

**INSTALLATION INSTRUCTIONS
REMOTE CONTROL AND AUTOMATIC BRAKE
CONVERSION KITS**

for

**SIZES HU, HUL, HUA, HUAL, HUB, HUBL, H5U, H5UL, K4U, K4UL,
K5UL, K6U, K6UA, K6UL, K6UL36, K6UL48, K6UAL AND ODR60A20**

WARNING

DISENGAGING CLUTCH PARTS

It is emphatically recommended that Automatic Brake and Disengaging Clutch features not be used on any Winch used for hoisting or otherwise subjected to an overhauling load. If for any reason the Disengaging Clutch is left operative in a Winch used under either of the above conditions, it is the responsibility of the user to make provision to prevent accidental operation of the Winch motor with the clutch disengaged. **Operation of the motor with the clutch disengaged while holding a suspended load will allow the load to drop.**

INTRODUCTION

Automatic Brake whereby the application and release of the brake is synchronized with the opening and closing of the throttle is very advantageous for many applications utilizing Winches and standard throttle and it is essential for nearly all Winches equipped for Remote Control. The brake is spring applied and air released.

Remote Control is recommended only for use in combination with Automatic Brake, otherwise it is of little benefit because the operator would need to be within reach of the brake lever, thus nullifying the advantage of Remote Control, or the application would need to be such that the use of the brake is never required.

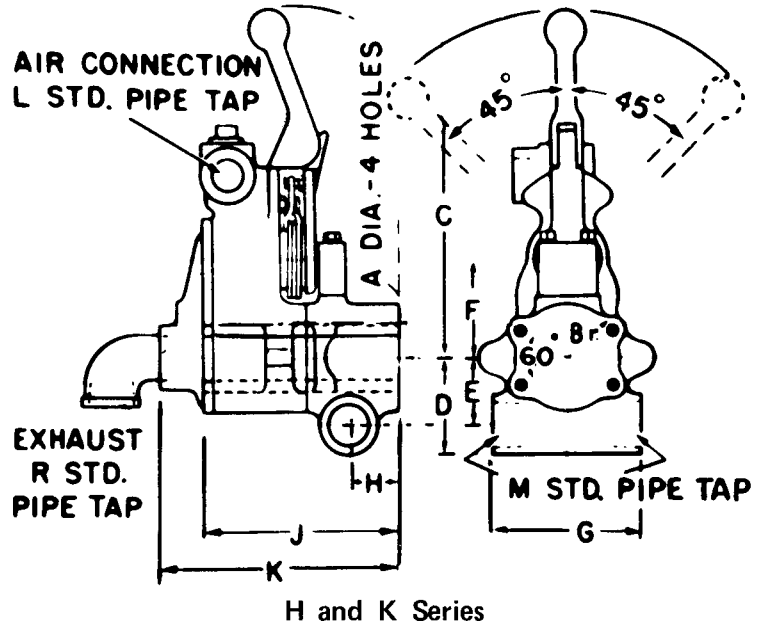
Remote control essentially amounts to removing from the Motor Case, the Valve Chest incorporating the throttle mechanism and replacing it with a Valve Chest that accommodates only the Rotary Valve. The Valve Chest incorporating the throttle mechanism is mounted on a Remote Control Block located at the selected control station. The Control Block and the Valve Chest on the Motor Case are connected by two lines of pipe or hose for conducting air to and exhaust from the motor, and Automatic Brake requires an additional line of $1/4''$ (6 mm) pipe or $5/16''$ (8 mm) hose for conducting air to the Brake Cylinder. The following table shows the size of the air lines required for efficient operation of various Winch sizes.

Winch Size	Hose Size		Pipe Size	
	in	mm	in	mm
HU, HUL, HUA, HUAL, HUB or HUBL	1	25	1	25
H5U or H5UL, K4U, K4UL, KUA or KUAL	1-1/4	31	1-1/4	31
K6U, K6UL, K6UA, K6UL36, K6UL48 or K6UAL	1-1/2	38	1-1/4	31

Dimensions of the throttle mechanism at the control station are shown in accompanying view and table.

REMOTE CONTROL BLOCK

Dimension	Series HU		Series H5U, K5UL, K4, K6	
	inches	mm	inches	mm
A	13/32	- - -	17/32	- - -
B	1-15/16	49	2-1/2	64
C	12-1/2	318	13-11/16	348
D	3-3/8	86	4-1/8	105
E	2-3/8	60	2-3/4	70
F	3-1/2	89	4-1/8	105
G	5-1/2	140	6-1/2	165
H	1-11/16	43	2-1/16	52
J	7-1/8	181	8-5/8	219
K	8-3/4	222	10-3/16	259
L	1	- - -	1-1/4	- - -
M	1-1/4	- - -	1-1/4	- - -
R	1-1/4	- - -	1-1/2	- - -

