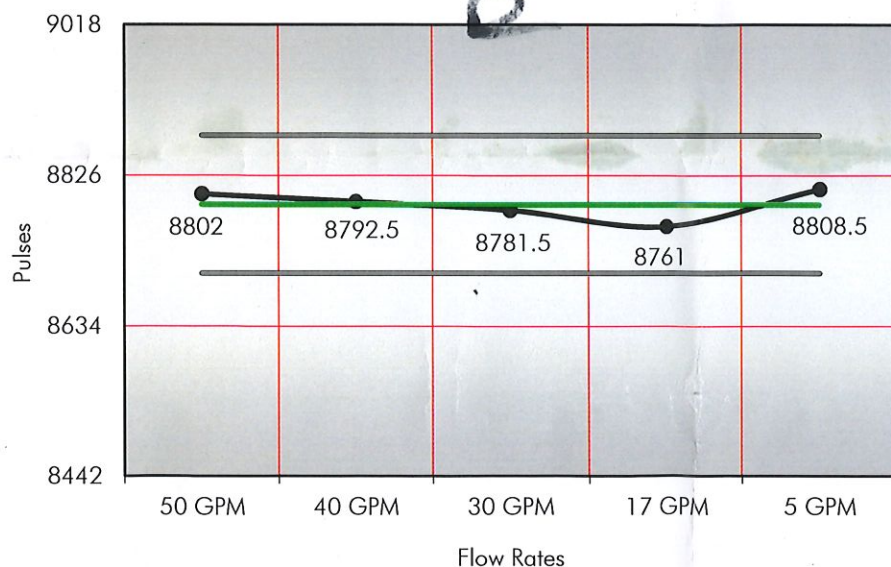
878.91

8-Feb-19

Calibration Data & Inspection Sheet

Calibration Factor : **878.91**

Serial Number :	137425
Calibrated Item :	1" X 1" THD METER
Part Number :	NPT0100101
Material Grade :	A479316
Date :	8-Feb-19
Flow Range :	5 - 50 GPM



Flow Rate	Pulses
50 GPM	8803
50 GPM	8801
40 GPM	8793
40 GPM	8792
30 GPM	8782
30 GPM	8781
17 GPM	8760
17 GPM	8762
5 GPM	8812
5 GPM	8805

Total Pulses	87891
1%	8876.99
-1%	8701.21
Min. Value	8760
Max. Value	8812

This calibration data and inspection sheet certifies this meter's and/or repair kit's dimensions have been verified to be within drawing dimensions and tolerances, the product is free from physical defects and all required markings are present and correct. Welded in accordance to WPS: ED-GT-SS100. Hub material is A 479 316.

Calibrated By : JWR

Notes : WELDED BY MIKE JOLLY
HEAT No. -A05426



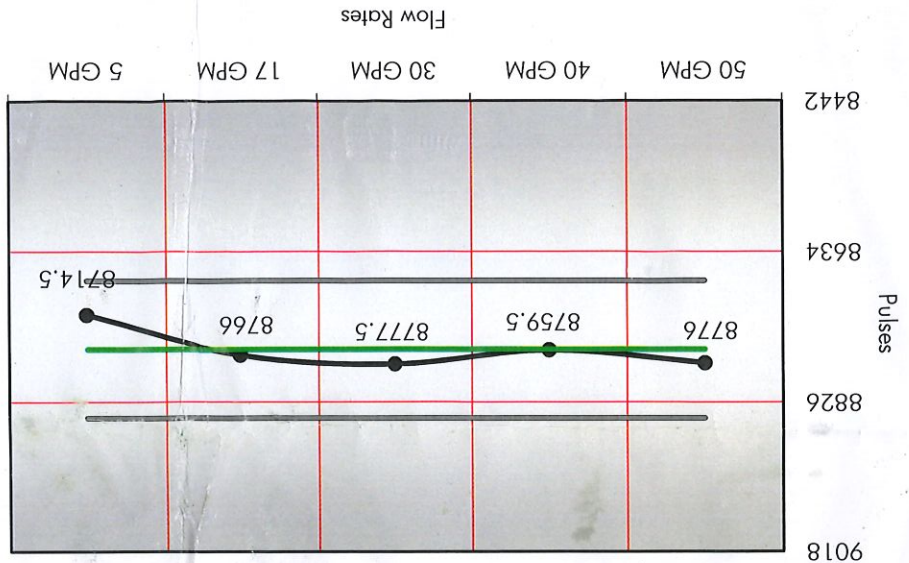
Electronic Data Devices

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Odessa, TX 79768
P - 432-366-8699
F - 432-366-106
sales@edddevices.com

Calibration Data & Inspection Sheet

Calibration Factor : **875.87**

Serial Number :	137631
Calibrated Item :	1" X 1" THD METER
Part Number :	NPT0100101
Material Grade :	A479316
Date :	18-Feb-19
Flow Range :	5 - 50 GPM



This calibration data and inspection sheet certifies this meter's and/or repair kit's dimensions have been verified to be within drawing dimensions and tolerances, the product is free from physical defects and all required markings are present and correct. Welded in accordance to WPS: ED-GT-SS100. Hub material is A 479 316.

