

STUCK PIPE MECHANISM			
PIPE MOTION PRIOR TO STICKING?	PACKOFF BRIDGE	DIFFERENTIAL	WELLBORE GEOMETRY
Moving Up	2	0	2
Rotating Up	0	0	2
Moving Down	1	0	2
Rotating Down	0	0	2
Static	2	2	0
PIPE MOTION AFTER STICKING?			
Down Free	0	0	2
Down Restricted	1	0	2
Down Impossible	0	0	0
PIPE ROTATION AFTER STICKING?			
Rotate Free	0	0	2
Rotate Restricted	2	0	2
Rotate Impossible	0	0	0
CIRCULATING PRESSURE AFTER STICKING?			
Circulation Free	0	2	2
Circulation Restricted	2	0	0
Circulation Impossible	2	0	0
TOTALS			
INSTRUCTIONS: Answer the shaded questions by circling all the numbers in the row with correct answer. Add the columns; the column with the highest number indicates the sticking mechanism.			

FREE WELLBORE GEOMETRY
INITIAL ACTION: 1. If sticking occurred while moving up: Apply torque and JAR DOWN with maximum trip load. If sticking occurred while moving down: DO NOT apply torque and JAR UP with maximum trip load. 2. Stop or reduce circulation when cocking jar and when jarring down. NOTE: Pump pressure will INCREASE the hydraulic up-blow, DECREASE the down blow. 3. Continue jarring until the string is free, or an alternative decision is made. Prolonged jarring (10+ hours), or jarring until jars are worn, is often necessary.
SECONDARY ACTION: Spot acid if stuck in limestone or chalk. Spot fresh water with mobile salt.
WHEN THE STRING COMES FREE: 1. Increase circulation to maximize rate, rotate and work string. 2. Ream / back-ream the hole section thoroughly. 3. Circulate the hole clean.

FREEING PACKOFF/BRIDGE	
STUCK WHILE MOVING UP or WITH STRING STATIC	STUCK WHILE MOVING DOWN
ACTION TO ESTABLISH CIRC: 1. Apply low pump pressure (200-400 psi). Maintain pressure if restricted circulation is possible. 2. DO NOT JAR UP!! APPLY TORQUE!! Slack off to MAXIMUM set down weight. Allow sufficient time for a hydraulic jar to trip (4-6 min. for long cycle, see jar manual). 3. If the string does not come free, DO NOT JAR UP!! Jar DOWN until the string comes free or an alternative decision is made. Jarring down for 10+ hours, or until the jars wear, may be necessary.	ACTION TO ESTABLISH CIRC: 1. Apply low pump pressure (200-400 psi). Maintain pressure if restricted circulation is possible. 2. DO NOT JAR DOWN!! APPLY TORQUE!! Apply MAXIMUM overpull to jar. Allow sufficient time for a hydraulic jar to trip (4-8 min. for long cycle, see jar manual). 3. If the string does not come free, DO NOT JAR DOWN!! Jar UP until the string comes free or an alternative decision is made. Jarring down for 10+ hours, or until the jars wear, may be necessary.
WHEN CIRC. IS ESTABLISHED 1. Slowly increase pump speed to maximum rate. When possible, work the string and circulate the hole clean from bit depth. 2. Ream the section until the hole is clean. 3. If POOH to log and / or run casing, return to bottom and circulate the hole clean.	WHEN CIRC. IS ESTABLISHED 1. Slowly increase pump speed to maximum rate. When possible, work the string and circulate the hole clean from bit depth. 2. Ream the section until the hole is clean. 3. Continue RIH until excessive set down set weight is observed; circulate the hole clean.

FREEING DIFFERENTIAL STICKING
Initial ACTION: 1. Circulate at maximum allowable rate. 2. Work MAXIMUM limit torque down to stuck depth and hold the torque in the string. 3. Stop or reduce pump speed to minimum. 4. Slack off to MAXIMUM set-down limit!! 5. Allow sufficient time for a hydraulic jar to trip (4-6 min. for long cycle, see jar manual). 6. If the string does not come free, hold torque in the string and continue jarring down with maximum trip load.
Secondary ACTION: If the string does not come free after 5 to 10 jar blows, continue jarring, prepare a pipe releasing pill, and spot to the proper annulus depth.
WHEN THE STRING IS FREE: 1. Rotate and work the string. 2. Circulate at maximum rate to clean the hole. 3. Check the proper mud specifications.