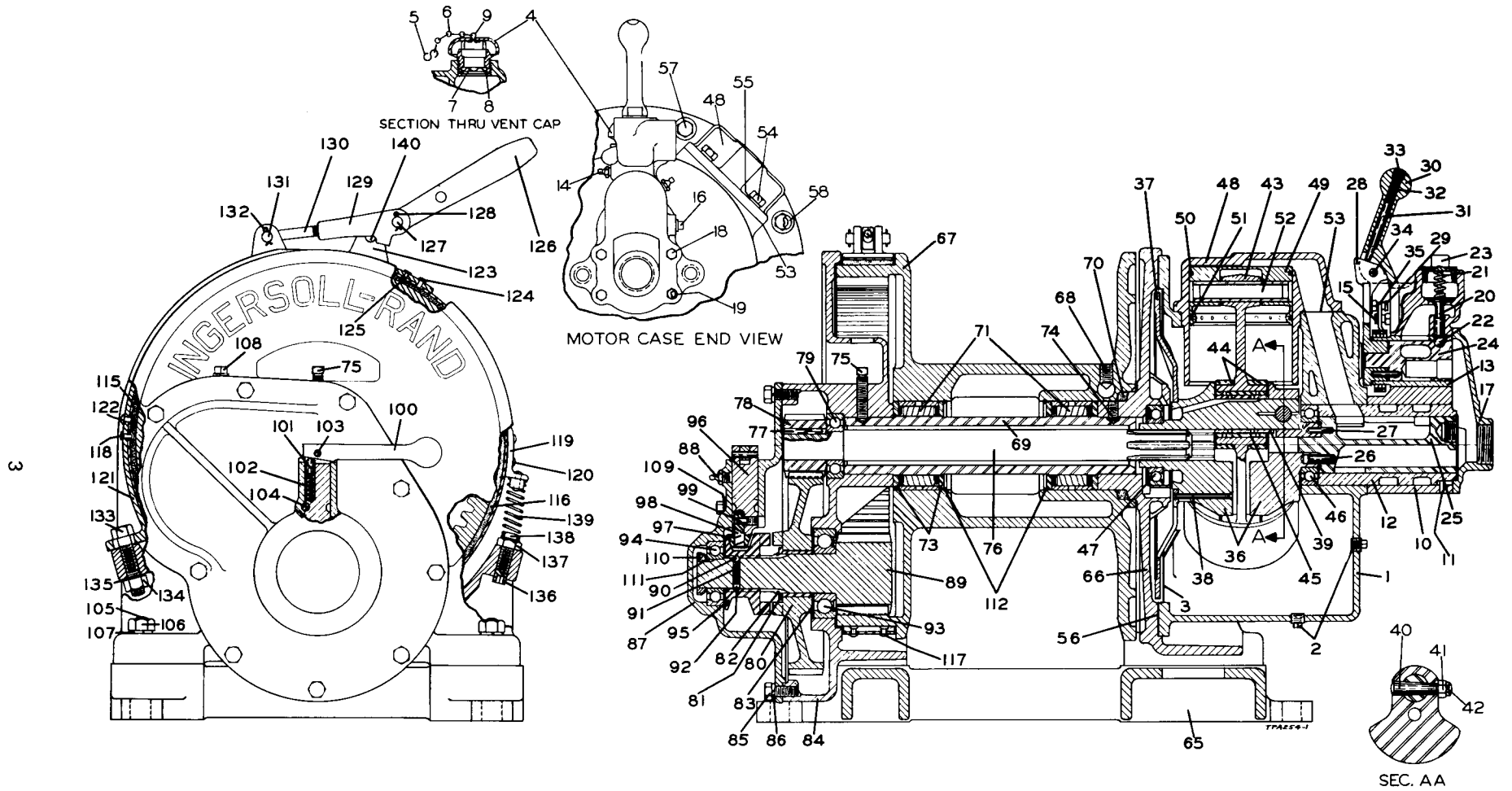


WARNING

Be sure to internally lock the clutch in positive engagement as the first step in conversion to Automatic Brake and/or Remote Control. The parts required are included in the Automatic Brake Conversion Kit for all except Series K6U, but not in the Remote Control Conversion Kit. If Remote Control is being installed on a Winch with standard brake (not recommended and very unlikely), the following parts must be purchased and installed.

NAME OF PART	PART NUMBER FOR ORDERING		
	Series HU or H5U	Series K4U, K5U or ODR60A20	Series K6U
Clutch Jaw Spacer	HU-712	K4U-712	K6U-712
Gear Cover Plug	HU-728	HU-728	K6U-728
Gear Cover Plug Seal.....	HU-730	HU-730	HU-730

