Form 6465
Edition 1

INSTALLATION INSTRUCTIONS
REMOTE CONTROL AND AUTOMATIC BRAKE CONVERSION KITS
for
SIZE DU, D6U, EU, EUA OR EUAL WINCHES

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.**

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 with 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 incorporates 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 3/4" (19 mm) pipe or hose. Automatic Brake also requires a line of 1/4" (6 mm) pipe or 5/16" (8 mm) hose between the two Valve Chests.

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, but not in the Remote Control Conversion Kit. If Remote Control is being installed on a Winch with standard brake, the Clutch Jaw Spacer (263) and 1/2" Pipe Plug (264) must be purchased separately and installed as directed under **LOCK CLUTCH IN POSITIVE ENGAGEMENT**.

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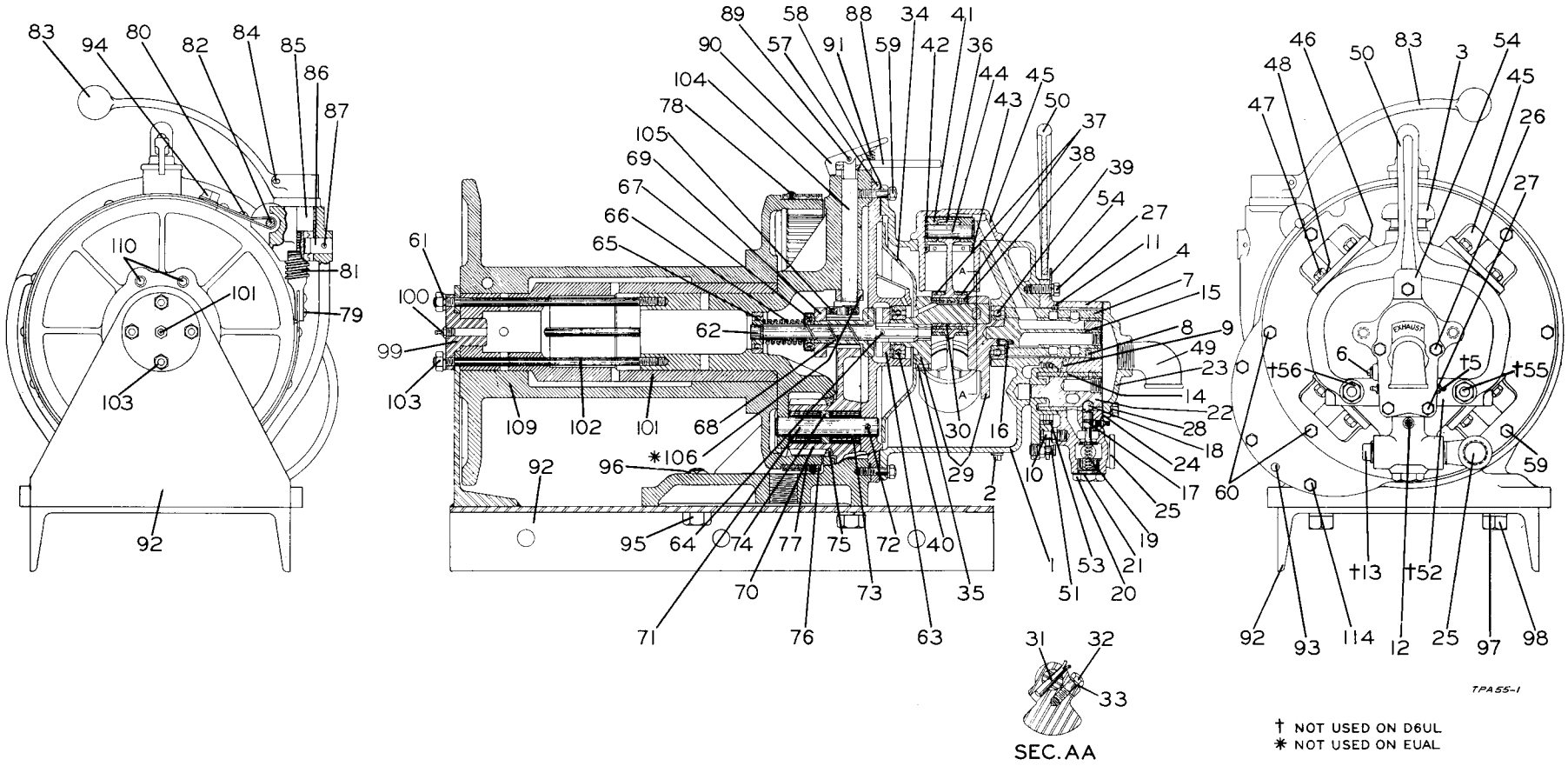


Sizes D6U, EUL and EUAL Utility Winches

Fig. 1

LOCK CLUTCH IN POSITIVE ENGAGEMENT

Refer to Fig. I.

