



IMPACT SELECTOR, INC.

REDUCE THE RISK



**Level 1
Field Operations Manual**

**CONFIDENTIAL &
PROPRIETARY INFORMATION**

PO Box 2499
205 East Interstate 30
Rockwall, Texas 75087
(972) 772-5680 telephone
(972) 771-6222 facsimile
impact@impactselector.com

24 Hour Technical Assistance: (800) 238-9239



IMPACT SELECTOR
REDUCE THE RISK

© 2009 Impact Selector, Inc. All rights reserved. The information contained in this manual is for use by the intended recipient(s) of Impact Selector and should not be duplicated or redistributed by the recipient. This manual contains Trade Secrets of Impact Selector, Inc. and the information provided herein is Confidential and Proprietary. No reproduction of these materials is permitted without prior written consent. Unauthorized use is strictly prohibited. If you have received this manual from anyone other than an authorized representative, please call Impact Selector at 1-800-238-9239.



IMPACT SELECTOR, INC.



TABLE OF CONTENTS

Introduction/Features	2
Xcalibur E-Line 1-9/16" Specifications	3
Scope of Manual	3
Setting Considerations	4
Manual Release – Latch Test	5
Electrical Test	6
Setting Procedure	6
Running the Xcalibur	8
Deviated Wells	8
Wireline Cable Weights	8
Sinker Bar Weight Requirements	9
Contacts	10

REDUCE THE RISK

INTRODUCTION

Impact Selector, Inc. (“ISI”) manufactures, rents, and leases a comprehensive line of technologically advanced mechanical impact tools for open-hole and cased-hole wireline operations. These jars allow for more efficient and safer operations in even the harshest environments by virtually eliminating the risk of a stuck string and the staggering costs associated with stripovers, fishing, and rig downtime.

All ISI wireline jars employ patented or patent-pending technology which utilizes stored energy to maximize impact ratios. When line tension surpasses a preset load-limit (indicating a stuck condition), the tool activates and releases stored energy to deliver the initial impact. Usually, this impact – intensified by the multiplying effect of the jar's Weight Forward™ design, and assisted by the elasticity of the wireline cable – frees the tool string. If not, the operator simply decreases line tension to re-latch the tool instantly under its own weight. An Impact Selector tool can be repeatedly reset in seconds for an unlimited number of activation cycles until the stuck string is freed.

Features

- ✱ All-mechanical design – Not affected by downhole temperature or pressure.
- ✱ HP/HT Rating – The only jar with available 500 deg F and 25,000 psi ratings.
- ✱ Safety First – No build up of pressures when the tool is brought back to the surface.
- ✱ Use of stored energy – Uses kinetic energy in conjunction with wireline stretch to achieve a “superior” impact ratio.
- ✱ Designed for maximum moving mass at top of impact tool to apply superior forces to stuck tools.
- ✱ Variable Overpull Setting – Multiple release adjustments for tool string, wireline, and borehole conditions for optimum performance.
- ✱ Fully adjustable on the surface, and even while in the tool string.
- ✱ Resets downhole under its own weight for unlimited activation cycles.

E-LINE XCALIBUR-GO SPECIFICATIONS

Diameter	1.562 inches
Length, Retracted	75-3/4 inches
Length, Extended	81-7/8 inches
Approximate Weight	30 lbs
Temperature Rating	400 degrees F ¹
Pressure Rating	25,000 psi
Field Adjustability	300 to 1,400 lbs ²
Total Stroke	6-3/16 inches
Power Stroke	5-11/16 inches

E-LINE XCALIBUR-SLB 1-11/16" SPECIFICATIONS

Diameter	1.562 inches
Length, Retracted	77-3/16 inches
Length, Extended	83-5/16 inches
Approximate Weight	31 lbs
Temperature Rating	400 degrees F ¹
Pressure Rating	25,000 psi
Field Adjustability	300 to 1,400 lbs ²
Total Stroke	6-3/16 inches
Power Stroke	5-11/16 inches

- 1 - Available 500 degrees F available by special request
 2 - Higher pre-sets available by special request

SCOPE OF XCALIBUR MANUAL

- All references made to jars or components are considered to be with the jar oriented so that the top of the jar is on the left and the bottom of the jar on the right.
- All components take their location in relation to the jar in this position.
- The jar contains GO-type or Schlumberger 1-11/16"-type connections. The top of the jar is referred to as the box end. The bottom of the jar is the pin end.



SETTING CONSIDERATIONS

Factors to Consider:

- Max safe pulling weight of the cable
- Weight of the cable in the well-bore at target depth
- Pull-out tension or “weak point” at the cable head
(A good rule of thumb is a preset of half of this figure unless well conditions indicate a lower preset release tension)

Example:

*Preset to a release tension of 350 lbs
Tool string weight below the jar is 450 lbs*

The jar will not close while hanging in open air, but if fluid viscosity is sufficient it may close during the run in the hole and operate at a lower preset than that required to hold the jar closed on the surface. Slacking off weight allows the jar to relatch.