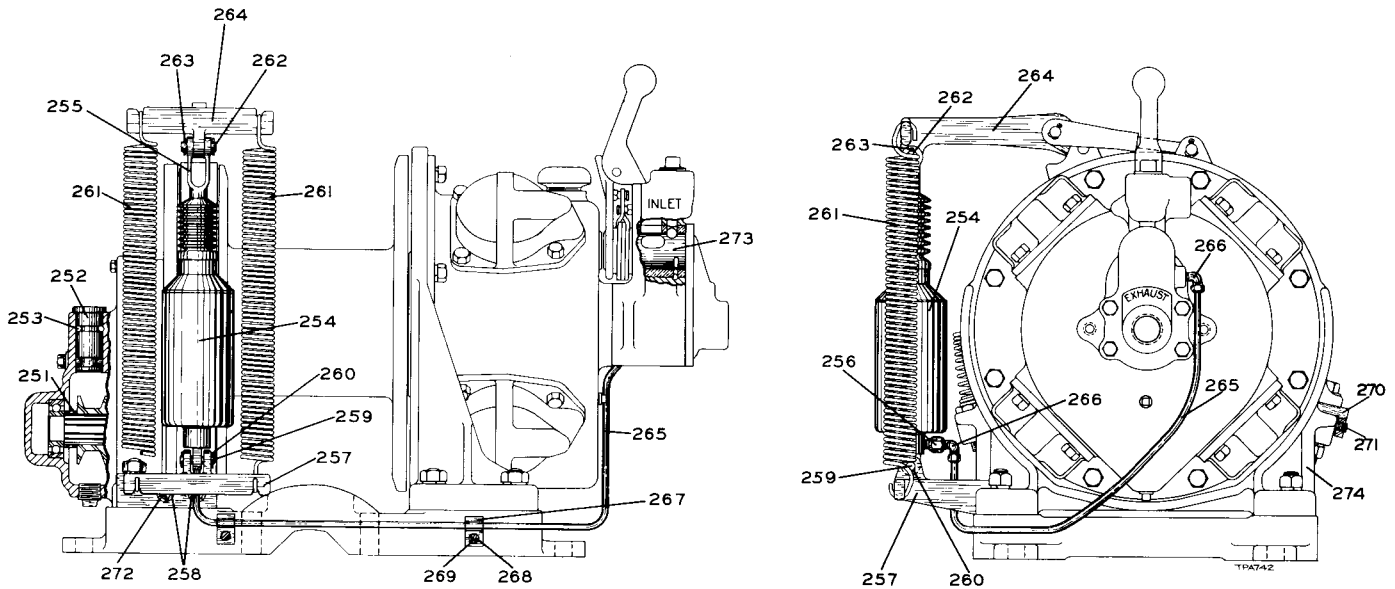
NOTE: Many Series K6U Winches are furnished without a clutch. Determine whether clutch is incorporated before ordering parts to lock clutch in engagement.



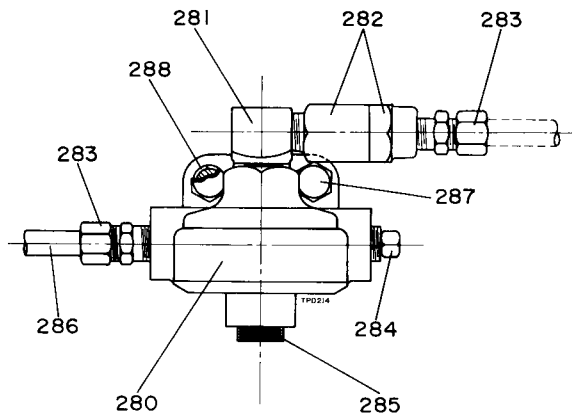
Typical of all except Series K6U

FIG. 1

AUTOMATIC BRAKE



**Series HU or H5U Winch with Automatic Brake
Typical of all except Series K6U**



Brake Exhaust Valve Assembly

FIG. II

TO LOCK CLUTCH IN POSITIVE ENGAGEMENT

For Series HU, H5U, K5U, and Size ODR60A20

(Refer to Fig. I and Fig. II)

1. Remove the Gear Cover (87) from the Gear Case (84).
2. Remove Clutch Lever (100) from the Clutch Eccentric Shaft (96).
3. Remove the Eccentric Shaft Lock Screw (104) and withdraw the Eccentric Shaft from the Gear Cover.
4. Install the O-ring Plug Seal (253) in the groove in the Gear Cover Plug (252), insert the Plug into the Cover and retain with the Lock Screw.
5. For Series K4U, K5U and Size ODR60A20, remove the Drive Shaft Nut (110) and Lock (111) from the Drive Shaft (89).
6. Pull the Drive Shaft Outer Bearing (94) from the Drive Shaft (89), engage the Clutch Jaw (95) with the Intermediate Gear (80), slip the Clutch Jaw Spacer (251) onto the Shaft and press the Bearing back onto the Shaft.
7. Install the Drive Shaft Nut and Lock on Series K4U, K5U and Size ODR60A20.
8. Install the Gear Cover.