Calibrated By : JOHN RIDENOUR

Notes : WELDED BY MIKE JOLLY
HEAT No. -A05426

Total Pulses	87587
1%	8846.29
-1%	8671.11
Min. Value	8708
Max. Value	8783

Flow Rate	Pulses
5 GPM	8721
5 GPM	8708
17 GPM	8770
17 GPM	8762
30 GPM	8772
30 GPM	8783
40 GPM	8756
40 GPM	8763
50 GPM	8773
50 GPM	8779

1" X 1" THD METER
875.87
18-Feb-19

Electronic Data Devices



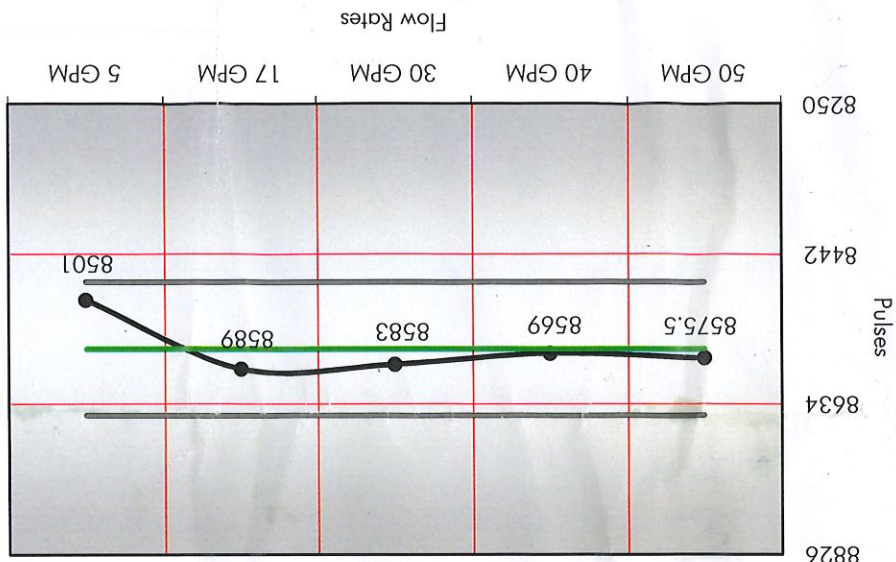
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P - 432-366-8699
F - 432-366-106
sales@edddevices.com

Calibration Data & Inspection Sheet

Calibration Factor :

856.35

Serial Number :	137639
Calibrated Item :	1" X 1" THD METER
Part Number :	NPT0100101
Material Grade :	A479316
Date :	18-Feb-19
Flow Range :	5 - 50 GPM



This calibration data and inspection sheet certifies this meter's and/or repair kit's dimensions have been verified to be within drawing dimensions and tolerances, the product is free from physical defects and all required markings are present and correct. Welded in accordance to WPS: ED-GT-SS100. Hub material is A 479 316.

Calibrated By : JOHN RIDENOUR

Notes : WELDED BY MIKE JOLLY
HEAT No. -A05426

Total Pulses	85635
1%	8649.14
-1%	8477.87
Min. Value	8501
Max. Value	8590

Flow Rate	Pulses
50 GPM	8575
50 GPM	8576
40 GPM	8571
40 GPM	8567
30 GPM	8583
30 GPM	8583
17 GPM	8588
17 GPM	8590
5 GPM	8501
5 GPM	8501

1" X 1" THD METER
856.35
18-Feb-19



Electronic Data Devices

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P - 432-366-8699
F - 432-366-106
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1" X 1" THD METER

862.50

25-Apr-19

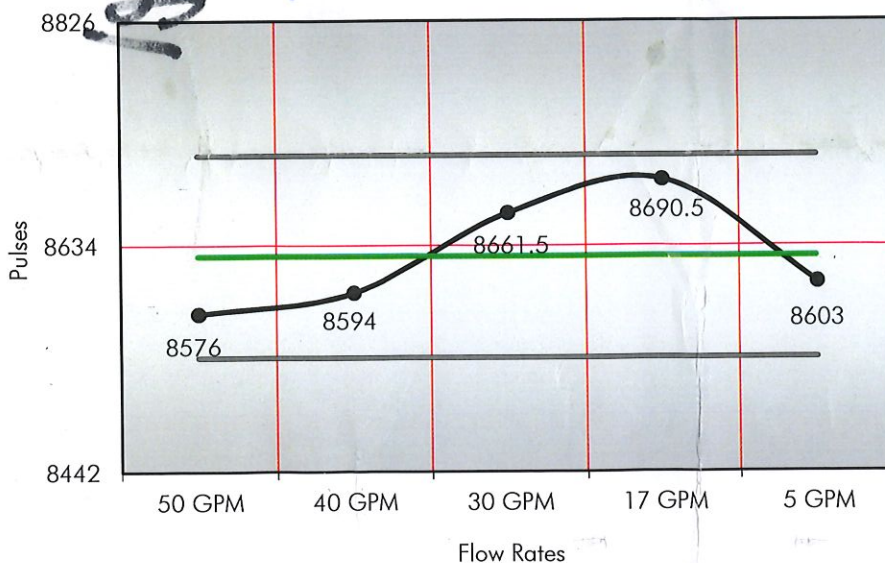
Calibration Data & Inspection Sheet

Calibration Factor :