1. Drain oil from the Motor Case (1).
2. Unscrew the Motor Case Cap Screws (59 and 60) and remove from the Base (92) the assembled Motor followed by the Motor Case Cover (57).
3. Withdraw the Motor Shaft (62) and Intermediate Gear (70) with assembled parts from the Base (92).
4. Pull the Motor Shaft Bearing (65) from the end of the Motor Shaft (62) and slip off the Clutch Spring (66) and Clutch Thrust Bearing (67).
5. From the Conversion Kit, select the Clutch Jaw Spacer (263) and slide it onto the Motor Shaft. Engage the Clutch Jaw (63) with the Motor Shaft Pinion (68) and press the Motor Shaft Bearing back onto the Shaft. The Spring and Thrust Bearing are not used.
6. Drive the Clutch Latch Pin (89) out of the Clutch Eccentric (104) and withdraw the Eccentric with assembled parts through the Gear Chamber. The Latch and Eccentric parts are not used.
7. Run the 1/2" Pipe Plug (264), included in the Kit, into the tapped hole in the Base from which the Eccentric was removed. See Fig. II.
8. Insert the Motor Shaft with assembled parts into the Base until the Motor Shaft Bearing (65) seats.
9. Install the Intermediate Gear (70) in the gear chamber and position the Intermediate Gear Shaft (71) so that the Shaft Pin (72) is horizontal.
10. Apply the Motor Case Cover (57) noting that the Shaft Pin (72) must enter the elongated recess cast in the Cover face.

If the Winch is being converted to Remote Control, proceed with steps 1 through 4 under **REMOTE CONTROL**: If conversion is to Automatic Brake only, proceed with the following steps 11 and 12.

11. Install the assembled Motor on the Motor Case Cover (57).
12. Lubricate **both** the Motor and gearing.

AUTOMATIC BRAKE FOR
Sizes DU, D6U, D6UL, EU, EUL, EUA and EUAL

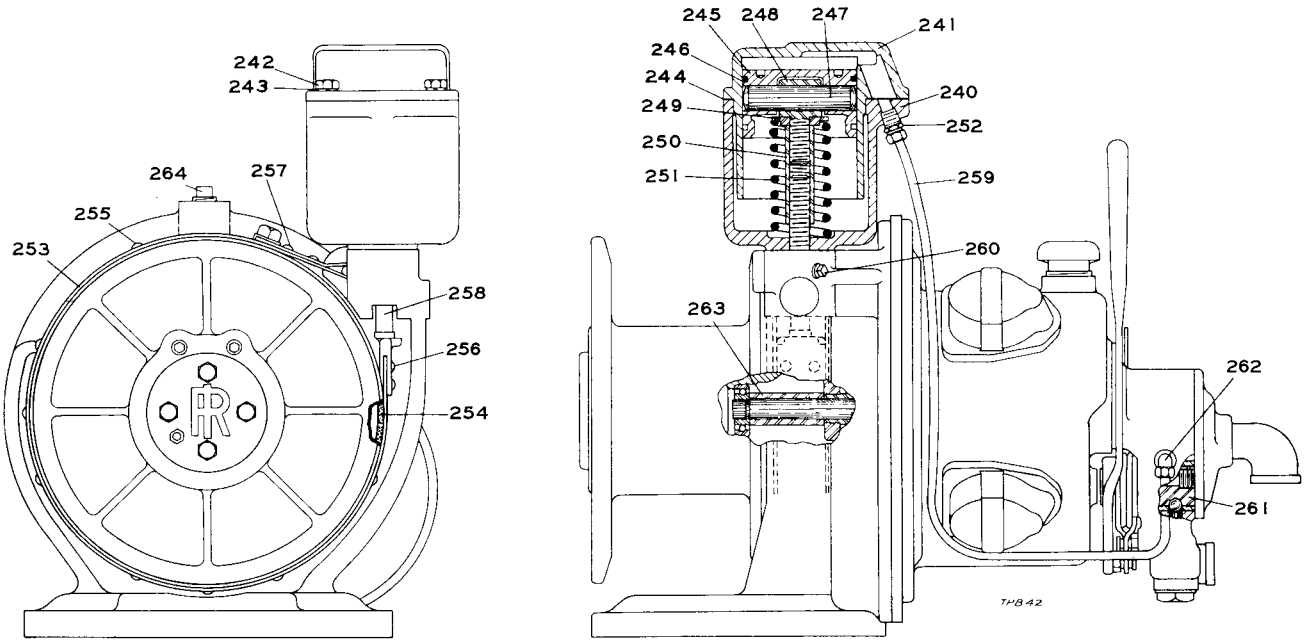


Fig. II

AUTOMATIC BRAKE

Refer to Fig. I and Fig. II.