DISENGAGING CLUTCH PARTS
For Series K6U

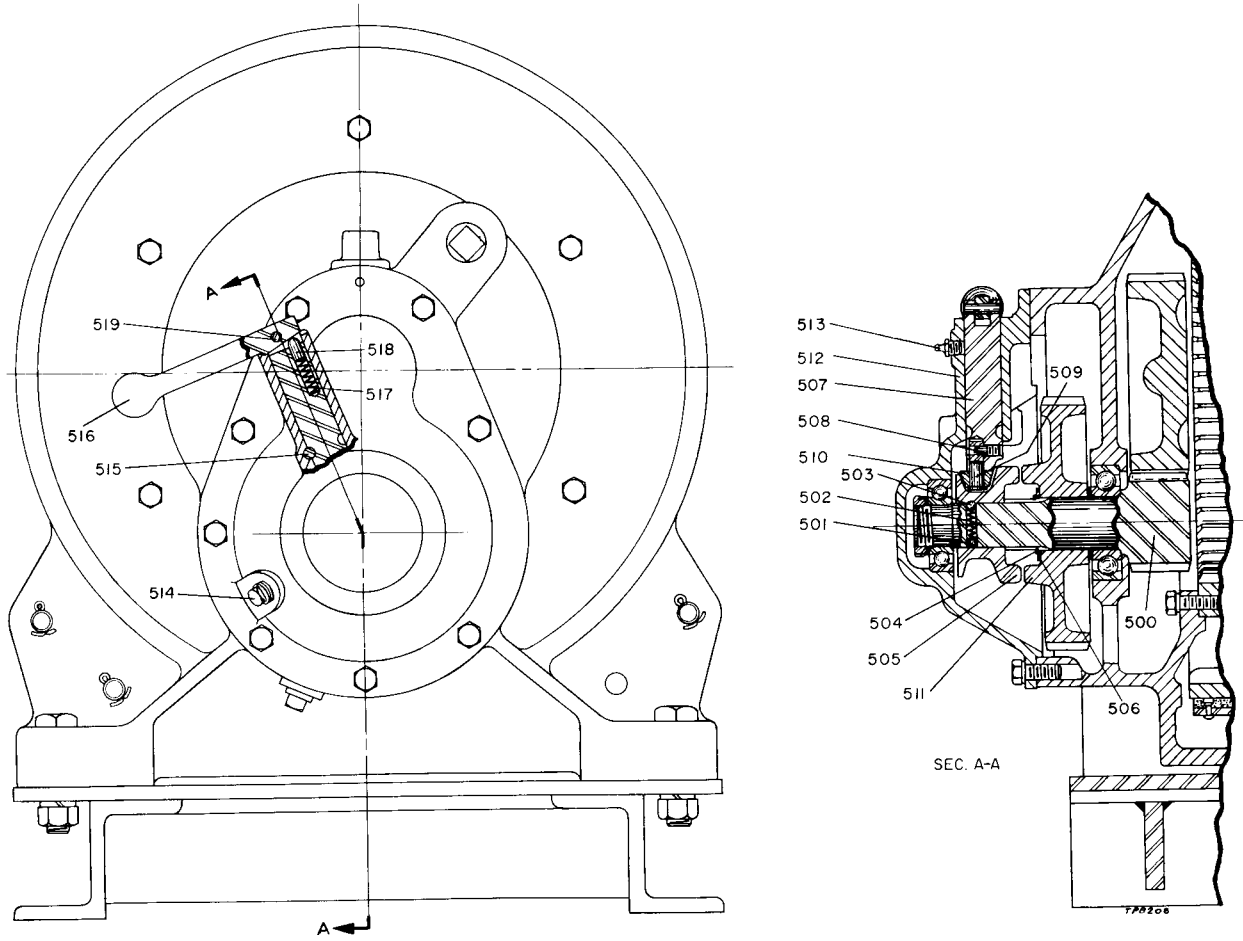
