



Windchill No.:	00873733
Legacy No.:	762-7001-000-003
Revision / Date:	D / 25-08-08
ECN No.:	00000

Compliant Expansion Tool f/ 7.0” ESS®

This Compliant Expansion Tool offers single trip, compliant EST® expansion. Also, when this Tool is used in conjunction with the Diverter and EZI Compliant Expansion Tools, they then form the expansion system for 7” Expandable Reservoir Completions (ERC) for Multi-Zone Reservoirs.

The tool is compliant in that the pistons can extend/retract if an increased/decreased hole diameter is encountered. This allows the EST® to expand fully to give improved wellbore contact, thus providing improved hole support and eliminating any micro-annulus.

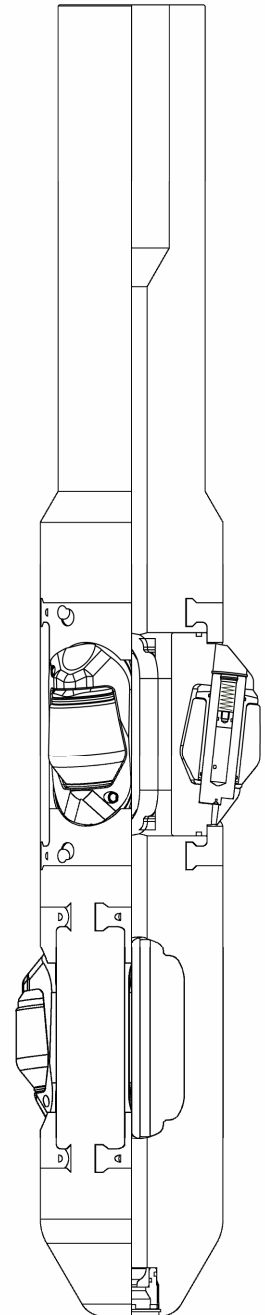
Activation of the compliant roller / travelling piston assemblies is achieved by generation of a back pressure within the tool. This back pressure is a result of flow (applied from surface) through an integral drill bit jetting nozzle directly at the front of the compliant section.

Features

- Compliant expansion system achieved by rotation from surface while flowing through nozzle
- Top down expansion
- Retrievable system
- Field Redressable tool

Benefits

- Used in 7.7” – 9.25” diameter open or cased hole
- Compliant EST® expansion for improved wellbore contact
- Allows access through restricted I.D.'s
- Improved tool life



EST® Size	Min. Tool O.D. (Rollers)	Max. Operating Tool O.D.	Operating Pressure	Expansion Speed
7”	6”	8.301”	800 - 1200 psi	4 - 8 ft/min (max)

Prepared By :	watsonkx
Approved By :	clarkmx

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Technical Introduction

Assembly Number:	762-7001-000-003 / 00873733
Body Material:	AISI 4145 / AISI 4140
Expansion Rollers Material:	Maraging Steel
Body Coatings:	Q.P.Q.
Make-up Connection:	Grant Prideco XT-38 Box-up
Make-up Torque (ft-lb.):	Min. / Opt. / Max.;
	17,100 18,800 20,500

Associated Parts

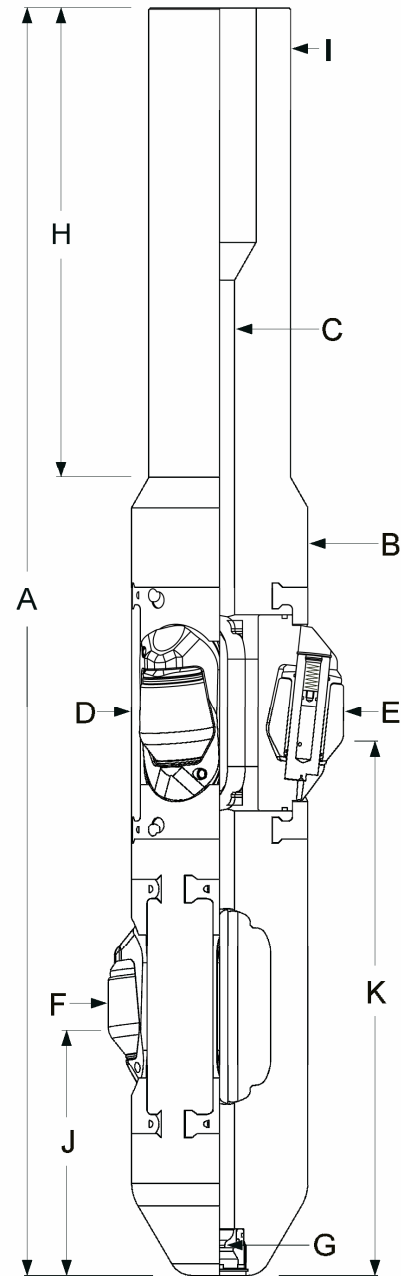
Redress Kit:	762-7001-090-003 / 00878085
Consumables Kit:	762-7001-090-005 / 00916629

