



Pneumatic Hinged Casing Spider Operation Manual

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Rev	Date	Reason
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B		

Description of Change

Rev	Change
B	

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GENERAL

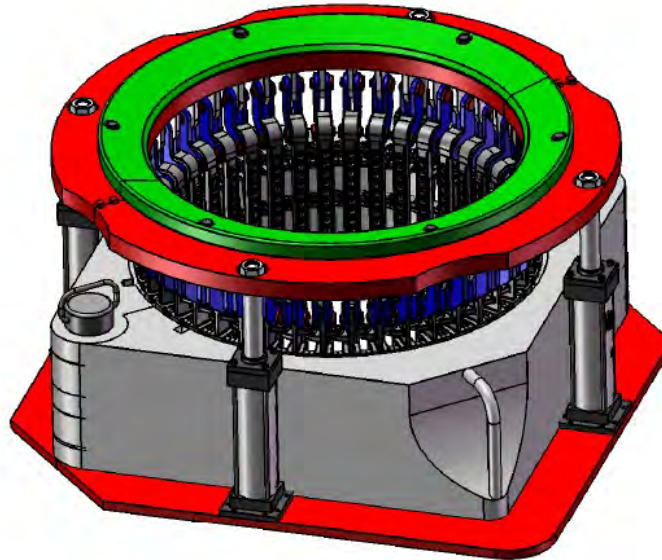


Figure 1

Texas International Oilfield Tools (TIOT) offers a Pneumatic Hinged Casing Spider which is mounted on the rotary table or used in place of the rotary table. The Hinged Casing Spider has two (2) halves, held together by removable hinge pins. The pneumatic spider can only be opened from one (1) side due to hoses on the opposite side. Safety chains attach the pins to the spider. Use the spider with casing *ONLY*.



Carefully lower, slowly guide pipe through the Hinged Casing Spider. If the pipe is not centered, the pipe could hit and damage the slips

CONVENTIONS

IMPORTANT SYMBOL IDENTIFICATION	
	WARNING to Operators / Users
	CAUTION to Operators / Users
	NOTIFICATION to Operators / Users

Table 1

SAFETY

Texas International's equipment is used and installed in controlled rig environments involving hazardous operations and situations.

All personnel performing installation, operations, repair or maintenance on this hinged casing spider must have knowledge of rig procedure. All crew in the vicinity of operations should be trained on rig safety and tool operation.

SPECIFICATIONS

Item P/N	Size	Taper	Capacity	Slip Type	Slip Qty
HCS-36-PNEUMATIC	36"	4"	500 ton	CMS XL*	42

*modified

Table 2

Item	Bore	Stroke	Max operating pressure	Max push force	# used
Cylinder	4"	12"	250 psi	3142 lbs	4

Table 3

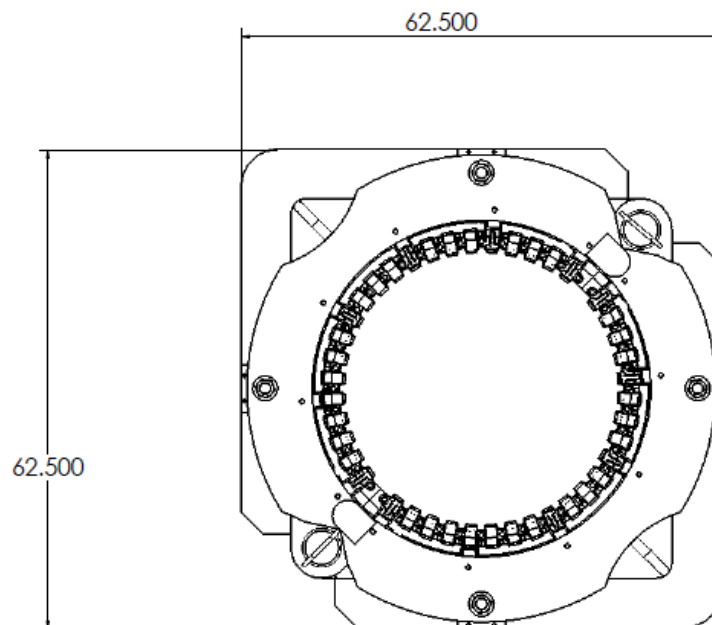


Figure 2

OPERATION

The system operates at 125 psi. Four (4) cylinders mounted around the spider move the slip lifter plate up and down. The control box gauge shows incoming pressure at the regulator. The regulator can be adjusted to decrease the pressure as necessary. Pull the top of the regulator and turn to adjust. At 125 psi, push the regulator top to lock. The regulator has an automatic float drain. A lubricator provides lubricated air needed by the handle valve. The lubricator should be set to 1 or 2. The handle raises or lowers the slips depending on how the hoses are connected. See Figure 3. The needle valve controls the pressure sent to the cylinders causing the slips move up.

