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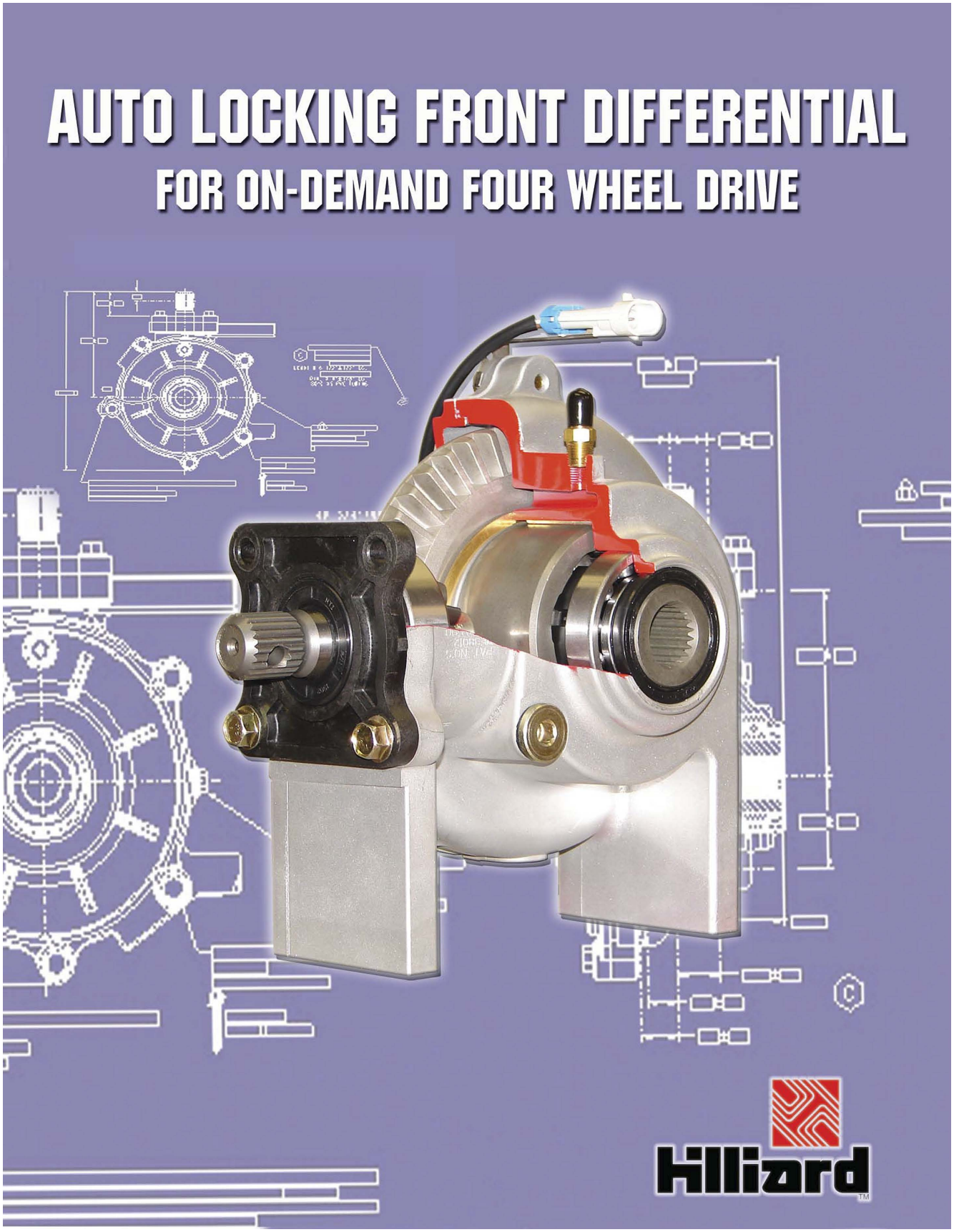
AUTO LOCKING FRONT DIFFERENTIAL

FOR ON-DEMAND FOUR WHEEL DRIVE



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Model for counterclockwise input

Model for clockwise input (cutaway view)

Basic Operation

The Hilliard Front Drive System is an electro-mechanically activated bidirectional overrunning clutch. When 12 volts of power are sent via the 4WD switch, the unit is activated to engage both front wheels instantaneously, whenever the rear wheels lose traction. The clutch also releases or overruns automatically the instant the rear wheels regain traction. Because torque is transmitted to both front wheels, it is a “true” 4WD. The overrunning characteristics of this system allow for an on-demand 4WD engagement and steering ease.

Specifications

Ratio	3.82:1 (Input:Output)
Fluid Capacity	150ml (5 oz.) Mobil 424 or Mobil fluid LT
Voltage	12 Volts
Coil Resistance	24.7 ohms to 27.3 ohms (at 20º C/68º F)
Input & Output Cover Bolt Torque	17 ft.lbs.
Mounting Bolt Torque	32 ft.lbs.
Oil Fill Plug Torque	10 ft.lbs.
Oil Drain Plug Torque	9 ft.lbs.
External Input Shaft Spline	22 Tooth, 24/48 Pitch, Fillet Root Side Fit, Special Class 7
Internal Output Shaft Spline	22 Tooth, 24/48 Pitch, Fillet Root Side Fit, Special Class 7
Continuous Torque Rating (input)	145 ft.lbs.

