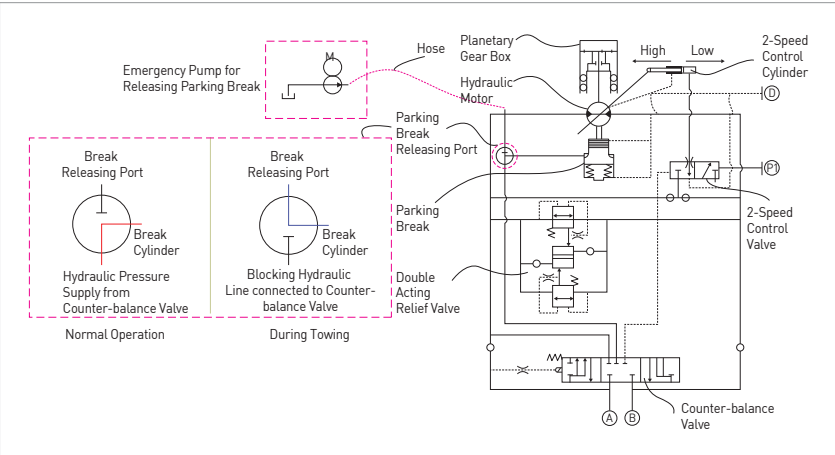


Parking Brake Clearing Apparatus for Excavator Track Motor

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⇒ Technology for simple release of parking brake by switching the direction of the excavator parking brake with the 3-way valve and supplying a small flow



Client / Market

- Construction machinery (excavator, crane, etc.) manufacturer
- Track motor (track drive unit) manufacturer

Necessity of this Technology

- When an excavator and crane breaks down, it has to be towed for repair. For towing, the parking brake has to be released, but when there is an issue (breakdown) in the engine, pump, valve, pipe and signal device, pressure is not supplied to the parking brake that it cannot be released.
- To tow an excavator that broke down, multiple bolts on the casing cover of the track motor reducer are loosened and the gear is extracted from the epicyclic gear reducer, but this is very complicated and time consuming.
- The brake pressure needs to be released, and it has to work with a simple operation.

Technical Differentiation

- Parking brake is released with a simple structure.
- 80% of the reducer disassembly time is saved.
- 90% of the breakdown caused by reducer disassembly is reduced.

DESIRED PARTNERSHIP

Technology Transfer

Licensing

Joint Research

Other

TECHNOLOGY READINESS LEVEL [TRL]

Research, basic explanation

Project concept or idea development

Technology idea verification

Prototype development

Trial product production/ evaluation in similar environment

Pilot field demonstration

Development and optimization of commercial model

Commercial product demonstration

Mass production and initial market launch

- With a simple structure design, operation is easy by installing a 3-way valve spool in the track motor brake flow path and using a hex key wrench.
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Excellence of Technology

- Analysis of the Friction Characteristics of Transmission Clutch of Wheel Excavator (The Journal of Korean Tribology Society)
- A New Approach to the High Efficiency of Hydraulic Excavator (Journal of Drive and Control)
- A Study of the Life Test of Hydraulic Pump Driving Gear Box for the Large Excavator (Journal of the Korean Society of Marine Engineering)
- Award: – 2012 Ministry of Knowledge Economy Citation (Man of Merit in Industrial Technology Promotion)
– 2013 Korea Research Council for Industrial Science and Technology Chairman’s Citation (Excellent Research & Contribution to Science and Technology Advancement)
- Career of developer: Working as a research engineer specializing in the hydraulic field from July 1987 to present

Image of Excavator and Track Motor

Cross Section of Parking Brake

Operation of Parking Brake Release Device

Normal Operation

During Towing

Current Intellectual Property Right Status

PATENT

- Release Device of a Parking Brake for the Track Motor of an Excavator (KR1464518)
- Quick Coupler for Excavator (KR1258567, KR430064, KR3747178, US006513268B2)
- Variable Device of Swash Plate Type Hydraulic Piston Motor for Track Drive Unit of the Excavator (KR1058418)