EXAMPLE: QUESTION

ANSWER

RESULTS

Pipe motion prior to sticking?

Moving up.

The three numbers | 2 | 0 | 2 | are circled in the *Moving Up* row.

Pipe motion after sticking?

Down impossible.

The three numbers | 0 | 0 | 0 | are circled in the *Down Impossible* row.

Pipe rotation after sticking?

Rotation impossible.

The three numbers | 0 | 0 | 0 | are circled in the *Rotation Impossible* row.

Circ. Pressure after sticking?

Circulation impossible.

The three numbers | 2 | 0 | 0 | are circled in the *Circulation Impossible* row.

Add the numbers in the columns.

TOTALS = | 4 | 0 | 2 |

The probable sticking mechanism is the column with the highest total number (4): Pack-off / Bridge

Maximum Recommended Change Out Rotating Hours									
Hole Size (inches)	Temp (°F)	4-3/4" OD Jar		6-1/4" OD Jar		6-1/2" OD Jar		8" OD Jar	
		Rotating in straight horizontal section only	Rotating in deviated or build/drop Angle section	Rotating in straight horizontal section only	Rotating in deviated or build/drop Angle section	Rotating in straight horizontal section only	Rotating in deviated or build/drop Angle section	Rotating in straight horizontal section only	Rotating in deviated or build/drop Angle section
6 1/8"	100-200	300							
6 1/8"	200-300	200							
6 1/8"	300-400	200							
6 1/8"	400-500	150							
6-3/4"	100-200	200	100						
6-3/4"	200-300	200	100						
6-3/4"	300-400	200	100						
6-3/4"	400-500	150	100						
7-7/8"	100-200	100	75	400					
7-7/8"	200-300	100	75	300					
7-7/8"	300-400	100	75	300					
7-7/8"	400-500	100	75	150					
8-3/4"	100-200			400	200	400			
8-3/4"	200-300			300	200	300			
8-3/4"	300-400			300	200	300			
8-3/4"	400-500			150	150	150			
9-7/8"	100-200			300	200	300	200	400	250
9-7/8"	200-300			300	200	300	200	300	250
9-7/8"	300-400			300	200	300	200	300	250
9-7/8"	400-500			150	150	150	150	150	150
12-1/4"	100-200					200	100	350	150
12-1/4"	200-300					200	100	300	150
12-1/4"	300-400					200	100	300	150
12-1/4"	400-500					150	100	150	150
17-1/2"	100-200							250	100
17-1/2"	200-300							250	100
17-1/2"	300-400							250	100
17-1/2"	400-500							150	100

Sup-R-Jar Specifications							
Tool Size OD Inches (mm)	ID Inches (mm)	Tool Joint Connection	Max. Detent Working Load lbf (N)	Tensile Yield Strength lbf (N)	Torsional Yield Strength lbf-ft (N-m)	Tool Weight lb (kg)	
4-3/4 (120.65)	2-1/4 (57.15)	3-1/2 IF API NC 38	90,000 (400,340)	452,737 (2,013,875)	19,116 (25,918)	1,800 (483)	
6-1/4 (158.75)	2-3/4 (69.85)	4-1/2 IF API NC 50	185,000 (822,921)	761,980 (3,389,456)	41,315 (56,395)	2,400 (894)	
6-1/2 (165.10)	2-3/4 (69.85)	4-1/2 IF API NC 50	185,000 (822,921)	916,152 (4,075,247)	56,395 (76,461)	2,600 (969)	
8 (203.20)	3 (76.20)	6-5/8 API REG	300,000 (1,334,466)	1,302,363 (5,793,199)	102,056 (138,369)	3,800 (1,550)	

TRAVEL – INCHES – (mm)					
Tool Size	Total Travel	UP		DOWN	
		Full Detent	Free	Full Detent	Free
4-3/4" (121)	30.35" (771)	6.00" (152)	8.85" (225)	4.00 (102)	8.75" (222)
6-1/4" (159)	26.16" (665)	5.97" (152)	7.47" (190)	4.50" (114)	4.91" (125)
6-1/2" (165)	26.16" (665)	5.97" (152)	7.47" (190)	4.50" (114)	4.91" (125)
8" (203)	26.07" (662)	5.97" (152)	7.47" (190)	3.00" (189)	6.28" (160)