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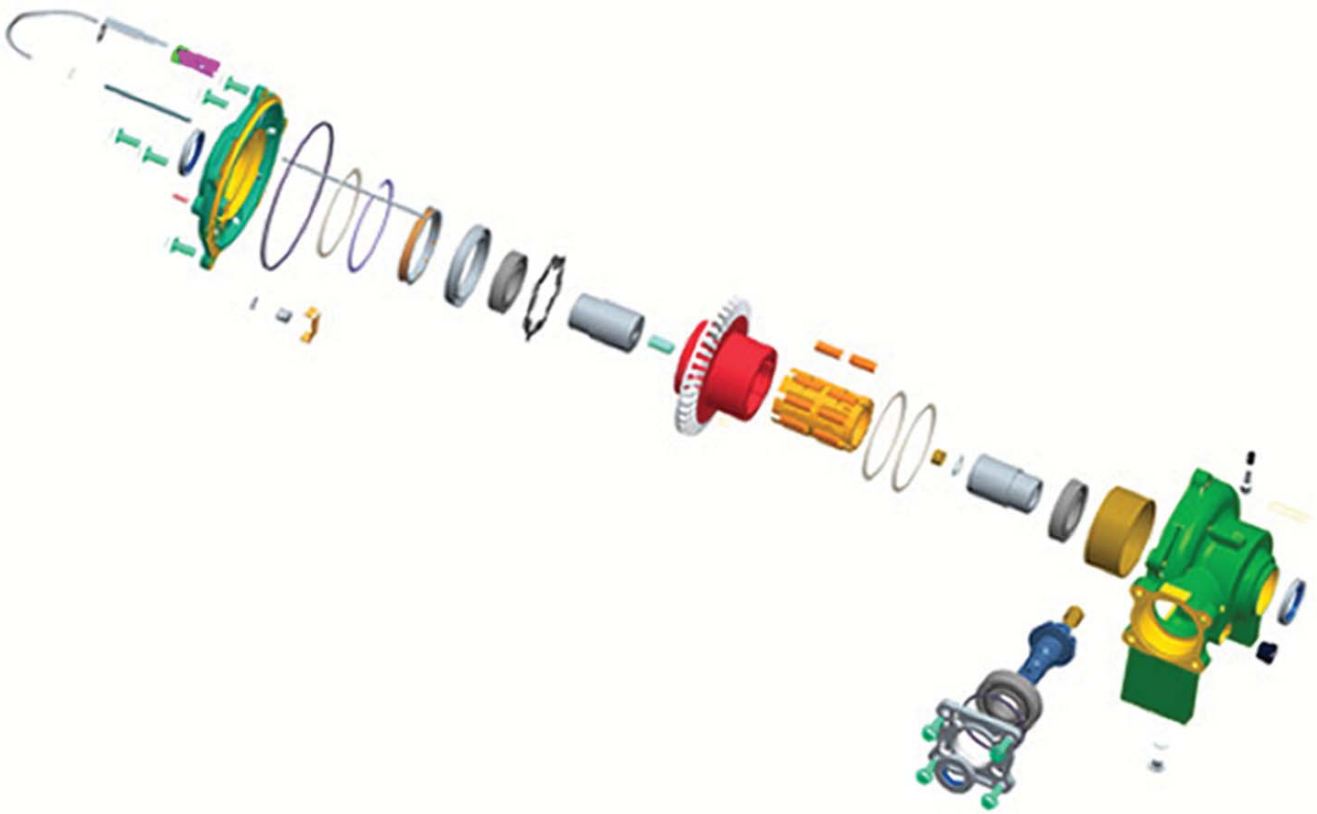
Features and Benefits

- Acts like a locking differential when engaged, but like an open differential when cornering.
- Offers positive engagement of both front wheels in forward and reverse as a differential package.
- Automatic engagment on the fly -- no shift linkages required.
- Electric on/off engagement (vehicle can be operated in 2WD or 4WD by the push of a button).
- Contact The Hilliard Corporation for available torque capacities and gear ratios.

Horsepower Range: 10-65

Applications: Utility vehicles, commercial mowers, all-terrain vehicles

Exploded view



Bidirectional Clutch

- Proven roller-ramp design
- Precision-machined components
- Constant drive maintained while engaged
- No manual linkages
- Positive engagement; automatic disengagement
- Available as a whole clutch assembly or as a clutch mechanism

Bi-Directional Clutch Mechanism

Bi-Directional Clutch Assembly

Auto Lok® for Primary Drive Axle

- Self-contained: No levers or mechanisms to engage or disengage
- Locks and unlocks automatically
- Positive back drive through both wheels
- No ratcheting or frictional slip during turning
- No friction plates to wear or replace
- Allows the rear outside wheel to overrun in a turn during an acceleration and the rear inner wheel to underrun during a deceleration

The Hilliard Corporation reserves the right to change specifications and dimensions at any time. Please contact the factory for the most current information.

THC-500-09/06

Hilliard™ MOTION CONTROL DIVISION