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Technical Illustration & Dimensional Data

Dim.	Description	Size	
		mm	Inches
A	Overall Length	1080	42.520
B	Max Body O.D.	150.0	5.906
C	Body I.D.	25.4	1.000
D	Min Rollers O.D. (In)	152.4	6.000
E	Rear Rollers O.D. (Out)	210.8	8.301
F	Front Rollers O.D. (Out)	189.6	7.465
G	Nozzle I.D.	8.7	0.343
H	Box Conn. to Shoulder	400	15.748
I	Box O.D.	120.65	4.750
J	Length to Front Roller	210	8.268
K	Length to Rear Roller	460	18.110

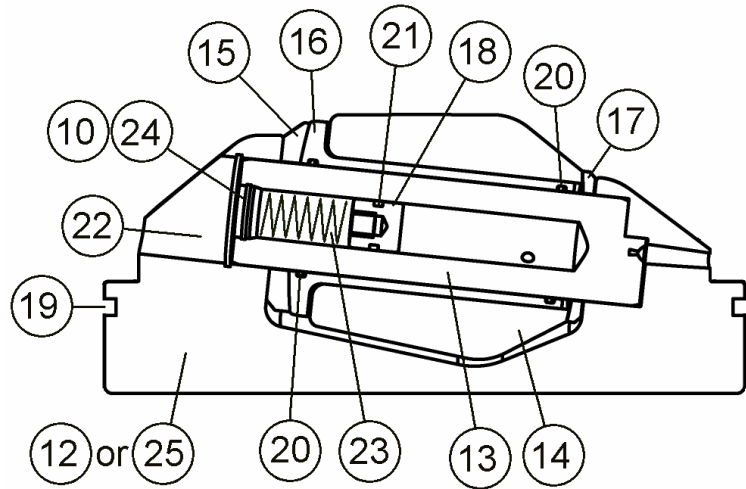
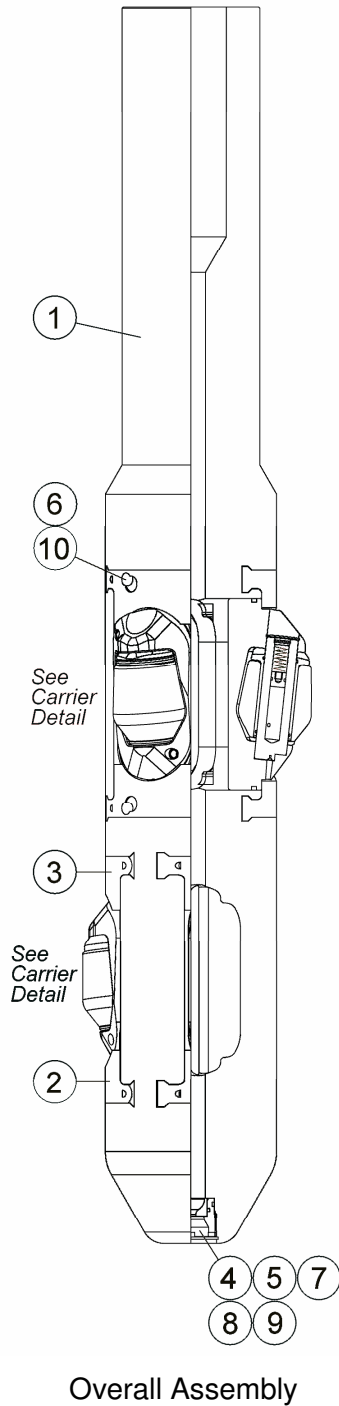


