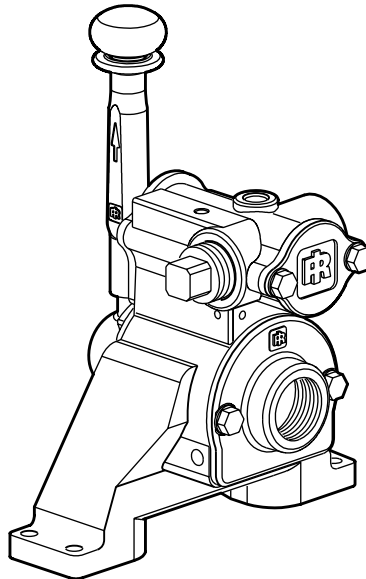


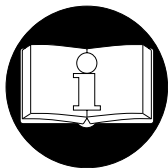
PARTS, OPERATION AND MAINTENANCE SUPPLEMENT

force **5**TM **AIR WINCHES**

K5C CONTROL VALVE REPLACEMENT FOR K5B CONTROL VALVE



(Dwg. MHP2037)



READ THIS UPDATE BEFORE USING THIS PRODUCT. This supplement contains important information covering options and redesigned components not covered in original manual. Make this supplement available to all persons responsible for the installation, operation and maintenance of this product.

Use this supplement in conjunction with the appropriate Parts, Operation and Maintenance Manual.

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November 1999
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INGERSOLL-RAND
MATERIAL HANDLING

OPERATION

Winch Mounted Air Throttle

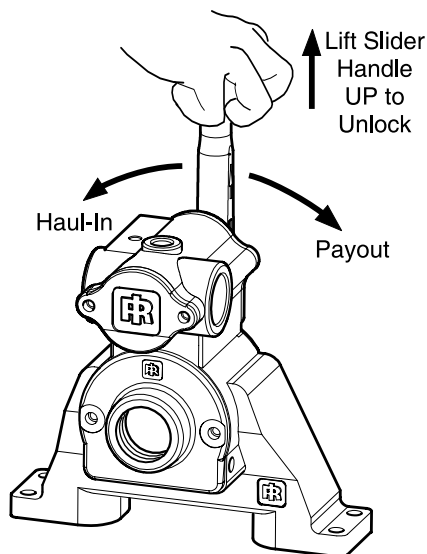
Refer to Dwg. MHP1809 on page 2.

The spring loaded, live air, manual control throttle valve mounts to the rotary housing.

To operate control valve, place palm of hand on control knob and wrap fingers around flange of sliding handle. Squeeze fingers, lifting sliding handle up to unlock control lever. Shift control lever in desired direction to payout or haul-in wire rope.

As viewed from the air motor end, move the control throttle handle to the right (clockwise) to payout wire rope and to the left (counterclockwise) to haul-in wire rope. Avoid sudden movements of the control valve to ensure smooth operation of the winch.

When released, handle will return to the neutral or center position. The sliding handle will drop down to engage and lock the control handle in place.

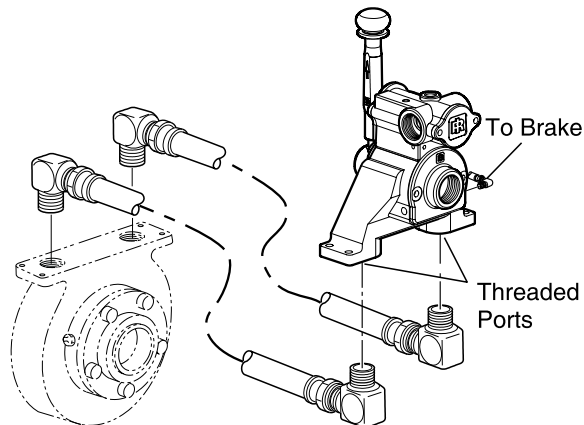


(Dwg. MHP1809)

Remote Mounted Air Throttle

Refer to Dwg MHP2043 on page 2.

The K5C control valve may also be remote mounted. The base ports in control valve are threaded to accept fittings for air line connections. Control valve is secured using the four mounting holes.



(Dwg. MHP2043)

Underwood Operation (optional feature)

Underwood operation is where wire rope haul-in or payout is off the bottom of drum. This is a special operation and requires a winch specifically designed for this usage.