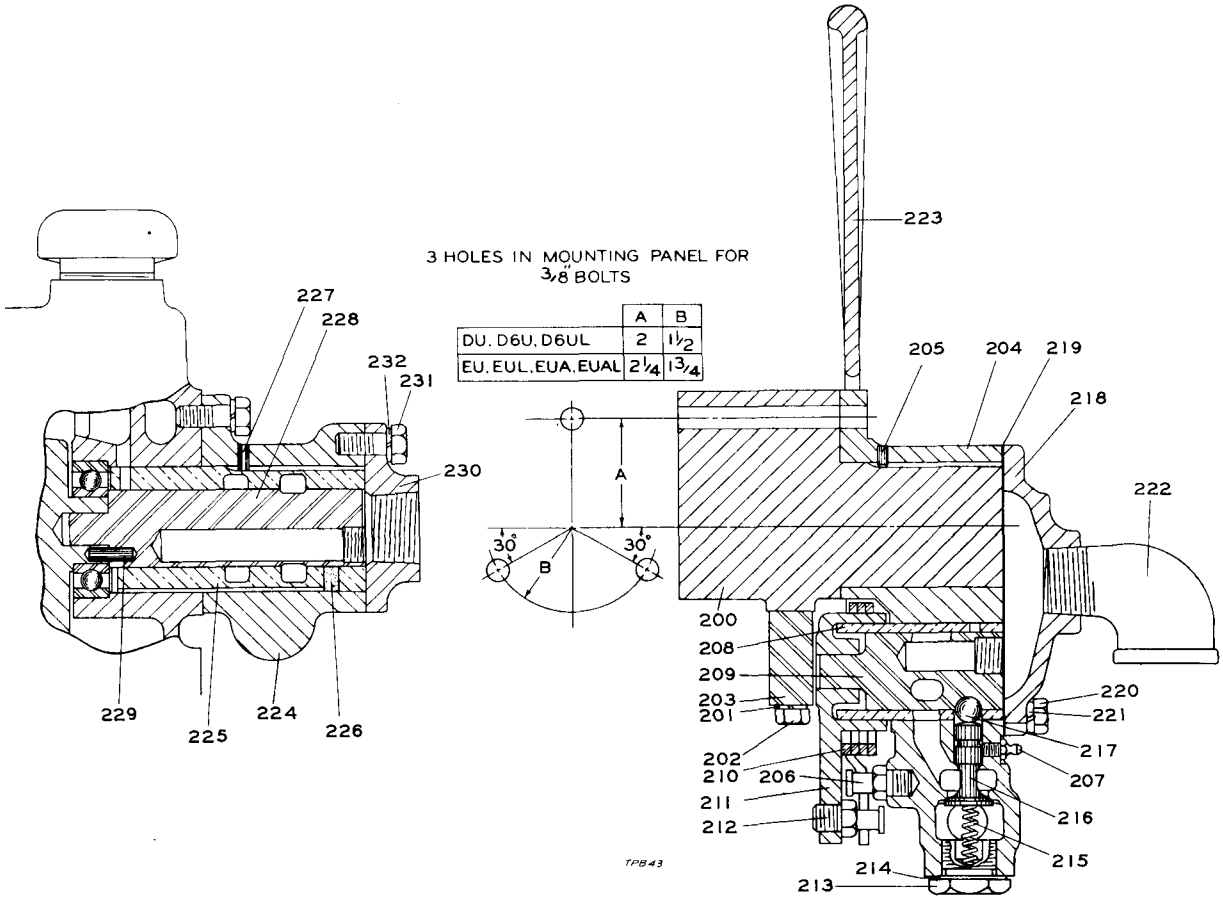
1. Remove the Brake Lever (83) and Brake Screw Nut (85) from the Brake Screw (81).
2. Withdraw the Cotter (87) and remove the Brake Screw Guide (86).
3. Withdraw the Brake Band Pin Cotter and remove the Brake Band Pin (82) freeing the Brake Band and assembled parts.
4. Install the new Brake Band (253) by anchoring the looped end with the Brake Band Pin (82) and Cotter and inserting the Adjusting Screw (258) up into the hole in the Base.
5. Mount the Brake Cylinder Case (240) by slipping it over the end of the Adjusting Screw and entering it into the bore or boss on the Base. Rotate it to bring the air inlet to the position shown in Fig. II and retain it with Set Screw (260).
6. Slip the Brake Spring Washer (249), large end first, over the Brake Trunnion (248) and run the Brake Screw Coupling (250) fingertight onto the Trunnion.
7. Connect the Brake Piston (245) to the Trunnion with the Brake Piston Wrist Pin (247).
8. Slip the Brake Spring (251) over the Brake Adjusting Screw (258) and seat it in the counterbore in the Case (240).
9. Enter the Coupling into the bore of the Spring and screw it onto the Adjusting Screw by rotating the Piston until it protrudes from the Cylinder Case 3/4" (19 mm) to 7/8" (22.2 mm). **NOTE**: There are two holes into the face of the Piston to accommodate a spanner wrench that will be required to rotate the Piston as it approaches the designated position. A face spanner with 9/32" (7 mm) diameter pins spaced 2-3/4" (69.85 mm) apart is needed. One is available from Ingersoll-Rand under Part No. R55R-26. Screwing the Piston farther onto the Brake Screw tightens the brake, but observe the above adjustment range for most satisfactory performance.
10. Slip the Brake Cylinder Gasket (244) over the skirt of the Cylinder (241) and install the Cylinder over the Piston and onto the Cylinder Case. Use the copper Washers under the Cylinder Cap Screws (242) that retain the Cylinder.
11. Replace the Brake Inlet Plug (6) in the side of the Valve Chest (4) with the Brake Pipe Elbow (262) and install the Brake Pipe (259), bending it carefully to avoid kinks and making sure the connection at each end is airtight.
12. Unscrew the Throttle Valve Cap (20) and withdraw the Throttle Valve Spring (19) and Throttle Valve Ball (18).
13. Remove the Valve Chest Cover (23) and replace the standard Reverse Valve (22) with the Automatic Brake Reverse Valve (261) that is included in the conversion kit. **CAUTION**: Do not mix or confuse the Valves. One has small "brake ports" and the other does not; otherwise, they are alike.
14. Replace the Throttle Valve and Spring and Cap.