XCALIBUR MANUAL RELEASE – LATCH TEST

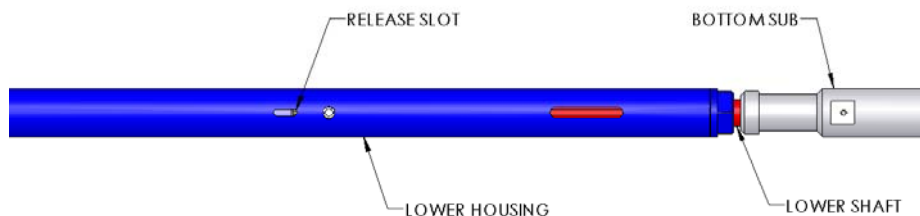
Warning!! Do not place your hand or fingers along the shaft when re-engaging; **to do so might cause injury!** This is a potential pinch point.

Caution!! Do not perform this operation with the jar hanging in the tool string with tool string weight below it. To do so may cause a sudden jolt against the cable-head or rope-socket resulting in a possible separation of the tool string and wireline.

1. Locate the release slot; the upper most slot in the lower housing.
2. Insert a tool (screwdriver, punch, etc.) in the slot and engage the release sleeve.



3. With an upward movement, hold the release sleeve up, grasp the bottom sub and pull downward; this will release the latch mechanism.
4. To re-engage the latch, push upward on the bottom sub. You will not be able to pull the lower shaft out again unless you first repeat steps 1,2 & 3.



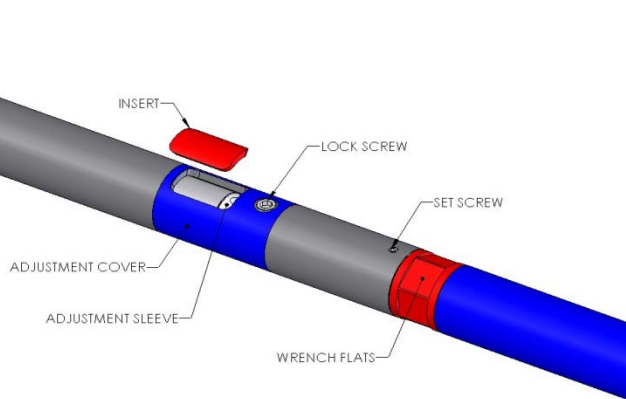
ELECTRICAL TEST

Using a 1,000V meg-meter, connect leads to upper and lower conductors to check for continuity. The typical reading ranges from 4 to 8 OHM. To check for leaks beyond the maximum allowed, take one lead off and touch it to the body, or any bare metal surface.

SETTING PROCEDURE

The XCALIBUR may be preset prior to load out or in the field. If necessary, it may be adjusted in the field.

FIG.1



1. Locate adjustment cover just above the center connector (about the middle of the jar).
2. Locate the tapered lock-screw.



3. Remove lock-screw and rotate cover until adjustment window is fully opened. Remove insert.

- Using a tool (3/16" punch or Allen wrench) rotate the adjustment sleeve to the right to increase the tension or to the left to decrease the tension. Each slot represents a half turn. If unsure of the current setting, rotate the adjustment sleeve (IS207) to the left (down in these pictures) until bottomed out. When rotated to the right, the first slot reached on the adjustment sleeve is the zero turn setting. Refer to the supplied calibration sheet to obtain the correct number of turns and jar setting.



- Replace insert. Rotate the adjustment cover until the holes are aligned (Refer to Fig.1 on page 6).
- Replace and tighten the lock-screw*.



***Note:**

Moderate torque is sufficient when tightening the lock-screw; too much torque may make future removal very difficult or impossible.

Caution:

If performing this operation with the jar in the tool string and hanging be sure not to lower the preset below the tool string weight or the jar will open and cause a sudden jolt against the cable-head/rope-socket.

RUNNING THE XCALIBUR

Between runs the jar should be visually inspected to insure that:

- A. All set screws are still in place and tight
- B. All connections are tight

DEVIATED WELLS

When running in highly deviated wells or heavy mud weights, the following minimum weights should be above the jar for optimum performance.

Deviation	Minimum Weight
0° - 20°	10 – 20 lbs
21° - 40°	21 – 30 lbs
41° - 60°	31 – 65 lbs

For perforating operations, a weight bar should be ran below the jar in order to help separate the jar from a possible debris field.

AVERAGE WIRELINE CABLE WEIGHT PER 1,000 FEET

	7/32"	1/4"	9/32"	5/16"
Camesa	94-100 lbs	120-127 lbs	153-167 lbs	188-206 lbs
Rochester	92-96 lbs	N/A	153-158 lbs	183-193 lbs
Vector	100-109 lbs	118-123 lbs	N/A	195-203 lbs

SINKER BAR WEIGHT REQUIREMENTS

$$W_t = \frac{\pi \times D_i^2 \times P_{wh}}{4B_f} - T_w$$

Given:

W_t = Weight required at balance point. Additional weight is needed to overcome friction and to obtain downward motion.

D_i = Cable diameter

P_{wh} = Wellhead pressure

B_f = Well fluid buoyancy factor (from fluid weight, pressure & buoyancy chart)

T_w = Downhole tool weight

In some cases, all the factors to determine the sinker bar weight required may not be readily available. Therefore, the following charts can be used to determine an approximate amount.

Sinker Bar Weight vs. WHP