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Assembly Drawing



Prepared By :	watsonkx
Approved By :	clarkmx

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Assembly List

Item	Qty	Description	Legacy P/No.	Windchill P/No.	Materials	Part of Redress Kit (✓) and/or Consumables Kit (☑) and/or Bearing Redress Kit (☒)
1	1	Main Body	762-7000-173-414	00814841	AISI 4145	
2	6	Lower Retainer Plate	762-7000-140-831	00774431	Maraging St.	
3	6	Upper Retainer Plate	762-7000-141-831	00774432	Maraging St.	
4	1	11/32" Nozzle	572-5500-139-321	00760221	Tun.Carbide	✓
5	1	Nozzle Retainer	572-5500-138-412	00760064	AISI 4145	
6	12	3/8" 16UNC Shoulder Screw	733187	00733187	-	✓ ☑
7	1	O-Ring 127	769823	00769823	FKM-75	✓ ☑
8	1	O-Ring 122	769880	00769880	FKM-75	✓ ☑
9	1	Internal Circlip f/ 45mm Bore	MC-810	00762064	-	✓ ☑
10	12	Internal Circlip f/ 14mm Bore	MC-564	00323025	-	✓ ☑ ☒
11	1	Blank Nozzle (not shown)	572-5500-155-412	00878162	AISI 4145	✓
12	3	Inclined/Skewed Roller Carrier	762-7001-018-414	00828345	AISI 4145	✓
13	6	Bearing Pin	762-7001-032-831	00830110	Maraging St.	✓ ☒
14	6	Roller	762-7001-033-831	00830111	Maraging St.	✓ ☒
15	6	Carrier Thrust Bearing	762-7001-034-412	00830112	AISI 4145	✓ ☒
16	6	One Piece Radial Bearing	762-7001-035-135	00830113	Toughmet	✓ ☒
17	6	Front Washer	762-7001-036-135	00830115	Toughmet	✓ ☒
18	6	Grease Plug	762-7001-031-412	00828747	AISI 4145	✓ ☒
19	6	O-Ring 248	768814	00768814	HNBR-90	✓ ☑ ☒
20	12	O-Ring 024	768705	00768705	HNBR-90	✓ ☑ ☒
21	6	O-Ring 012	769759	00769759	FKM-75	✓ ☑ ☒
22	6	Internal Circlip f/ 28mm Bore	MC-816	00872701	-	✓ ☑ ☒
23	6	Coil Spring	CS-443	00873737	-	✓ ☑ ☒
24	6	M5 Flat Washer	MC-819	00896821	-	✓ ☑ ☒
25	3	Inclined/Skewed Roller Carrier	762-7001-017-414	00828344	AISI 4145	✓
26	1	Kluberalfa Grease	1136310	01136310	-	✓ ☑ ☒

Associated item

Qty	Description	Legacy P/No.	Windchill P/No.	Materials	Redress Kit (✓) Consumables Kit (☑) Bearing Kit (☒)
1	Jet Lube Grease	797126	00797126	-	✓ ☑ ☒

Expandable Sand Screens

Uncontrolled unless stamped with a RED "Q".

- 5 -

Prepared By :	watsonkx
Approved By :	clarkmx

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Assembly Instructions:

In addition to the parts listed above the following items will be required to complete assembly;

Kluberalfa HPX 93-1202 grease
 Kluberalfa XZ 3-1 solvent
 Standard grease gun c/w solid nozzle (f/Kluberalfa grease)
 Hydraulic hand operated press
 Brass grease plug setting tool (P/N-873792)
 Brass circlip assembly tool (P/N-873793)
 Grease plug tool
 Nozzle assembly tool (P/N-760484)
 Internal circlip pliers
 Black marker pen
 Latex gloves
 JetLube Grease (P/N-797126)

All parts should be cleaned thoroughly prior to assembly. It is imperative that the working area is clean from dust and debris.