REMOTE CONTROL

Refer to Fig. I.

1. Unscrew the five Valve Chest Screws (59 and 60) and remove the Valve Chest Cover (23).
2. Withdraw the Rotary Valve (15) from the Bushing (7) and lay it carefully aside for subsequent reuse.
3. Remove the Valve Chest (4) with assembled parts from the Motor Case (1). Two Jack Bolts are required for this. They can be purchased from Ingersoll-Rand (Part No. D02-932) or 1/2"-13 thd. cap screws can be used. Run one Jack Bolt through each tapped lug on the Chest until it contacts the Motor Case; then turn each **a little at a time** to evenly pull the Rotary Valve Bushing from the Motor Case.

REMOTE CONTROL FOR SIZES DU, D6U, D6UL, EU, EUL, EUA and EUAL



Remote Control Valve Chest **Remote Control Block**

Fig. III

Refer to Fig. III.

4. From the conversion parts, select the Remote Control Valve Chest (224) that contains the Rotary Valve Bushing (225), and the Valve Chest Cover (230). Align the screw holes through the Chest with the tapped holes in the Motor Case (1), start the protruding end of the Bushing **squarely** into the Motor Case.

   NOTE: If the Motor assembly has been removed from the Winch, support it open face down and press in the Bushing until the Chest contacts the Case. If the Motor assembly has not been removed, the Bushing can be driven into the Case by protecting the faces of the Chest and Bushing with a piece of plank. Pressing or driving, keep the Bushing straight in the bore.

   Enter the Rotary Valve removed in step 2 into the Bushing bore until it contacts the Crank, then apply a slight thrust and slowly rotate the Valve to engage the Drive Pin with the Crank. Apply the Cover and install the Cap Screws.

5. Install the Motor Assembly on the Winch.
6. From the Valve Chest Assembly that was removed in step 3, press out the Rotary Valve Bushing as follows: Support the face of the Chest that contacted the Motor Case (the face from which the Bushing protrudes) and press out the Bushing using an arbor that will clear the Bushing Key (205) that projects into the Chest bore. **CAUTION**: The Bushing Key radially indexes the Chest with a Bushing or Control Block for proper air port alignment. It will be sheared by pressing the Bushing out of the Cover side of the Chest, or by allowing the arbor to contact the Key.
7. Align the longitudinal slot in the round boss on the Remote Control Block (200) with the Key in Chest and squarely press in the Block to the shoulder.
8. Mount the Control Block at the control station.
9. **If conversion to Automatic Brake is being made,** replace the Brake Inlet Plug (6) in the side of the Valve Chest with the Brake Pipe Elbow (262) then follow steps 12, 13 and 14 under **AUTOMATIC BRAKE**: If conversion does not include Automatic Brake, or if the Winch was already equipped with Automatic Brake, apply the Control Block Cover Gasket (219) and Control Block Cover (218).
10. Connect the Control Block (200) with the Valve Chest (224) on the Motor Case. Refer to Fig. II.