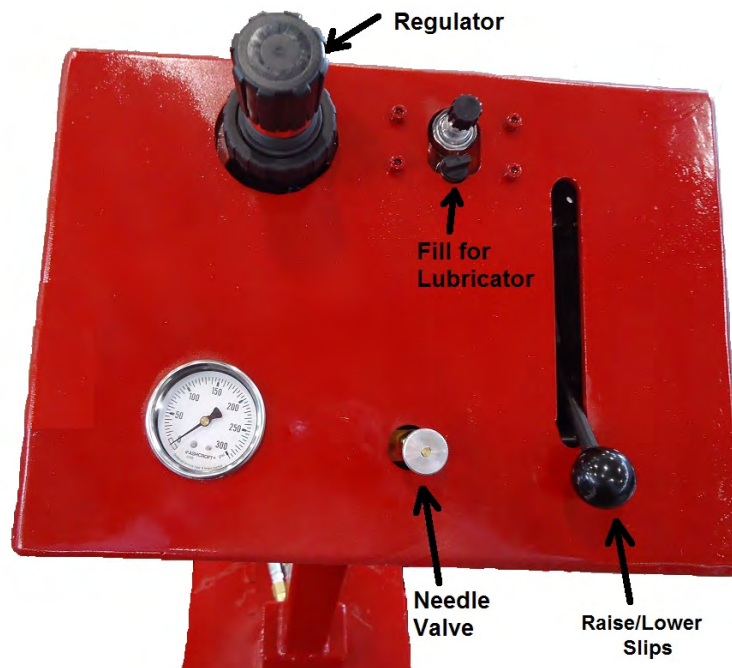


Figure 3

See hose connections below.



Figure 4; Control box stand

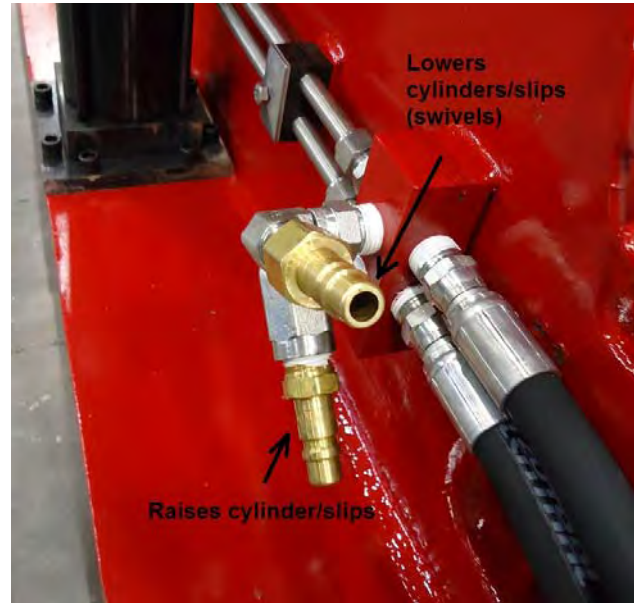


Figure 5; At spider

PREVENTIVE MAINTENANCE



This is a suggested PM schedule. The tool owner has the responsibility to adjust the program according to actual tool usage

Normal wear in course of use will eventually reduce the tool's capability. Cracks or the appearance of damage can indicate impending failure and requires tool replacement.