1. Smear a thin layer of jet lube grease around the ID of the roller (item 14). Carefully press fit the radial bearing (item 16) inside the roller until the top of the radial bearing is fully flush with the top of the roller. It is essential that the radial bearing has been fully inserted inside the roller. This should be done using a press.
2. Clean the radial bearing (item 16), the carrier thrust bearing (item 15) and the front washer (item 17) with Kluberalfa XZ 3-1 solvent.
3. Pour XZ 3-1 solvent into the ID of the bearing pin (item 13) while covering both exit holes with fingers. Place thumb over top of pin and shake to remove any foreign debris. Empty pin of solvent and wipe down bearing pin (item 13).
4. Assemble carrier thrust (item 15) into carrier (item 12 or 25) ensuring that the largest chamfer remains at the top and apply a generous amount of HPX-93-1202 grease to the bearing face.
5. Apply Kluberalfa-HPX-93-1202 to O24-O-rings (2x item 20) and insert inside O-ring grooves at top and bottom of radial bearing (item 16).
6. Apply HPX-93-1202 grease generously to ID of radial bearing and outer face (item 16).
7. Insert roller (item 14) c/w radial bearing (item 16) inside the carrier, mating with the carrier thrust. Push together.
8. Smear front washer (item 17) with HPX-93-1202 and insert into assembly, chamfer facing outwards. If the fit is tight push gently upwards on inside of radial bearing (item 16) with finger.
9. Take bearing pin (item 13) and noting the orientation of the cut out on the front face, draw a horizontal line on the rear face adjacent with the cut. This will help aligning the pin for assembly.
10. Take grease gun and fill pin slowly with Kluberalfa-HPX-93-1202 grease until seen to flow through exit holes and pins are full. Care must be taken to ensure no air bubbles are trapped inside the pin (item 13).
11. Using a marker pen draw a line 5mm in front of the shoulder on the brass grease plug setting tool (873792). Assemble O-ring-012 (item 21) onto grease plug (item 18) and apply a small amount of HPX-93-1202. Insert the grease plug into the bearing pin (item 13) so the tapped hole is visible. Using the brass tool push the plug (item 18) down the ID of the pin until the drawn line is equal to the rear face of the shaft (the plug should now be set at a depth of circa. 30mm, slightly less than the maximum setting depth of the brass tool). As grease is expelled use to coat over OD of pin.
12. Align bottom of pin (item 13) with cut in bottom of carrier (item 12 or 25) and push pin into assembly. The pin should be pushed no more than half way in before step 13 is carried out.

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Assembly Instructions (Cont'd):

13. Insert brass grease plug setting tool (873792) inside pin (item 13) and using press, gently push the pin fully into the carrier (item 12 or 25). Only very light force should be needed to complete insertion. If any restriction is felt, re-align the pin using the pen marks visible. This is most readily achieved by pushing down and rotating the brass assembly tool, while rotating the roller in the same direction. Insertion is complete when the circlip groove in the carrier is visible at the end of the pin.
14. Insert spring (item 23) into ID of pin (item 13) behind grease plug (item 18). Take flat washer (item 24) and internal circlip (item 10) and secure spring inside pin. Use brass circlip assembly tool to hold spring and washer back while securing the circlip inside the pin.
15. Take circlip f/28mm bore (item 22) and secure pin inside carrier.
16. Assemble O-ring 248 (item 19) onto carrier after coating in jet lube grease.
17. Repeat steps 1-17 with remaining five carriers.
18. Clean and generously apply jet lube grease to carrier pockets and retainer plate cut-outs in tool main body (item 1).
19. Assemble carriers into the tool body (item 1) ensuring front and rear are positioned correctly.
20. Slide upper (item 3) and lower (item 2) retainer plates into tool body (item 1), securing carrier assemblies in place.
21. Fix retainer plates using shoulder screws (item 6) and circlips (item 10). (1 shoulder screw & 1 circlip for each retainer plate)
22. Insert (item 4) 11/32" nozzle or blank nozzle (item 11) inside nozzle retainer (item 5) (will depend on pressure test or RIH). Smear O-rings 127 & 122 with jet lube grease and assemble in O-ring grooves in nozzle retainer.
23. Grease threads and assemble nozzle into the front of the main body (item 1).
24. Tighten nozzle into tool using nozzle assembly tool.
25. Insert circlip (item 9) into place, which covers the nozzle assembly.

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Dis-Assembly Instructions:

Tools required

- Sliding hammer (x2)
- Pin punch
- Hammer
- Internal circlip pliers
- Grease-plug tool
- Cleaning solvent
- Nozzle assembly tool