Underwood operation requires a Reverse Bias valve installed in the control valve.

Control valve operation will be opposite as shown in MHP1809 on page 2. Lifting slider handle UP and pushing forward will Haul-In, pulling reward will Payout.

MAINTENANCE

K5C Control Valve Disassembly

Refer to Dwg. MHP2036 on page 4.

Handle Removal

1. Carefully pry off plug (935).
2. Remove capscrew (901) and washer (902).

NOTICE

• Observe spring (937) connection during disassembly. This spring is under tension and is required to return handle to neutral position.

3. Carefully pull handle assembly from reverse valve (943). Remove spring (937).
4. Using a suitable wrench, remove handle post (932) from valve handle (936). Separate spring (933) and slide handle (934).
5. Separate handle post (932) and knob (931).

Reverse Valve Removal

1. Remove capscrews (938), (925) and washers (924) from seal bracket (939). Remove seal bracket from housing. Remove and discard 'O' rings (941) and (942).
2. Remove capscrews (901) and washers (902) from exhaust flange (955). Remove flange from housing. Remove and discard 'O' ring (942).
3. Push reverse valve (943) together with valve bushing (944) and ball (916) out exhaust flange side of housing.

NOTICE

• Dowel pin (945) allows the bushing to be removed only from the exhaust flange side of housing. Ball (916) retains reverse valve (943) in bushing (944).

Piston Removal

1. Remove capscrews (901) and washers (902) from piston cover (919). Remove cover and discard gasket (918).
2. Remove capscrews (901) and washers (902) from poppet cover (903). Remove cover and discard gasket (904).

- Remove the following items from housing poppet bore: spring (905), poppet cap (906) and poppet seal (907), discard gasket.
- Using finger, from poppet side, push piston out of housing. Remove 'O' rings (921) and (923) and discard.

Pilot Valve Removal

Remove pilot valve assembly (items 909, 911 and 913 through 915) as an assembly.

- Remove plug (912).
- Pilot seat (914) is threaded into valve housing (917). Using a large flat tipped screwdriver, engage slots in pilot seat and remove.
- Using finger pressure, hold pilot rod in pilot seat. Remove retainer ring (915).
- Separate spring (909) and pull pilot rod out of pilot seat. Remove and discard 'O' rings (911).

K5C Control Valve Assembly

Refer to Dwg. MHP2036 on page 4.

Piston Assembly

- Lubricate and install 'O' rings (921) and (923) on piston (922).
- Insert assembled piston into valve housing (917) from handle side.
- Secure with gasket (918), piston cover (919), washers (902) and capscrews (901).
- Place poppet seal (907) into poppet cap (906). Place this assembly into valve housing and seat on piston (922).
- Place spring (905) over this assembly.
- Secure with gasket (904), poppet cover (903), washers (902) and capscrews (901).

Reverse Valve Assembly

- Insert reverse valve (943) into bushing (944) with ball slot oriented UP. Apply grease to ball (916) and insert into ball slot of reverse valve (943) through bushing (944).
- Insert valve bushing (944), reverse valve (943) and ball (916) into valve housing from exhaust flange side, ensuring that groove in bushing is aligned with pin (945).
- Lubricate 'O' ring (942) and place it in groove in exhaust flange (955).
- Secure exhaust flange (955) to valve housing using capscrews (901) and washers (902).
- Insert 'O' ring (941) into seal bracket (939). Lubricate 'O' ring (942) and place into groove in seal bracket.
- Place seal bracket over end of reverse valve. Using finger pressure, press until seal is seated on reverse valve and seal bracket is seated on valve housing. Secure with washers (924) and capscrews (925) and (938).

Pilot Valve Assembly

Pilot valve assembly (items 909, 911 and 913 through 915) are installed as an assembly.

- Lubricate and install 'O' rings (911) on pilot rod (913).
- Insert this assembly into pilot seat (914).
- Using fingers, keep pilot rod located fully in pilot seat and place spring (909) over end. Secure with retainer ring (915).
- Place pilot valve assembly into valve housing. Use a large flat tipped screwdriver to engage slots in pilot seat and tighten.
- Insert plug (912) and tighten.

Handle Assembly

- Grease valve handle (936) shaft; place slide handle (934) over valve handle (936). Insert spring (933) into slide handle (and over valve handle).
- Screw handle post (937) over this assembly and tighten.
- Place knob (931) on handle post (932) and tighten.
- Place spring (937) over reverse valve handle end in seal bracket.