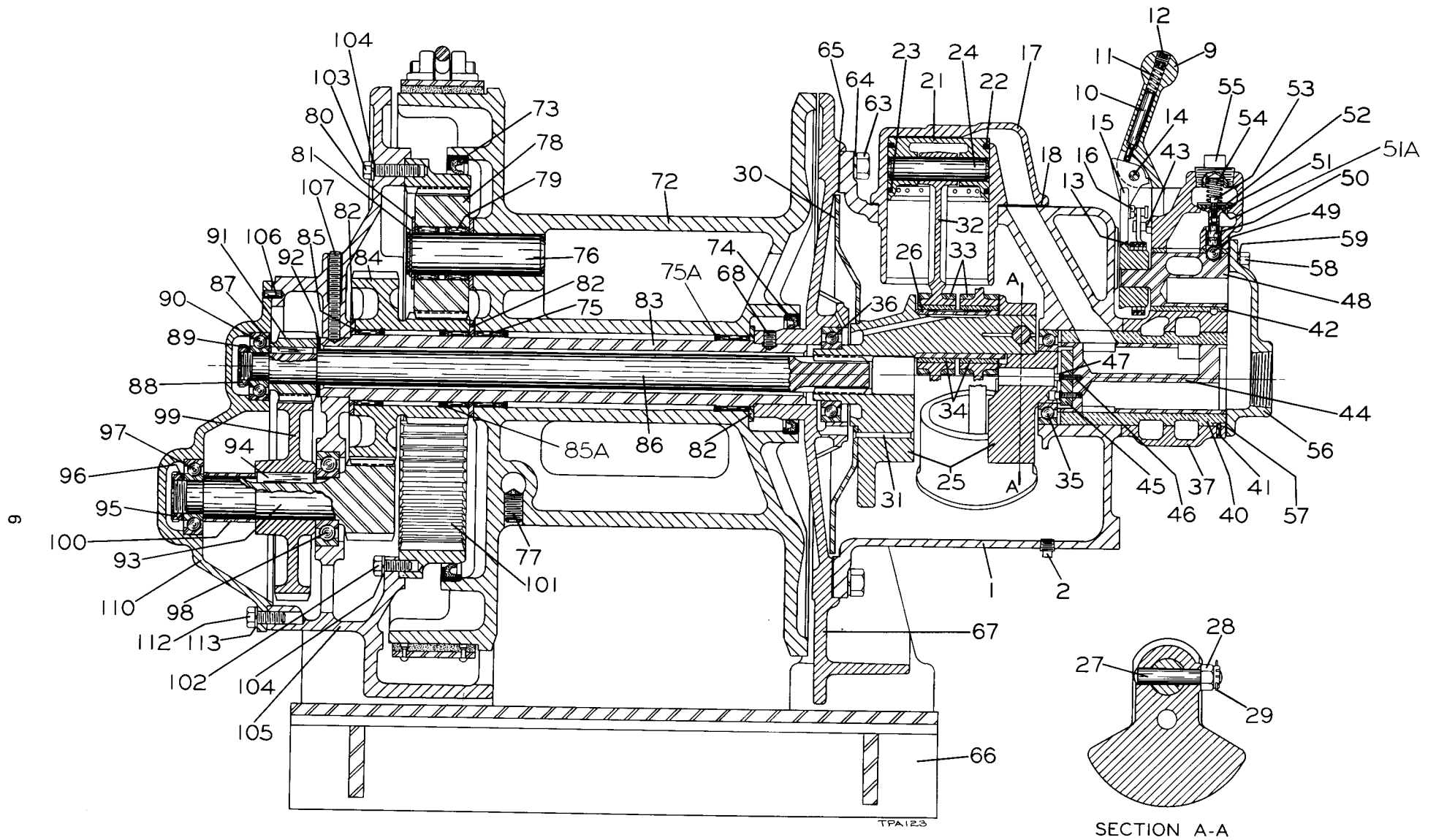