Wear beyond limits in next section or cracked units must be replaced

Daily – While in use

- Apply EP 4 grease to hinge pin grease fittings
- Inspect the spider body for cracks, excessive corrosion – if found, remove from operation

Preventative Maintenance continued

- Check spider hinge pins and chains for cracks and damage – replace if found
- Use a straight edge to check spider taper
- Clean spider taper
- Polish spider taper with emery cloth
- Grease spider taper to keep slips from sticking



Welding repairs should be done by TIOT or other authorized welding company

- Once air is supplied, listen for leaks – if found, tightened connections before operating
- Visually check slips for damage and cracks – if found, replace
- Look for worn, damaged, loose or missing parts – replace or tighten

Weekly

- Check lubricator oil level by looking at reservoir on the underside of the control box. See Figure 5. Add air oil tool lubricant as needed into fill - shown in Figure 2.



Figure 6

- Remove and clean slip inserts/buttons and inspect for wear – if found, replace
- Check slip backs with a straight edge
- Check for corrosion and breakage on pins – if found, replace



Verify slip's toe area is not cracked/bent – if found remove from operation/replace

- Carry on daily PM

Monthly (PM3)

- Remove coating and debris from critical areas
- Disassemble and perform Magnetic Particle Inspection (MPI) on critical areas as indicated on API Specification 7K
- MPI critical areas at a minimum monthly or after every job, whichever comes first

WEAR DATA

Max Clearance 'A'	
Hinge Pin	0.05 in

Table 4

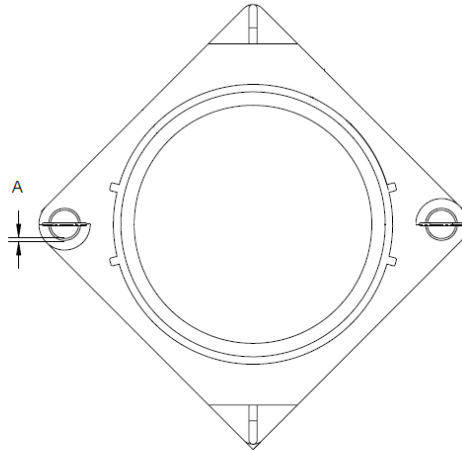


Figure 7

CRITICAL AREA MAP

Darken areas are defined as critical.

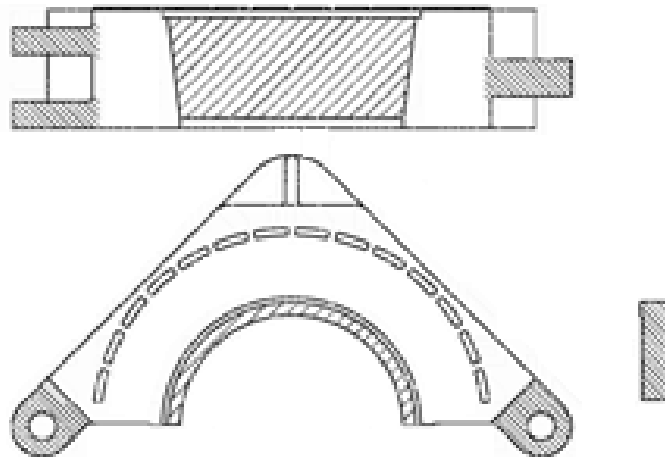


Figure 8

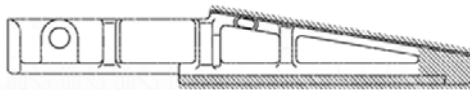


Figure 9

SLIP TEST

A slip test is the best way to determine the degree of equipment wear. This test should be performed every three (3) months and each time a new slip set is put into service.

For accurate results, use a load of at least 10,000 pounds (4,536 kg).

Clean a section of pipe without insert marks. Use a wire brush to clean slip inserts. Wrap two (2) layers of test paper around the cleaned pipe section (above the slips). Masking tape should hold the paper on the pipe. Lower the pipe slowly and carefully, also lowering the slips so the slips are touching the paper.

After the slips have been set, raise the slips and then raise the pipe, careful to prevent damage to the paper.

Evaluate the second (inside) layer of the paper - the outside layer may have inaccurate slip impressions. If full insert/button contact is shown (12 per segment), the slips are good and no further analysis is necessary.

If there is not full contact, the test should be run again with new slips. If the second test results in full contact, the first set of slips are worn. If the results of the second test indicate top contact only, the spider is worn and should be inspected.