NOTICE

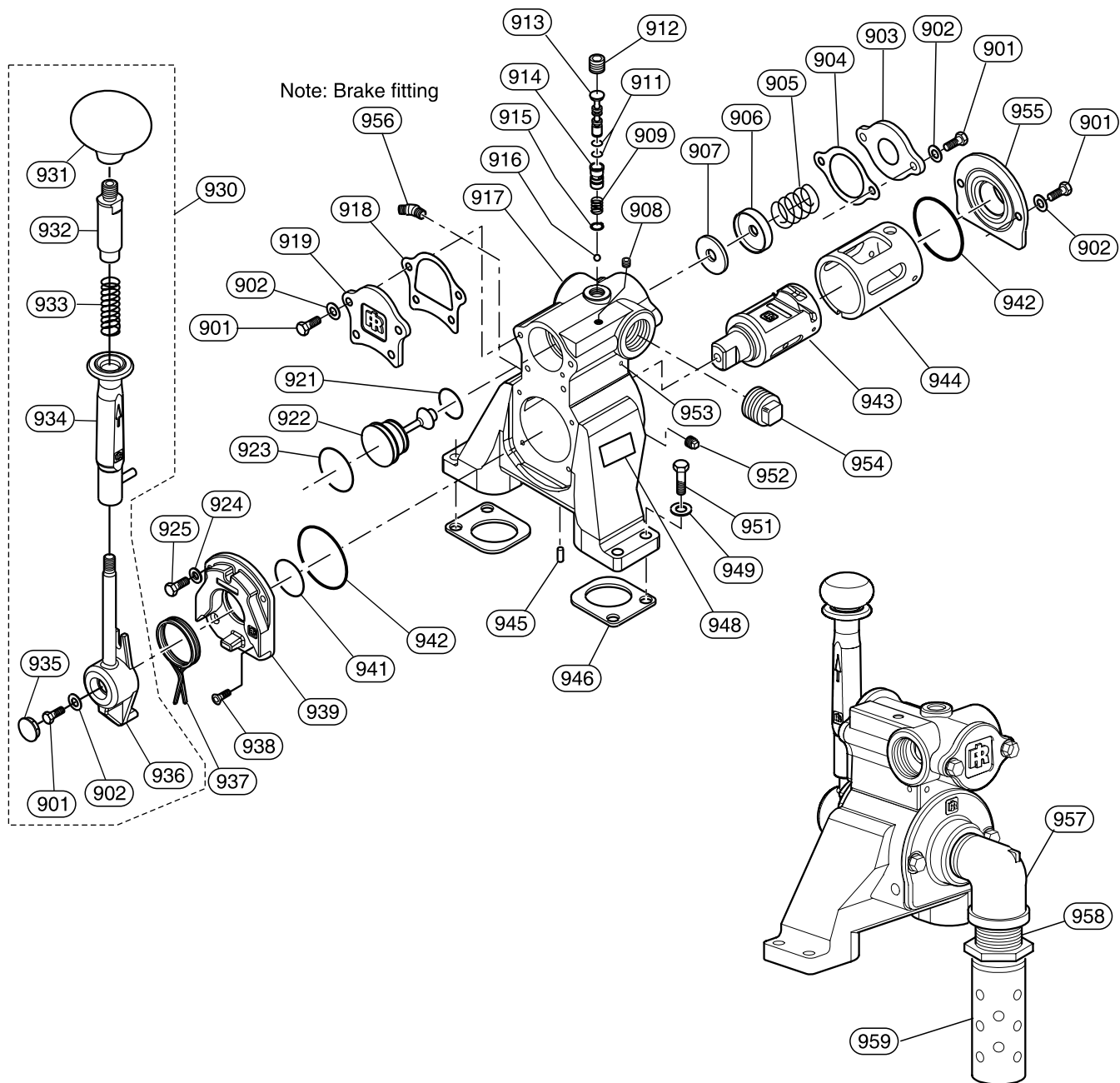
• Spring will have to be 'Cocked' over stud in seal bracket. This will ensure handle returns to neutral.