1. Remove circlips (item 10) from upper and lower retainer plates (items 2 & 3).
2. Remove shoulder screws (item 6) from retainer plates and slide retainer plates out.
3. Screw one sliding hammer into the top of the carrier (item 12 or 25). Simultaneously screw the other sliding hammer into the bottom of the carrier. Work carrier out of pocket by sliding hammers back and forth in unison with equal force applied.
4. Unscrew sliding hammers.
5. Remove 248-O-ring (item 19).
6. Remove circlip (item 22) from inside carrier behind bearing pin (item 13).
7. Using brass circlip assembly tool (873793) to prevent recoil, remove circlip (item 10), washer (item 24) and spring (item 23) from bore of bearing pin (item 1b).
8. Remove bearing pin (item 13) from assembly by inserting punch through hole in carrier (item 12 or 25) and hammering out. Care should be taken to prevent damaging the ID of the radial bearing (item 16) during this operation.
9. Remove front washer (item 17), roller (item 14) c/w radial bearing (item 16) and carrier thrust (item 15) from assembly.
10. Screw grease plug tool into grease plug (item 18) and push fully down, emptying chamber of grease. Remove grease plug by pulling tool out of bearing pin (item 13). Remove 012 O-ring (item 21).
11. Remove 024 O-rings (item 20) from internal radial bearing.
12. Repeat steps 1-11 with all remaining carriers.
13. Remove circlip then nozzle retainer (item 4) using nozzle assembly tool.

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Appendix A – Tooling History Documentation

The following documents are to be used to create the **Tooling History Folder** for the **ESS Expansion Tool**.

1. Tooling History Folder Cover
2. Index
3. Assembly Check Sheet
4. Post Assembly Dimension Check Sheet
5. Inspection Criteria / Critical Component Dimension Check Sheet
6. Storage, Care and Maintenance Guidelines
7. Rental Tool Maintenance Record Form
8. Pressure Test Procedure
9. Rental Tool Job History

Prepared By :	watsonkx
Approved By :	clarkmx



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TOOLING HISTORY FOLDER

TOOL IDENTIFICATION NUMBER

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EQUIPMENT DESCRIPTION

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TOOLING HISTORY FOLDER

INDEX PAGE

1. Tooling History Front Page

2. Index Page

3. Assembly Check Sheet

4. Assembly Dimension Sheet

5. Maintenance Schedule / Inspection Acceptance Criteria

6. Maintenance and Storage Guidelines

7. Tooling Maintenance Record

8. Test Certs (Eg - Pressure, Torque, Load Test Charts and Test Procedures)

9. Run History Records

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Assembly Check Sheet

Tool Identification No.	Tool Description	Customer	Location
ETU-ESS	7" ESS Expansion Tool		
Assembly No. / Legacy No.	Technical Unit No. & Rev	Field / Well No.	Date
JDE No. 00873733 Legacy No. 762-7001-000-003	873733, Rev		

Item	Description	Completed By	
		Initials	Date
1	INITIAL BUILD - ALL COMPONENTS PROVIDED ARE AS PER THE ASSEMBLY BOM IN THE TECHNICAL UNIT		
2	REDRESS - ALL REDRESS COMPONENTS PROVIDED ARE AS PER THE REDRESS BOM IN THE TECHNICAL UNIT		
3	TOOL BUILT UP / REDRESSED AS PER ASSEMBLY INSTRUCTIONS IN TECHNICAL UNIT		
4	ALL CARRIER CIRCLIPS ARE CORRECTLY INSTALLED		
5	ALL RETAINER PLATE CIRCLIPS ARE CORRECTLY INSTALLED		
6	PRESSURE TEST IS CONDUCTED AS PER TEST PROCEDURE DETAILED IN TECHNICAL UNIT		
7	CHECK 11/32" NOZZLE, RETAINER AND CIRCLIP ARE CORRECTLY INSTALLED AFTER PRESSURE TESTING		
8	PRESSURE TEST CHART IS STAMPED WITH ALL RELEVANT TEST DATA (INCLUDING TOOL NUMBER, TEST PERSONNEL AND DATE) AND IS ADDED TO TOOLING HISTORY FOLDER		
Additional Comments			

Assembled / Prepared By		Checked By	
Name		Name	
Signature		Signature	



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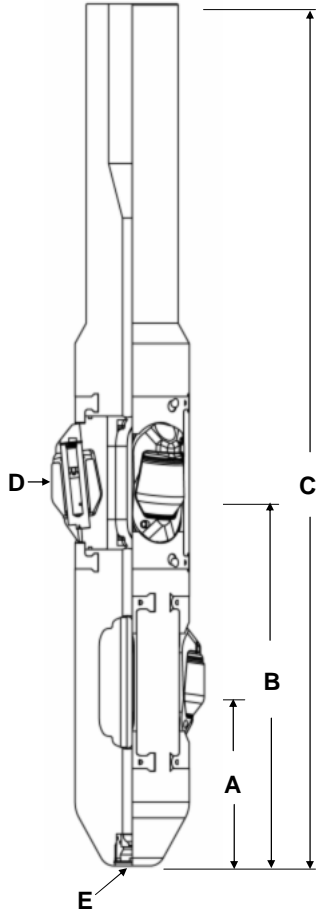
ESS Expansion Module Post Assembly Dimension Check Sheet