862.50

Calibration is valid from start of service date: _____

Serial Number :	139007
Calibrated Item :	1" X 1" THD METER
Part Number :	NPT0100101
Material Grade :	A479316
Date :	25-Apr-19
Flow Range :	5 - 50 GPM



Flow Rate	Pulses
50 GPM	8574
50 GPM	8578
40 GPM	8590
40 GPM	8598
30 GPM	8659
30 GPM	8664
17 GPM	8686
17 GPM	8695
5 GPM	8603
5 GPM	8603

Total Pulses	86250
1%	8711.25
-1%	8538.75
Min. Value	8574
Max. Value	8695

This calibration data and inspection sheet certifies this meter's and/or repair kit's dimensions have been verified to be within drawing dimensions and tolerances, the product is free from physical defects and all required markings are present and correct. Welded in accordance to WPS: ED-GT-SS100. Hub material is A 479 316.

Calibrated By : JWR

Notes : WELDED BY MIKE JOLLY
HEAT No. -5U059

FRAC SHACK™

Turbine "K" Factor Calculator

	Meter K Factor	HMI Input
Line 1	857.85	0.004412660
Line 2	876.49	0.004318817
Line 3	875.58	0.004323306
Line 4	840.05	0.004506160
Line 5	885.37	0.004275501
Line 6	870.68	0.004347636
Line 7	850.36	0.004451526
Line 8	856.91	0.004417500
Line 9	878.91	0.004306926
Line 10	875.87	0.004321874
Line 11	856.35	0.004420389
Line 12	862.5	0.004388870
Line 13	0	#DIV/0!
Line 14	0	#DIV/0!
Line 15	0	#DIV/0!
Line 16	0	#DIV/0!
Line 17	0	#DIV/0!
Line 18	0	#DIV/0!
Line 19	0	#DIV/0!
Line 20	0	#DIV/0!
Line 21	0	#DIV/0!
Line 22	0	#DIV/0!
Line 23	0	#DIV/0!
Line 24	0	#DIV/0!
Line 25	0	#DIV/0!
Line 26	0	#DIV/0!
Line 27	0	#DIV/0!
Line 28	0	#DIV/0!

Shack Number: Xpx 96
Name: _____
Signature: _____

FRAC SHACK™

Turbine "K" Factor Calculator w\ Meter Correction

	Meter K Factor	HMI Input	100 litre test result	New HMI Input	New 100 litre result	Result
Line 1	857.85	0.00441266	102.8	0.0042925	102.8	#DIV/0!
Line 2	876.49	0.00431882	100.6	0.0042931	100.6	#DIV/0!
Line 3	875.58	0.00432331	101.1	0.0042763	101.1	#DIV/0!
Line 4	840.05	0.00450616	105	0.0042916	105	#DIV/0!
Line 5	885.37	0.00427550	101.1	0.0042290	101.1	#DIV/0!
Line 6	870.68	0.00434764	103.8	0.0041885	103.8	#DIV/0!
Line 7	850.36	0.00445153	106.7	0.0041720	106.7	#DIV/0!
Line 8	856.91	0.00441750	107.9	0.0040941	107.9	#DIV/0!
Line 9	878.91	0.00430693	102.5	0.0042019	102.5	#DIV/0!
Line 10	875.87	0.00432187	105	0.0041161	105	#DIV/0!
Line 11	856.35	0.00442039	108	0.0040930	108	#DIV/0!
Line 12	862.5	0.00438887	104	0.0042201	104	#DIV/0!
Line 13	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 14	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 15	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 16	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 17	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 18	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 19	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 20	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 21	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 22	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 23	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 24	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 25	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 26	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 27	0	#DIV/0!		#DIV/0!		#DIV/0!
Line 28	0	#DIV/0!		#DIV/0!		#DIV/0!

flaw Hmi.
 ① #DIV/0! 100 L 105.2 ①
 #DIV/0! 100 L 100.4 ②
 #DIV/0! 100 L 99.2 ③
 #DIV/0! 100 L 99.2 ④

99.9 MG

test #2

1-97.4

6-99.3

7-102.1

10-99.7

11-100.1

test #3

1-100.7 99.7

7-101.4

test #4

7-99.9

Shack Number: E127

Name: Kira Holenka

Signature: Photo Ellingsen, Aug 23

June 19 2019