Hinged Casing Spider
Operation Manual

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Description of Change

Rev	Change
B	

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GENERAL

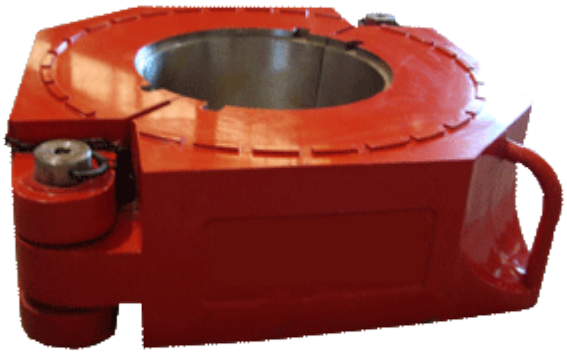

Figure 1; 200 ton

Figure 2; 500 ton with bushing

Texas International Oilfield Tools (TIOT) offers a hinged casing spider (HCS) which is mounted on the rotary table or used in place of the rotary table. The HCS has two (2) halves, held together by removable hinge pins so the spider can be opened from either side. Safety chains attach the pins to the spider. The HCS is offered as pneumatic in 36 inch size and discussed in a separate manual. Use the HCS with casing *ONLY*.

Carefully lower, slowly guide pipe through the HCS. 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
NOTE	**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 HCS must have knowledge of rig procedure. All crew in the vicinity of operations should be trained on rig safety and tool operation.

SPECIFICATIONS

Part Number	Casing Size Range	Taper	Capacity (in tons)
T7704-A-79	7" - 8-5/8"	4"	200
	9" - 13-3/8"	3"	
T7704-1002	7" - 8-5/8"	4"	
	9" - 20"	3"	
T7704-1011	7" - 8-5/8"	4"	350
	9" - 13-3/8"	3"	
T7704-A-167	18-5/8" - 36"	4"	500

Table 2

Reducer Bushing Size	Part Number	Taper	Spider (in tons)
36" x 20"	T7704-A-172	4"	500
36" x 22"	T7704-A-168		
36" x 24"	T7704-A-171		
36" x 26"	T7704-A-170		
36" x 28"	T7704-A-173		
36" x 30"	T7704-A-169		

Table 3

Reducer Bowl Size	Part Number	Taper	Spider (in tons)
13-3/8" x 8-5/8"	T7704-1009	3”	200/350
13-3/8" x 10-3/4"	T7704-1008		
20" x 16"	T7704-1006		

Table 4

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
- Check hinge pins and chains for cracks and damage – replace if found
- Use a straight edge to check taper – if worn, replace
- Clean HCS or bushing/bowl taper
- Polish taper with emery cloth
- Ensure the required reducer bushing/bowl is installed if needed

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

Quarterly
When tripping, grease inside HCS or bushing/bowl taper to keep slips from sticking

When changing bushings: 1) check the top diameter of bushing bore and bushing seat for burrs and peened-over edges; file or grind flush as required. 2) lubricate back of bushing.

WEAR DATA

Max Clearance 'A'	
Hinge Pin	0.05 in

Table 5

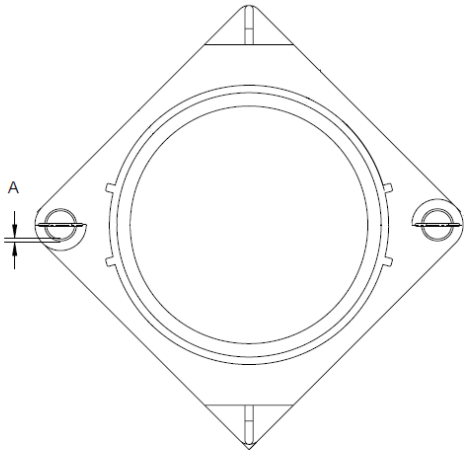

Figure 3

Replace bushing when throat measurement exceeds ¾” (19 mm) greater than the new HCS throat measurement

CRITICAL AREA MAPS

Darken areas are defined as critical.

