

STAND TRANSFER VEHICLE (STV™)



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INTRODUCTION

Our Stand Transfer Vehicle (STV) is an innovative technology upgrade that removes the derrickman from the mast. Designed for most doubles and triples mast applications, the STV integrates into existing fingerboard footprints with a minimal weight increase on the fingerboard. The STV utilizes a compact scissor-arm system to fit between the setback, and reaches well center and all the slots in the fingerboard. The STV is suitable for the majority of modern 1,000-3,000 horsepower land rig masts.

KEY FEATURES

- The **primary arm** of the STV quickly retains and releases the stand during hand over to the hydraulic elevator or fingerboard slots utilizing a patented Stand Capture Head. Primary Electric-over-Hydraulic controls with dual high-resolution camera feedback providing safe, fast, and reliable handling of 3.5" to 10" stands of tubing, drill pipe, and drill collars.
- The **fingerboard** includes a patented passive restraint system which holds the drill pipe in position where the STV releases it, greatly increasing safety. Additionally, the fingerboard features an end-latch at the end of each row as a secondary means of retention and ensures pipe remains firmly in place. The fingerboard design ensures the capability to manually rack pipe if necessary and easily folds into the mast during rig moves.
- The **innovative mechanical alignment system** precisely and repeatedly positions the STV at the finger slots for ease of operation and simplified control. The specially designed mechanical alignment features a zigzag weldment, and works in conjunction with the alignment link on the STV carriage to ensure the STV is always aligned with the fingers. The diving board also features a breakaway function, and if the top drive elevators contact it, it will pivot up or down, depending on the direction of contact. Once pressure is released, the diving board freezes in its current position using a shear pin system clamp to protect the rest of the structure from damage. The diving board can then be reset and the shear pins replaced to easily return to full operational capacity.
- The **intuitive control system** contains comfortable, ergonomic controls that feature a dual CCTV camera system to ensure operator visibility. STV arm-positioned outputs are available.
- The **transport skid** protects the STV and manual control station during transport and increases efficiency in the rig-up and rig-down process.
- Manual, hydraulic **controls** are available for maintenance requirements

ADDED VALUE AND SAFETY

The STV increases rig automation, streamlining pipe handling operations and ensuring consistent tripping speeds. An increase in safety protocols and a reduction of potential downtime ensures drilling schedules remain on time and uninterrupted. Designed for efficient tripping operations, the STV is a technological innovation that reduces injuries, adds value, and increases efficiency in your drilling operations. Additionally, the STV allows the derrickman to work side-by-side with the driller, learning valuable skills and techniques.



HYDRAULIC ELEVATORS

Hydraulic elevators are required for use of the STV. As the OEM provider, the **BX 4-35 Hydraulic Elevators** are ideal for seamless integration and uninterrupted operations. The BX 4-35 Elevator features the new rotary actuator that can be tilted to pick up pipe from the V-door, eliminating the need for single joint elevators. The actuators are speed adjustable and swing out for quick and easy link removal for switching/repositioning the elevator.

FEATURES AND BENEFITS

FEATURE	BENEFITS
Derrick Person to Driller Interface	<ul style="list-style-type: none"> • Safety • Climbing • Communication • Flat Time Reduction • Interactive Training
Efficiency	<ul style="list-style-type: none"> • Consistency • HWDP and BHA Handling • Controlled Environment
Ergonomic Controls	<ul style="list-style-type: none"> • Training • Multiple Discipline Operators
Installed Weight and Mast Integration	<ul style="list-style-type: none"> • Upgrade Friendly • Multiple Installation Options
Simple and Robust Design	<ul style="list-style-type: none"> • Uptime • Troubleshooting
Full Prototype Testing Program	<ul style="list-style-type: none"> • Product Launch Pains



SPECIFICATIONS OF THE STV

GENERAL	Electrical requirements	120 VAC
	Hydraulic requirements	15 gpm, 2,500 psi
	Hydraulic Lines	Supply: 0.5" -8 JIC fitting
		Return: 0.5" -8 JIC fitting
	Drain: 0.38" -6 JIC fitting	
TYPICAL WEIGHT	Diving board variable, Ideal Rig	9,500 lbs
	Model STV	2,500 lbs
CAPACITY	Maximum Extension Force	1,800 lbs retracted; 2,700 lbs extended
	Maximum Retraction Force	1,800 lbs extended; 1,200 lbs Force
	Maximum Radial Force at Extension	1,500 lbs
	Maximum Slew Moment	30,000 in-lbs = 2,500 ft-lbs
	Tubular Capacities	3.5" Drill Pipe to 10" Collars
OPERATING SPEEDS	Extension Speed	up to 0.67 ft/sec
	Retraction Speed	up to 0.67 ft/sec
	Slew Time	90° in 3.2 sec
	Carriage Travel	up to 0.75 ft/sec



AFTERMARKET SERVICES

NOV IS WITH YOU EVERY STEP OF THE WAY.

Field Service

NOV's growing staff of proven field service personnel is available 24/7 to support all NOV products. Knowledgeable field service technicians can quickly deploy to your operating site to resolve your equipment issues, whether structural, mechanical, electrical or software-related. NOV's FAST solution service trucks are pre-stocked with an extensive list of NOV's top drive, iron roughneck, EDS, BOP, and Amphion replacement parts, filters, consumables and tools to get your NOV equipment running at OEM specifications. Expert on-call technicians are ready to provide FAST, on site service and repair.

Training

Field technicians train extensively on NOV Rig Solutions product lines including competency training and evaluations through our NOV Technical Colleges and Training Facilities to ensure the highest quality service and support for your equipment repairs on site.



Repair

Highly skilled NOV shop technicians overhaul, repair, rebuild, and recertify a wide range of NOV equipment to the NOV Quality Assurance and OEM specifications — using only OEM parts. NOV's worldwide network of Repair Centers provides unrivaled quality customer service, on-time delivery and unmatched technical integrity. In addition, equipment exchange programs are available at various facilities. Through the Used Equipment Refurbishment Program, NOV provides viable, short-turnaround solutions to immediate capital equipment needs complete with data books and certificates of conformance as required.

Technical Support

One phone call to an NOV Technical Support Center initiates a technical support team of multi-skilled backgrounds to troubleshoot and resolve your worldwide equipment needs, 24/7/365. NOV's team of highly skilled and experienced Technical Support members have access to NOV's global pool of qualified Field Service Technicians and Subject Matter Experts to work together quickly to keep your rigs operating. The technical support team utilizes NOV's web-based application "Tracker" to record, manage, and resolve issues.

Field Engineering

The NOV Field Engineering group offers the unique service of providing one-off, rig-specific equipment designs, modifications and solutions to your rig-specific issues. This includes rig surveys, proposal drawings, design drawings, product manufacturing, service manuals, data books, and equipment installations. Field Engineering capabilities include mechanical and electrical engineering, software/programming modifications, training and troubleshooting.

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