TROUBLESHOOTING

Failure Mode	Possible Cause	Possible Solution
Does not open	Corrosion	Pry open, clean and lubricate
Bent/deformed pins	Wear	Verify pin clearance (see Table 4)
Does not hold	Undersized tubular	Select properly sized slips inserts/buttons
Slips do not lift	Leaks	Tighten connections or replace seal kits

Table 5

STORAGE AND TRANSPORTATION

- Unpainted surfaces should be coated with rust preventing agent
- Prevent excessive exposure to water and moisture
- Clean the tool after use - steam clean as needed; remove mud, debris and any other substances
- Transport the unit on a suitable container or pallet

PARTS LIST

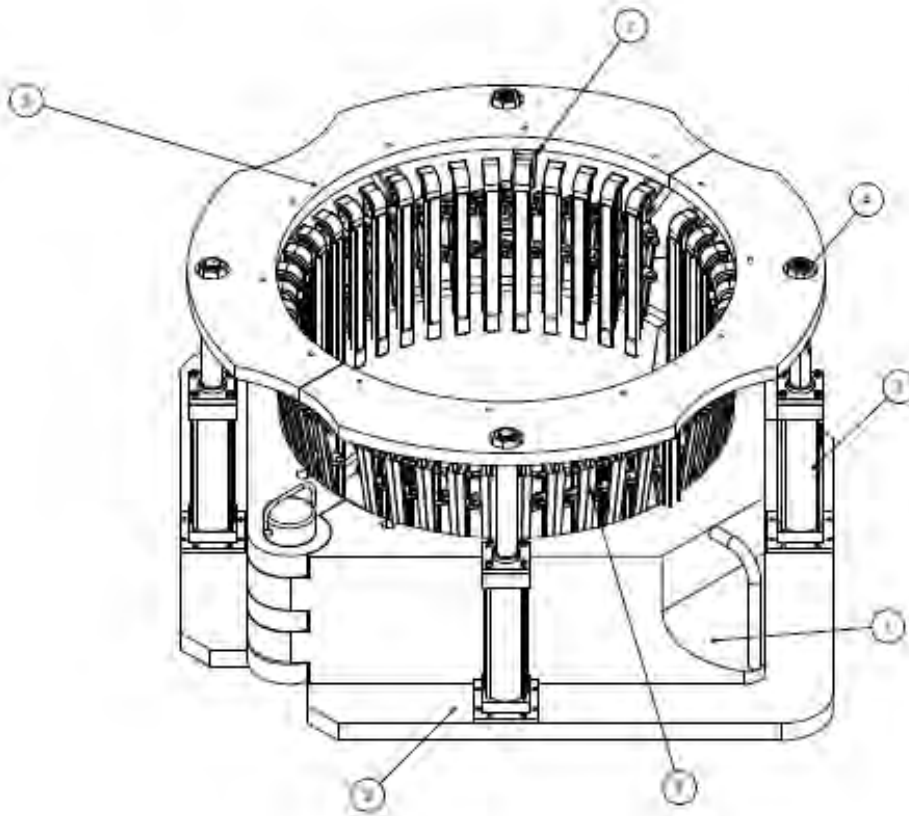


Figure 10

#	Component	Qty	P/N
1	36" 500 TON SPIDER	1	T7704-A-167
2	SPIDER BASE	2	T7704-A-167-5
3	CYLINDER	4	060060
4	NUT, HEX	4	09-5740
5	SLIP LIFTER PLATE	2	T7704-A-167-1
6	PIVOT BLOCK	12	T7704-A-167-2
7	SLIP BRACKET ASSEMBLY	12	T7704-A-167-3
8	CMS-XL MIDDLE SLIP	26	T5322-7704
9	CMS-XL LEFT SLIP	2	T5321-7704
10	CMS-XL RIGHT SLIP	2	T5320-7704
11	CLEVIS PIN	24	080085
12	CMS HINGE PIN	40	T2525
13	CMS-XL-MODIFIED	12	T5323-7704
14	CIRCULAR BUTTONS	504	2631

Table 6

SPARE PARTS LIST

Component	Req	P/N
Needle Flow Valve	1	060107
Air Control Valve - Hand operated	1	060103
Cylinder	1	060060
Cylinder Rod Seal Kit	1	060114
Cylinder Piston Seal Kit	1	060115
50' Hose with quick disconnects	3	050117

Table 7

Every Company has to have a Toolbox
at Texas International Oilfield Tools.

*We provide the tools to fuel the
world!*



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