ESS Expansion Tool Unique Tooling Number	ETU-ESS-
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General Information

Part Number	JDE No. 00873733
Legacy Part Number	762-7001-000-003
Material (Body & Carriers)	WS-414 (135ksi yield)
Test Procedure No.	EXP-7000-015P

Customer	
Field / Well	
Date	



Dimensions (inc. any M/U Loss)	THEORETICAL		ACTUAL	PERFORMED BY
	Metric (metres unless stated)	Imperial (ft unless stated)	Units (Metric or Imperial)	
A ESS nose to first rollers	0.207	0.679		
B ESS nose to second rollers	0.457	1.499		
C OAL Assembly	1.080	3.543		
D Maximum OD (Across Rollers)	152.4 mm	6.000"		
E Nozzle Size Fitted	-	11/32"		

NOTES / COMMENTS

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**Inspection Criteria
for ESS Expansion Tool**

Tool Identification	Unique Serial Number	Windchill Number	Legacy Number
	ETU-ESS-	873733	762-7001-000-003

Item	Description	Legacy P/No.	Windchill P/No.	Inspection Type*	Pass / Fail	Comment(s)	Inspected By	Date
1	Bearing Pin	762-7001-032-831	830110	A + C				
2	Carrier Thrust Bearing	762-7001-034-412	830112	A + C				
3	One Piece Radial Bearing	762-7001-035-135	830113	A + C				
4	Front Thrust Washer	762-7001-036-135	830115	A + C				
5	Main Body	762-7000-173-414	814841	A + B				
6	Rear Carrier	762-7001-017-414	828344	A + B				
7	Front Carrier	762-7001-018-414	828345	A + B				
8	Roller	762-7001-033-831	830111	A + B + C				
9	Lower Retention Plate	762-7000-140-831	774431	A + B				
10	Upper Retention Plate	762-7000-141-831	774432	A + B				
11	Nozzle Retainer	572-5500-138-412	760064	A				
12	Grease Plug	762-7001-031-412	828747	A				

Inspection Type*	A: Visual Inspection – (Threads, Body & Critical Areas for scores, corrosion, damage, etc)	B: Magnetic Particle Inspection (Entire Component)	C: Dimensional Inspection (See Dimension Check Sheet on next page)
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Note: Photographs to be taken of all areas showing wear or damage and to be included in Tooling History Folder for reference



**Critical Component Dimension Check Sheet
for ESS Expansion Tool**

Tool Identification	Unique Serial Number	Windchill Number	Legacy Number
	ETU-ESS-	873733	762-7001-000-003

Item	Description	Dimension to check	Machined size	Max Allowable Size	Min Allowable Size	Qty to check	Qty Pass	Qty Fail
1	Bearing Pin	OD (3 places equi-spaced along bearing length)	27.920	27.990	27.900	6		
2	Carrier Thrust Bearing	ID (2 @ 90°)	28.20	28.50	28.00	6		
		Thickness (2 @ 90° measured between kidneys)	6.55	6.75	6.10	6		
3	One Piece Radial Bearing	Overall Length	71.75	72.75	71.25	6		
		51.00 mm OD (2 @ 90°)	51.00	51.20	50.80	6		
		33.205 mm OD (2 @ 90°)	33.205	33.225	33.185	6		
		ID (2 @ 90°) approx 10-20mm in from each side	28.050	28.090	28.030	6		
4	Front Thrust Washer	Thickness (2 @ 90°)	3.50	3.60	3.30	6		
8	Roller	Roller Crown OD (2 @ 90°)	64.05	64.72	63.12	6		

All dimensions in mm

Notes:

- 1. All components of tool are required to be dismantled, cleaned, dried and have service parts removed prior to inspection process.*
- 2. Should any component fail MPI, then the Expandables GBU in Aberdeen should be notified with full details. After discussion with Aberdeen, criteria may be given for possible rework and inspection to components. If rework is not possible, then component must be replaced.*
- 3. A Failed component from visual inspection is not necessarily scrap. Further dimensional analysis should be conducted as per the detailed Engineering drawing and / or advice sought from the Expandables GBU in Aberdeen.*

Comments:

Note: Photographs to be taken of all areas showing wear or damage and to be included in Tooling History Folder for reference



Storage, Care and Maintenance Guidelines

The following steps are presented as guidelines to enhance the life of all equipment that is run in the field and retrieved to surface for redress. Failure to follow these guidelines may result in severe corrosion of critical areas of the tool, which would likely deem it unfit for further use.

