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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6: E21B 34/04		A1	(11) International Publication Number: WO 96/35857
			(43) International Publication Date: 14 November 1996 (14.11.96)
(21) International Application Number: PCT/GB96/01115		(81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).	
(22) International Filing Date: 10 May 1996 (10.05.96)		Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	
(30) Priority Data: 9509547.7 11 May 1995 (11.05.95) GB			
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SG 9612316-1

(54) Title: COMPLETION SUB-SEA TEST TREE

(57) Abstract

A dual bore completion sub-sea test tree (10) is described which has main bore (18) and an auxiliary or annulus bore (20). Two identical ball valves (22, 24) are located in series within the main bore (18) and two smaller identical ball valves (26, 28) are located in series in the annulus bore (20). The ball valves (22, 24, 26, 28) are operated by respective independent control lines acting on the operating mechanisms of the respective valves within the test tree (10) to move the valves between open and closed positions to allow or deny communication through the respective bores (18, 20). The completion sub-sea test tree (10) provides isolation of the main bore (18) and/or the annulus bore (20) when required by application of hydraulic pressure to assist closure to spring forces sufficient to cut coil tubing in the event of an emergency situation requiring rapid disconnect. Hydraulic communications across the tree disconnect is achieved using independent hydraulic stabs which can selectively isolate or allow the hydraulic systems to vent when disconnected. A helical guide (82) and axial slot (81) are provided on the surface (16, 83) of the housing to engage with a pin (84) on a BOP stack to orientate the tree (10) correctly to a tubing hanger (86).

