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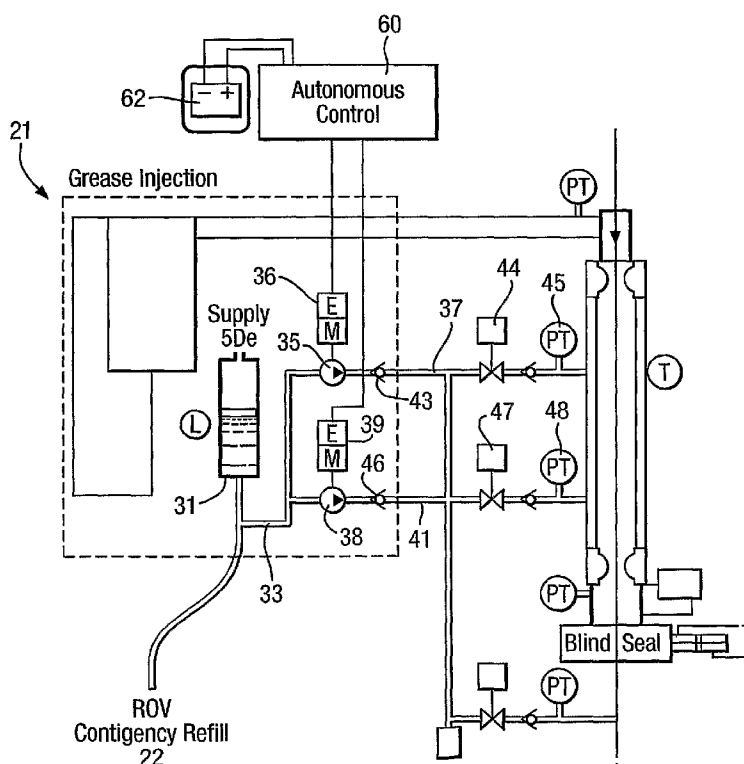
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[Continued on next page]

(54) Title: SUBSEA INTERVENTION SYSTEM

Fig.3.



(57) Abstract: There is described grease injection system for a subsea lubricator where the grease injection system is a module (21) attached to the pressure control head (PCH) and is hoisted and lowered together with the PCH. In one aspect of the invention the module (21) can operate when it is disconnected from the main control system. In another aspect of the invention grease pressure is maintained at a level only slightly above the well pressure so that grease usage is minimized.



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B. FIELDS SEARCHED

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E21B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2 233 365 A (OTIS ENG CO [US]) 9 January 1991 (1991-01-09) the whole document	1-22
A	EP 0 959 225 A (ELMAR SERVICES LIMITED [GB] ELMAR SERVICES LTD [GB]) 24 November 1999 (1999-11-24) the whole document	1-22



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Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2233365	A	09-01-1991	BR 9003109 A	27-08-1991
EP 0959225	A	24-11-1999	AT 310894 T	15-12-2005
			AU 752338 B2	19-09-2002
			AU 3014199 A	25-11-1999
			DE 69928469 D1	29-12-2005
			DE 69928469 T2	03-08-2006
			GB 2337545 A	24-11-1999
			NO 992394 A	22-11-1999
			SG 90051 A1	23-07-2002
			US 6305471 B1	23-10-2001