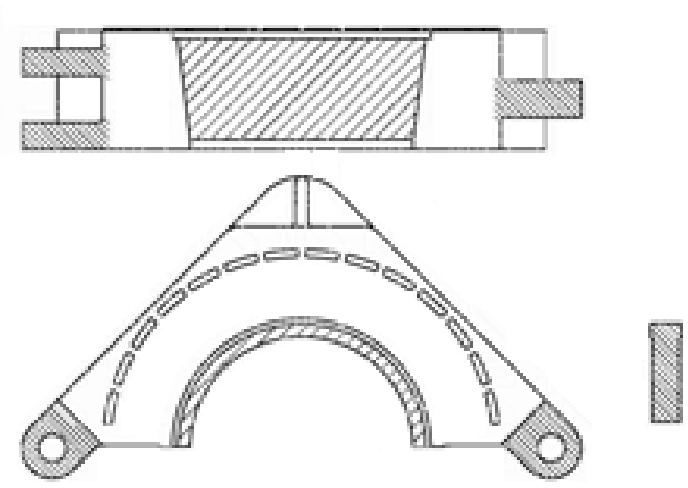

Figure 4

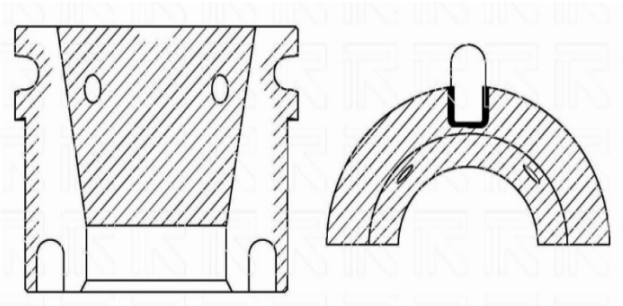

Figure 5 - Bushing

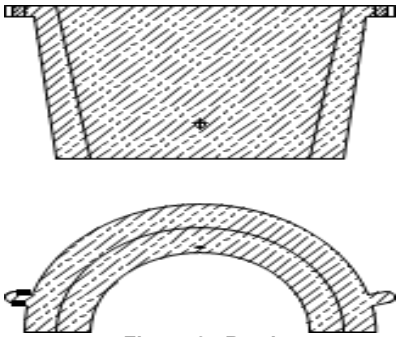

Figure 6 - Bowl

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 5)
Does not hold	Undersized tubular	Select properly sized slips

Table 6

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

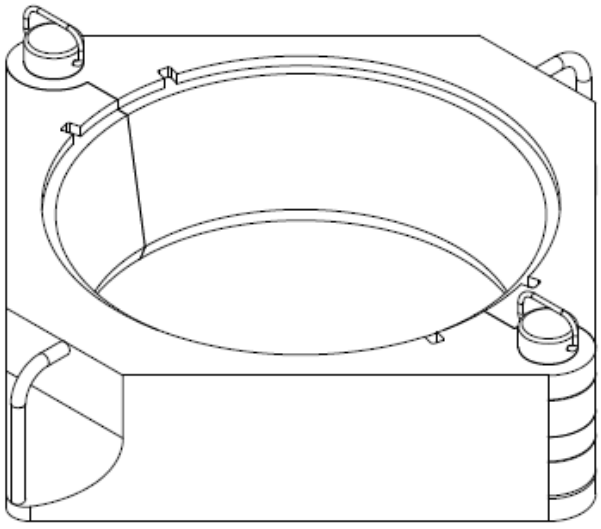

Figure 7

Size	13-3/8"	20"	13-3/8"	36"
Part #	T7704-A-79	T7704-1002	T7704-1011	T7704-A-167
Capacity (ton)	200	200	350	500
Component				
Body	T7704-A-79-UF	T7704-1002-UF	T7704-1011-UF	T7704-A-167-UF
Hinge Pin	T7704-A-84	T7704-A-86	T7704-A-85	T7704-A-84
Hinge Pin Chain	T7704-A-84-2	T7704-A-86-2	T7704-A-85-2	T7704-A-84-2

Table 7: Figure 7 BOM

Reducer Bushing Size	Part Number	Body (2 pc set)	Bolt	Lifting Eye Bolts
36" x 20"	T7704-A-172	T7704-A-172-UF	T7704-8-H	T2564E
36" x 22"	T7704-A-168	T7704-A-168-UF	T7704-8-G	
36" x 24"	T7704-A-171	T7704-A-171-UF	T7704-8-F	
36" x 26"	T7704-A-170	T7704-A-170-UF	T7704-8-E	
36" x 28"	T7704-A-173	T7704-A-173-UF	T7704-8-D	
36" x 30"	T7704-A-169	T7704-A-169-UF	T7704-8-C	

Table 8

Part #	T7704-1009	T7704-1008	T7704-1006
Taper	4"	3"	3"
Component			
Body (2 pc set)	T7704-1009-UF	T7704-1008-UF	T7704-1006-UF
Lifting Eye Bolts	T2564E	T2564E	T2564E

Table 9

Every Company has a Toolbox.

At Texas International Oilfield Tools,

we provide the tools to fuel the world!