Note: Where grease is stated, the recommended type is 'Jet-Lube Alco EP 73 Plus', part number 797126. This is silicon based grease selected for its multi-functional properties, and is instantly recognisable by its dark red colour.

Workshop Build

Apply grease to relevant areas as per tool assembly instructions.

After pressure testing, further grease should be added to any areas with moving components

All expansion tools should have pocket areas covered with denso tape.

Where applicable, thread protectors should be fitted.

Any exposed elastomers should be covered with UV protective packaging, and clearly identified as seals for handling awareness.

Wrap tool inside Lamiflex or equivalent protective packaging to prevent water ingress.

After Any Transportation

Ensure tool is cleaned free of any dirt.

Visually inspect for any transit damage, corrosion, water/sand ingress, perished seals, etc.

After Field Use

Strip tool completely – remove all elastomers.

Wash thoroughly to ensure removal of all traces of well fluids.

Dry all components thoroughly, paying particular attention to sealing faces and o-ring grooves

Apply grease liberally to threaded areas and all sealing surfaces – for expansion tool bodies, this should be applied for the entire depth of the carrier pockets.

It is recommended to re-build the entire tool assembly without elastomers.

All expansion tools should have pocket areas covered with denso tape.

Where applicable, thread protectors should be fitted.

If possible, wrap tool inside Lamiflex or equivalent protective packaging to prevent water ingress.

Storage

Tools and all components which have been suitably greased and packaged should be stored in a clean and dry environment, off the ground, and out of direct sunlight.

In a desert environment packaging should be sealed to prevent sand ingress.

In a high humidity environment, the packaged tool should also be covered to protect against water ingress.

Shipping

For transportation, tools should be wrapped inside suitable protective packaging to prevent water ingress.

All packaged equipment must be held securely inside the shipping crate/box/container to avoid damage.

Warning: This information is controlled and any printed version, unless suitably endorsed by a controlling authority, is deemed as uncontrolled and should be compared with the source information at time of use to ensure no revisions have been implemented.



Rental Tool Maintenance Record Form

Weatherford Unique Tool Number	Assembly Number
ETU-ESS-	JDE No. – 873733 Legacy No. – 762-7001-000-003
Tool Description	Initial Record Completed By (Signature & Date)
7" ESS Expansion Tool	

To be Completed by Qualified Workshop Technicians Servicing Equipment

DATE	DETAILS OF WORK PERFORMED, PARTS USED, DRIFT SERIAL NUMBER USED	WO No.	WORK CARRIED OUT BY/VERIFIED BY (SIGNATURE)

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Rental Tool Maintenance Record Form

DATE	DETAILS OF WORK PERFORMED, PARTS USED, DRIFT SERIAL NUMBER USED	WO No.	WORK CARRIED OUT BY/VERIFIED BY (SIGNATURE)

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Test Procedure

Subject:	Pre-Expansion Pressure Test of 7" ESS Rotary Expansion Tool.			No:	EXP/7000/015P
Prepared By:	Eng Approval:	Test Lab Approval:	HSE Approval:	Pg:	1 of 2
Iain Cruickshank	Mike Clark				
Date: 03/06/08	Date: 03/06/08	Date:	Date:	Rev:	C

Objective

This procedure details the preparation and pressure testing of the ESS Rotary Expansion tool before service application. The purpose of this test is to verify the capability of the carrier o-rings to retain a required pressure for a specified time (3,300psi/10mins).

Test Equipment

7.0" ESS Rotary Expansion tool:	762-7001-000-003	(00873733)
Test Cap W/NPT Port	762-7000-177-410	(00817325)
Teflon Seal	905574	(00905574)
Steel Ball 7/8" Diameter	SB-030	(00455543)
(supplied as part of tool assembly and in redress kit)		
OR		
Pressure Test Assembly kit	572-5500-000-044	(01163240)
Pressure Test Pit		

NOTE: The Pressure Test Assembly kit can be used as an ALTERNATIVE to the Steel Ball. The Steel Ball may still be used when desired.