FIG. III



Size K6U or K6UA Single Drum Utility Winch
 (Construction Typical of Sizes K6UL, K6UL36, K6UL48 and K6UAL except for length of Rope Drum)

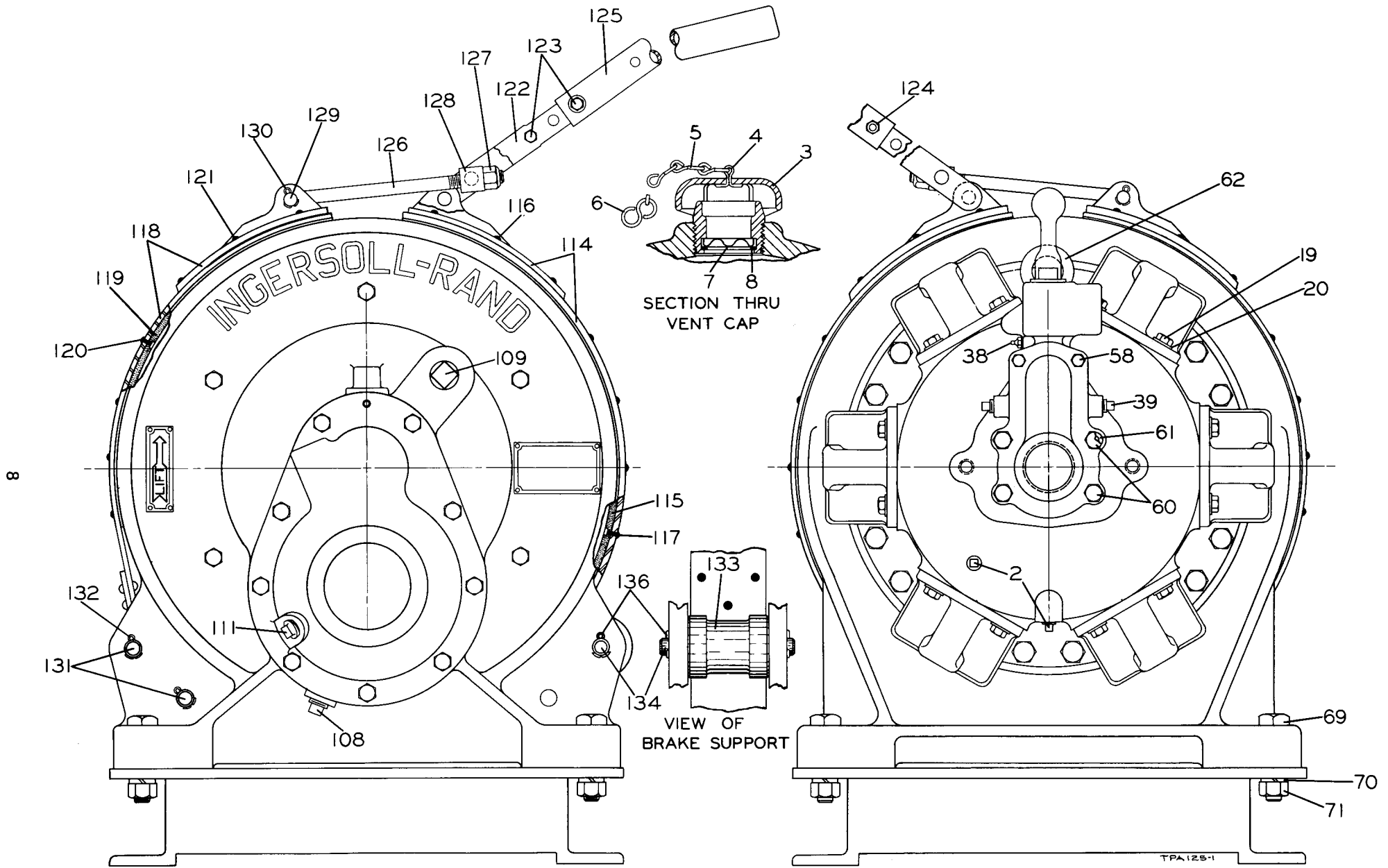
FIG. IV

For Series K6U
(Refer to Fig. III and Fig. IV)

1. Remove the Gear Case Cover (512) from the Gear Case (105).
2. Remove the Clutch Lever (516) from the Clutch Eccentric Shaft (507).
3. Remove the Eccentric Shaft Lock Screw (515) and withdraw the Eccentric Shaft from the Gear Case Cover.
4. Install the O-ring Plug Seal in the groove in the Cover Plug and insert the Plug into the Gear Case Cover. Retain the Plug with the Lock Screw (515).
5. Remove the Drive Shaft Nut and Lock from the Drive Shaft (500), then pull off the Drive Shaft Outer Bearing.
6. Engage the Clutch Jaw (505) with the Intermediate Gear (511), slip the Clutch Jaw Spacer onto the Shaft and press the Bearing back onto the Shaft.
7. Install the Drive Shaft Nut and Lock.
8. Bolt the Gear Case Cover back onto the Gear Case.

AUTOMATIC BRAKE
For Series HU, H5U, K5U and Size ODR60A20
(Refer to Fig. I and Fig. II)

1. Replace the Brake Handle (126) with the Automatic Brake Lever (264).
2. Bolt the Brake Cylinder Bracket (257) to the Base (65). **NOTE:** Series HU and H5U require a different Bracket for mounting the Brake Cylinder on different sides of the Base. They also use a Brake Stop (270) which is mounted on the Winch as shown in Fig. II.
3. Mount the Brake Cylinder (254) on the Bracket and connect the piston yoke to the Brake Lever.
4. Install the Springs (261) on the cross arms of the Lever and Bracket.
5. Install the Brake Exhaust Valve Assembly that is included with the Conversion Kit. Its use increases the speed of application of the brake. It is recommended that it be mounted on the base as close as practical to the Brake Cylinder. It is attached to the Base with two $\frac{5}{16}$ "-18 thd. Cap Screws (287).
6. Remove the Brake Inlet Plug (16) from the side of the Valve Chest and replace it with the Brake Pipe Elbow (266).
7. Run the Brake Pipe (265) from the Valve Chest to the Exhaust Valve and the Exhaust Valve Pipe from the Valve to the Cylinder. Avoid kinks and make sure all connections are airtight.
8. Replace the Reverse Valve (24) in the Valve Chest (10) with the Automatic Brake Reverse Valve (273) as follows: Unscrew the Throttle Valve Cap and withdraw the Valve Spring (21) and Poppet Throttle Valve (20) from the Chest. Remove the Valve Chest Cover (17) from the Chest and withdraw the Reverse Valve. **NOTE:** Be careful not to confuse the two near-identical Valves. The one to be installed has brake ports; the one removed does not. Install the new Reverse Valve, replace the Cover and reassemble the throttle parts in the Chest.



Gear Case End View

Motor End View

FIG. V

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**AUTOMATIC BRAKE PARTS
FOR SERIES K6U**