- Place handle assembly over reverse valve end. Slide handle will have to be lifted slightly to allow pin to fit into slot in seal bracket.
- Secure handle assembly to reverse valve with washer (902) and capscrew (901). Press plug (935) into handle assembly to cover capscrew. Check rotation of reverse valve. Correct any discrepancies.

Mounting Control Valve

- Secure control valve to intake manifold using capscrews (951) and washers (949). Use new gaskets (946) between control valve and manifold.
- Test control valve for proper operation. Lift slide handle and push handle all the way forward and release hand. Control handle should return and lock in the neutral position. Repeat for other direction.
- Connect brake line.
- Connect air supply line.

K5C CONTROL VALVE ASSEMBLY DRAWING



(Dwg. MHP2036)

K5C CONTROL VALVE ASSEMBLY PARTS LIST

ITEM NO.	DESCRIPTION OF PART	QTY TOTAL	PART NUMBER	ITEM NO.	DESCRIPTION OF PART	QTY TOTAL	PART NUMBER
900	Control Valve Assembly	1	K5C	933	Spring	1	71348346
901	Capscrew	7	71342034	934	Handle, Slide	1	26950
902	Washer	7	71303408	935	Plug	1	71348965
903	Cover, Poppet	1	26997	936	Valve, Hub	1	26948
904	Gasket, Poppet	1	27064	937	Spring	1	26966
905	Spring, Poppet	1	71351068	938	Capscrew	2	71347207
906	Cap, Poppet	1	26989	939	Seal Bracket	1	26962
907	Seal, Poppet	1	26991	941	'O' Ring	1	71357198
908	Plug	2	54292	942	'O' Ring	2	51651
909	Spring, Pilot Rod	1	71351076	943	Reverse Valve (Normal)*	1	26969
911	'O' Ring	2	71126825		Reverse Valve (Reverse Bias)*		27452
912	Plug	1	71267561		Reverse Valve (Unbiased)*		27707
913	Pilot Shaft	1	26993	944	Bushing (Normal)**	1	26686
914	Seat, Pilot	1	26992		Bushing (Reverse Bias)**		27450
915	Retainer Ring	1	71351092		Bushing (Unbiased)**		27706
916	Ball	1	71127575	945	Pin	1	71146674
917	Valve Housing	1	26964	946	Gasket	2	27115
918	Gasket, Cover	1	26999	948	Label, Throttle Direction	1	71352777
919	Cover, Piston	1	26998	949	Washer	4	54843
921	'O' Ring	1	52537	951	Capscrew	4	71351944
922	Piston	1	26996	952	Plug	1	50822
923	'O' Ring	1	71355796	953	Plug	5	54247
924	Washer	2	71271985	954	Plug	1	71263297
925	Capscrew	2	71348338	955	Exhaust Flange	1	26691
930	Handle Assembly (includes 901, 902, 931 through 936)	1	27239	956	Fitting, Elbow	1	71018022
				957	Fitting, Elbow	1	71273676
931	Knob	1	71348353	958	Fitting, Nipple	1	71057483
932	Handle Post	1	26951	959	Muffler	1	52472

* Reverse Valve (Normal) for Standard Overwound operation. Reverse Valve (Reverse Bias) for Optional Underwound operation. Reverse Valve (Unbiased) contact factory for application.

** Ensure Bushing matches Reverse Valve (Reverse Valve (Normal) and Bushing (Normal)). Mixing these components can result in erratic winch operation.

KIT DESCRIPTION	PART NUMBER
• Control Valve Service Kit (includes items 904, 907, 911, 915, 918, 921, 923, 941, 942 and 946)	27240

- Recommended spares for 1 winch, 2 years of normal service.

For additional information on the following products order the publication(s) by the reference Part/Document number listed

PUBLICATION	PART/DOCUMENT NUMBER
Parts, Operation and Maintenance Manual FA2 and FA2.5 Air Winch	MHD56040
Parts, Operation and Maintenance Manual FA5 Air Winch	MHD56037
Parts, Operation and Maintenance Manual FA7 and 7T Air Winch	MHD56076
Parts, Operation and Maintenance Manual FA10 Air Winch	MHD56116
Parts, Operation and Maintenance Manual FA2.5A Air Winch	MHD56114
Parts, Operation and Maintenance Manual FA5A Air Winch	MHD56087

SERVICE NOTES

SERVICE NOTES

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For Order Entry, Order Status and Technical Support

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