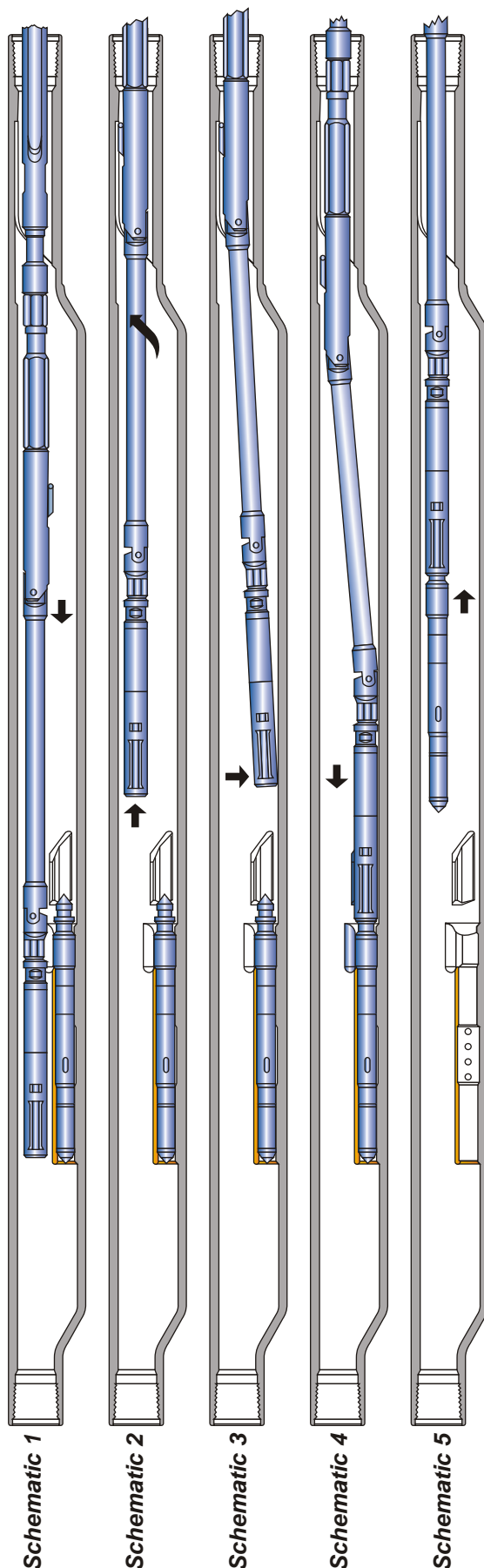


HD TP POSITIONING TOOLS



Wireline Positioning Tools are designed to provide selective location of the mandrel when there are two or more mandrels installed in a well. The tool orients in the proper position, and offsets the valve (or pulling tool) into position over the pocket for setting or retrieving.

BENEFITS OF DESIGN PRINCIPLE

- Spring-loaded trigger key is guided to a stop in the mandrel's positioning sleeve, which provides positive weight increase to the operator.
- There is only one brass shear pin in the assembly which is replaced easily after each wire line run. The pin can be replaced with the tool projecting from the lubricator.
- Large bypass flow area, both internal and external, reduces swabbing effect during setting or pulling operations.
- The tool is locked in the in-line position, which prevents it from accidentally kicking over and dragging on the tubing walls during insertion and withdrawal. The tool is locked in the offset position for positive pocket locating when inserting or retrieving the valve.

OPERATING PRINCIPLE

Schematic 1 - The tool is run below the mandrel. Since the tool is locked in a rigid position, it is designed not to kick over accidentally.

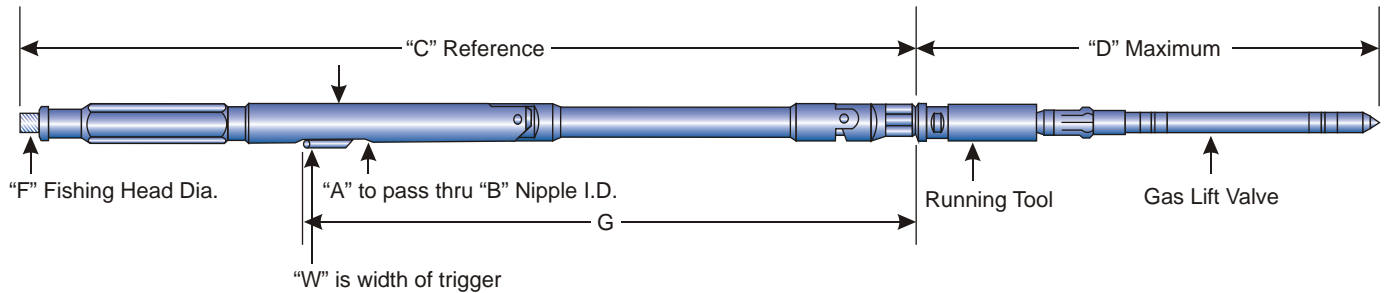
Schematic 2 - The tool is raised until its key engages the sleeve in the mandrel. Continued upward movement rotates the tool until its key enters a slot. When the key reaches the top of the slot, the operator is notified by a weight increase displayed on the weight indicator. The tool is now properly oriented.

Schematic 3 - The pivot arm is designed to swing out and lock in position due to additional pull. This action locates the valve or pulling tool above the pocket or latch on the gas lift valve.

Schematic 4 - The mandrel is designed to guide the valve or pulling tool to accurately land the valve or engage the latch on the valve.

Schematic 5 - A straight, upward pull shears a pin when the key reaches the top of the slot. This action allows the trigger to guide freely out of the slot and through the tubing. When the pivot arm reaches the small upper section of the mandrel, it is designed to snapback and lock into its vertical running position, reducing drag on the tool and valve as it is removed.

HD-TP/HD-TMP POSITIONING TOOLS



The HD Tools have identical running & pulling procedure as the standard tools.

ENGINEERING DATA FOR HD-TP/HD-TMP POSITIONING TOOLS								
TOOLS	A	B	G	W	C	F	D	PART NUMBER
2.3/8 HD TMP	1.855	1.875	25.73	.55	38.00	1.375	20.50	375-1000-110-00
2.7/8 HD TMP	2.280	2.313	25.88	.55	38.00	1.375	20.50	375-1000-110-00
3.1/2 HD TMP	2.730	2.750	25.57	.55	39.25	1.375	20.50	375-2000-110-00
4.0 HD TMP	3.292	3.313	25.79	.55	40.44	1.750	20.50	375-3000-110-00
4.1/2 HD TMP	3.725	3.750	26.82	.55	40.44	1.750	20.50	375-4000-110-00
2.3/8 HD TP	1.855	1.875	24.22	.55	48.10	1.375	33.00	375-0100-210-00
2.7/8 HD TP	2.280	2.313	24.47	.55	48.57	1.375	33.00	375-1000-210-00
3.1/2 HD TP	2.730	2.750	24.27	.55	46.00	1.375	33.00	375-2000-210-00
4.0 HD TP	3.290	3.310	24.22	.55	38.96	1.750	33.00	375-3000-210-00
4.1/2 HD TP	3.725	3.750	25.80	.55	41.44	2.312	33.00	375-4000-210-00
5.0 HD TP	4.250	4.280	25.80	.55	47.00	2.312	33.00	375-5000-210-00
5.1/2 HD TP	4.480	4.500	27.70	.55	49.00	2.312	33.00	375-6000-210-00