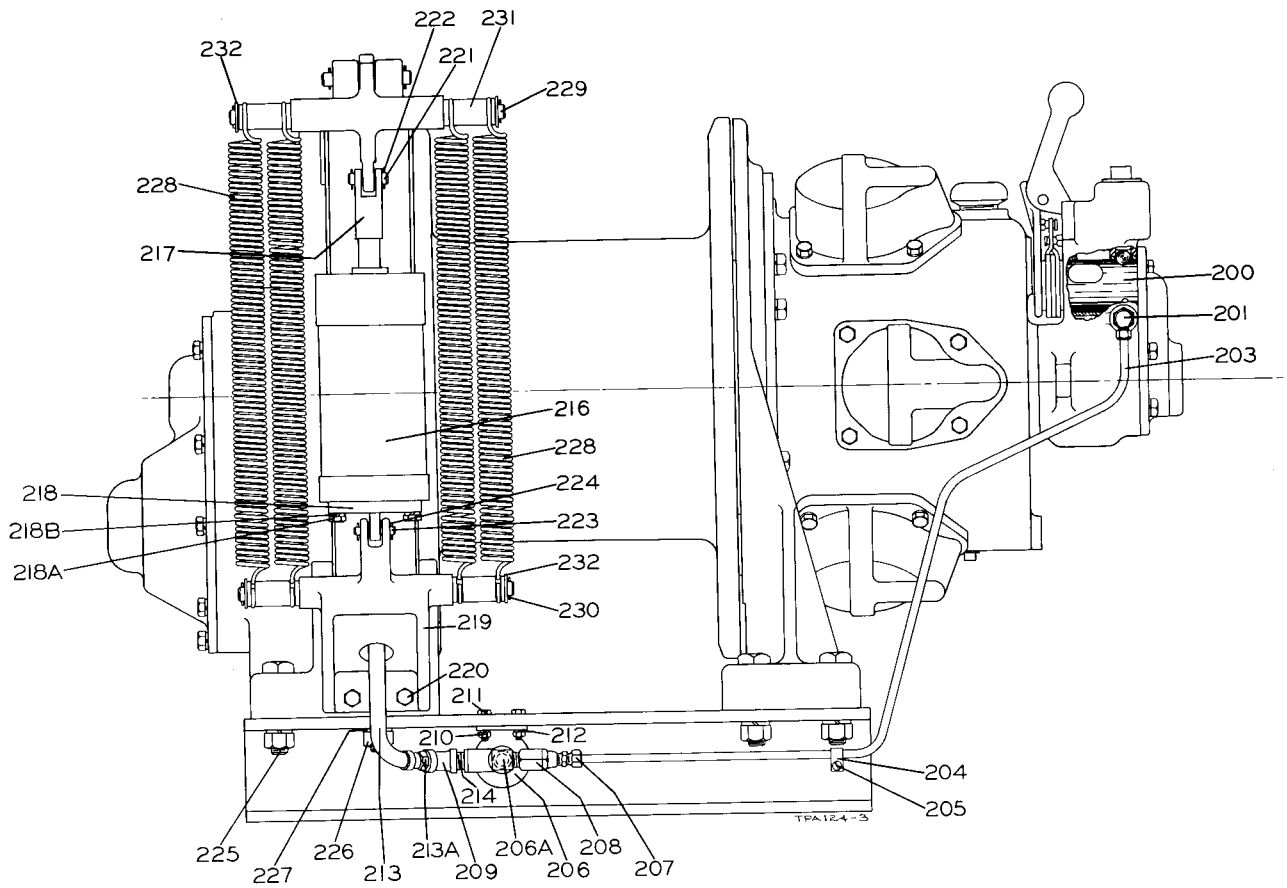


FIG. VI

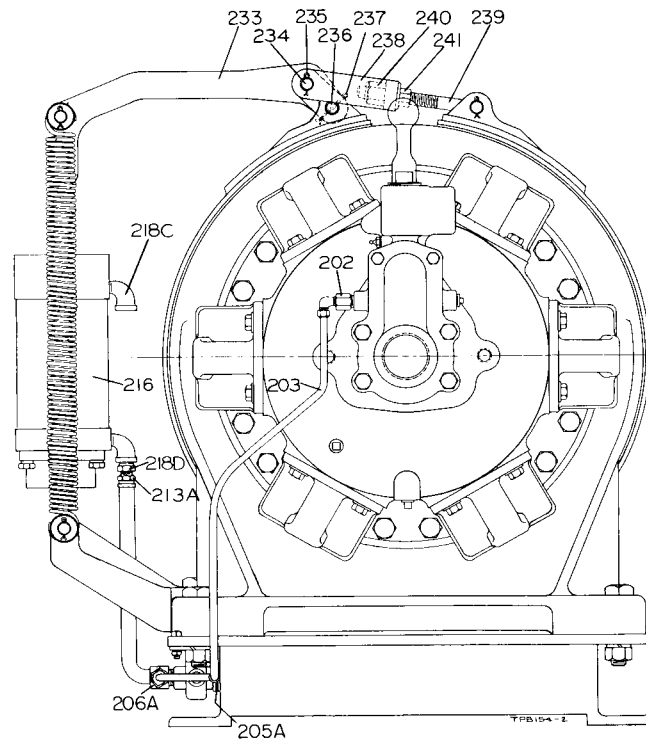


FIG. VII

For Series K6U
(Refer to Figures IV, V, VI, and VII)