Pressure Test

Steel Ball Procedure

1. Insert Teflon seal into the box of the tool.
2. Make up test cap to tool.
3. From the nose section of the tool and depending on type of nozzle fitment, remove Circlip and (a) Nozzle or (b) Nozzle assembly.
4. Using a 7/8" diameter ball (SB-030) and with the use of any fine grinding paste, dope, grease, tape, etc... lap the ball into the nozzle seat as close to the centre of the nozzle as possible. Next, re-fit the (a) nozzle back into the tool or (b) nozzle back into the nozzle assembly and screw the nozzle assembly (complete with o-rings) back into the tool, and then fix circlip to nozzle / nozzle assembly.
5. Insert steel ball (SB-030) inside tool and locate into the nozzle seat.
6. Attach all fittings required for pressure application, and pick up the tool assembly using a suitable crane or apparatus, and orient the tool so it is vertical, with box end up, and nose end down. This will ensure that the ball is seated against the nozzle.

SAFETY PRECAUTION: All personnel should be removed from the test area.

7. Slowly build pressure up to 500psi to ensure ball is seated correctly. If any leak is noted, bleed-off pressure and inspect tool for signs of where leak is occurring. Repair if required. Set-up to re-test.
8. If no leakage is observed, gradually increase pressure to 3,300psi, and hold for 10 minutes.



Weatherford

Test Procedure

Subject:	Pre-Expansion Pressure Test of 7" ESS Rotary Expansion Tool.			No:	EXP/7000/015P
Prepared By:	Eng Approval:	Test Lab Approval:	HSE Approval:	Pg:	2 of 2
Iain Cruickshank	Mike Clark				
Date: 03/06/08	Date: 03/06/08	Date:	Date:	Rev:	C

NOTE: Maximum allowable pressure drop over 10 minutes = 5% (165psi)

9. On completion of test, gradually release pressure from the tool, lower tool to horizontal and remove all test fittings.
10. Without breaking any other connections, remove steel ball from the tool.
11. The ESS Tool is now ready to be used for expansion runs. The circlip or the nozzle should not be removed until the expansion run is complete.

Pressure Test kit Procedure

1. Insert Teflon seal into the box of the tool.
2. Make up test cap to tool.
3. Refer to Drawing 572-5500-000-044 for Test Kit assembly instructions.
4. Attach entire cable access kit (01163316) to the Pressure Test assembly and feed the end of the cable access kit down the box end of the expansion tool until the cable emerges from the nose end of the tool.

NOTE: The carriers on the tool must be at the "out" position to allow the ball to travel up the body.

5. Begin to pull the cable access kit through the tool from the nose end until the ball locates itself at the ball seat.
6. Detach the cable access kit from the Pressure Test assembly, slide the adjustment nut (01128234) over the end of the pressure test assembly until it meets with the threaded section of the assembly rod.
7. Tighten the adjustment rod onto the assembly until it is almost hand tight.

NOTE: Do NOT over tighten the adjustment nut as this could result in the ball becoming detached from the rest of the assembly fixture.

8. Using suitable lifting apparatus hold the tool vertically and fill with inhibited water.
9. Attach pressure line and purge system of any air.

SAFETY PRECAUTION: All personnel should be removed from the test area.

10. Slowly build up pressure to a maximum of 500psi. If any leak is noted, bleed off pressure and inspect for signs of where the leak is occurring. Repair any leak if required and set-up to re-test.
11. If no leakage is observed, gradually increase pressure to 3300psi and hold for 10 minutes.

NOTE: Maximum allowable pressure drop over 10 minutes = 5% (165psi)

12. On completion of test, gradually release pressure from the tool and remove all test fittings.
13. If tool fails pressure test, strip down, redress and re-test.

Tested By; Date;

Witnessed By; Date;



Rental Tool Job History

UNIQUE TOOLING NUMBER	TOOL DESCRIPTION
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JOB NUMBER	COMPLETION DATE	CUSTOMER	FIELD	WELL	COMPLETION TYPE	COMPLETION SIZE	COMPLETION LENGTH	TD	TVD	EXPANSION LENGTH	FLUID TYPE	FLUID WEIGHT	ADDITIONAL DATA

QAD-290
Rev 2

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