1. Remove the Brake Lever (122) and associated parts along with the Brake Adjusting Screw (126) from the Brake Bands (114 and 118). Replace them with the Automatic Brake Lever (233), Automatic Brake Adjusting Screw (239) and Adjusting Screw Yoke (238).
2. Bolt the Brake Cylinder Bracket (219) to the Base (66). **NOTE:** One Base Bolt (69) passes through the Bracket; therefore, the original Bolt must be replaced by one $\frac{1}{2}$ " longer ($\frac{3}{4}$ "-10 x 4" on K6U or K6UA; $\frac{3}{4}$ "-10 x 4- $\frac{1}{2}$ " on K6UL or K6UAL) which is included in the Conversion Kit.
3. Install the Brake Cylinder (216) on the Bracket and connect the Piston Yoke (217) to the Automatic Brake Lever.
4. Centralize one Brake Spring Pin (229) in the Lever and the other in the Bracket, slip a Brake Pin Sleeve (231) on each end of both Pins and retain with the Washer (232) and Cotters (230).
5. Install the Springs (228) on the sleeves. Back off the Brake Adjusting Nut (240) to facilitate spring installation.
6. Remove the Valve Chest Cover (56) from the Valve Chest (37).
7. Unscrew the Throttle Valve Cap (55) and withdraw the Throttle Valve Spring (54) and Poppet Throttle Valve (50) from the Valve Chest.
8. Withdraw the Reverse Valve (48) from the Chest and replace it with the Automatic Brake Reverse Valve (200) that is included in the Conversion Kit. **NOTE:** Be careful not to confuse the two Valves—the new one has brake ports, the old one does not; otherwise they are alike.
9. Install the Throttle Valve, the Spring and the Cap as well as the Valve Chest Cover and Gasket.
10. Remove one Brake Inlet Plug (39) from the Valve Chest and install the Brake Connection Bushing (202) and Brake Pipe Elbow (201) in its place.
11. Bolt the Brake Exhaust Valve (206) to the Base.
12. Connect the Exhaust Valve to the Brake Cylinder with the Exhaust Valve Hose (213) and fittings, and to the Valve Chest with the Brake Pipe (203).

REMOTE CONTROL

For All Winches

1. Remove the Valve Chest Cover from the Valve Chest and withdraw the Rotary Valve. Handle it carefully and lay it aside for reuse.
2. Remove the Valve Chest incorporating the throttle mechanism from the Motor Case. **NOTE:** Two Jack Bolts are required. They can be purchased from Ingersoll-Rand by Part No. HU-932 or 5/8"-11 thd. bolts with at least 4" (100 mm) of thread can be used. Run a Jack Bolt into each tapped hole in the lugs on the sides of the Valve Chest until the bolt contacts the Case, then turn each alternately a fraction of a turn at a time until the Bushing is jacked from the Case.
3. From the Conversion Kit select the Remote Control Valve Chest containing the Rotary Valve Bushing and also select the Valve Chest Cover and, for Series K6U, the Valve Chest Cover Gasket.
4. Align the bolt holes through the Remote Control Valve Chest with the tapped holes in the face of the Motor Case and start the protruding end of the Rotary Valve Bushing into the Case. Being careful to maintain good alignment and using a piece of plank or otherwise protecting the faces of the Chest and Bushing, drive in the Bushing until the Chest contacts the Motor Case.
5. Insert the Rotary Valve, that was removed in step 1, into the Bushing engaging it with the Crank. On Series K6U apply the Cover Gasket, and for all install the Valve Chest Cover.
6. **For Series HU, K4U, K5U and Size ODR60A20:** From the Valve Chest Assembly removed in step 2, press out the Rotary Valve Bushing (12) as follows:
 - a. Support the face of the Chest that contacted the Motor Case and press out the Bushing with an arbor that will clear the Bushing Key (11) that protrudes into the Chest bore. **CAUTION:** The Bushing Key that radially indexes the Chest with a Bushing or Control Block for proper air port alignment will be sheared by pressing the Bushing **out** of the **cover** side of the Chest, or by allowing the pressing arbor to contact the key.
 - b. Align the longitudinal slot in the round boss on the Remote Control Block (200) with the key in the Chest bore and press in the Block to the shoulder.

For Series H5U and K6U, select the Remote Control Block and assembled parts from the Conversion Kit.

7. Mount the Control Block at the chosen control station.
8. **For Series H5U,** unscrew the Throttle Valve Cap (23) and remove the Poppet Throttle Valve (20), Spring (21), and Ball (22) from the Valve Chest removed from the Winch in step 2. Install these parts as (213, 216, 215 and 217) in the Control Block Valve Chest (204).

For Series H5U or K6U, remove the Throttle Lever (30 or 9) and assembled parts from the Valve Chest that was removed in step 2 and install it on the Control Block Valve Chest (204 or 518) along with the Reverse Valve (209 or 516) that is included in the Conversion Kit.

9. Install the Cover (218) on the Control Block Valve Chest. The Cover for Series H5U or K6U is included in the Conversion Kit; others use the Cover removed in step 1.
10. Connect the air ports in the Control Block with those in the Remote Control Valve Chest on the Winch, using suitable pipe or hose as described in the Remote Control section of the **INTRODUCTION**.

