



# Operating Manual

**W5B, W6F, W8L  
& W12E**

Power Controlled  
Winches

This Manual must be with the vehicle  
on which this winch is installed

Winch Model \_\_\_\_\_

Serial Number \_\_\_\_\_

Date Delivered \_\_\_\_\_

Date Installed \_\_\_\_\_

Special Equipment or Attachments

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



A Product of Allied Systems Company  
Sherwood, Oregon USA



9/00  
Printed in USA

## Foreword

The safe and efficient operation of a winch requires skill and alertness on the part of the operator. To develop the skills required, the operator must:

- Receive training in the proper operation of the winch and the machine on which it is mounted.
- Understand the capabilities and limitations of the winch and the machine on which it is mounted.
- Become familiar with the winch and the machine on which it is mounted and see that they are maintained in good condition.
- Read and understand the WARNINGS and OPERATING PROCEDURES contained in this **Operating Manual**.

In addition, a qualified person experienced in the operation of the winch must guide a new operator through sev-

eral load handling applications before the new operator attempts to operate the equipment alone. It is the employer's responsibility to make sure that the operator can see, hear, and has the physical and mental ability to operate the equipment safely.

This **Operating Manual** contains basic information necessary for the operation and maintenance of a winch. Optional equipment is sometimes installed that can change the characteristics described in this manual. Make sure the necessary instructions are available and understood before operating the winch.

Some of the components described in this **Operating Manual** will NOT be installed on your winch. If you have questions about any item on your winch or described in this **Operating Manual**, contact your local winch dealer.

**NOTE:** For repairs and overhaul, contact your Allied winch dealer. If you maintain your own equipment, a service manual is available for your specific winch.

## Contents

<b>Foreword</b> .....	i
-----------------------	---

<b>Contents</b> .....	ii
-----------------------	----

<b>Warning</b> .....	iv
----------------------	----

### General

Introduction .....	1
How The Winch Operates .....	1
Nameplate .....	3
Cable Selection .....	4
Approved Oil List .....	4

### W5B Winch

Description .....	5
Optional Equipment .....	7
Serial Number Codes .....	8
W5B Tractor & Skidder Identification Codes .....	9
Operating Procedures .....	11
Power Operation .....	13
<b>FREESPOOL</b> Operation .....	15
<b>FREESPOOL</b> Adjustment .....	15
Checks Before Operation .....	16

Checks During Operation .....	16
W5B Troubleshooting Chart .....	17
Maintenance .....	19
Maintenance Schedule .....	20
Control Cable Adjustment .....	21

### W6F, W8L & W12E Winches

Description .....	24
Optional Equipment .....	26
Serial Number Codes .....	28
W6F Tractor & Skidder Identification Codes ....	29
W8L Tractor & Skidder Identification Codes ....	31
W12E Tractor & Skidder Identification Codes ..	32
Operating Procedures .....	33
Power Operation .....	35
<b>FREESPOOL</b> Operation .....	37
<b>FREESPOOL</b> Adjustment .....	37
Checks Before Operation .....	38
Checks During Operation .....	38
W6F, W8L & W12E Troubleshooting Chart .....	39
Maintenance .....	41
Maintenance Schedule .....	42
Control Cable Adjustment .....	43

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## **Operating Techniques**

Tractor or Skidder Operation .....	47
How To Move A Disabled Vehicle .....	50
Working on A Steep Slope .....	52
Tractor Is Down The Slope .....	52
Other Equipment Is Down The Slope .....	53

## Warning

**FAILURE TO FOLLOW THESE INSTRUCTIONS CAN CAUSE SERIOUS INJURY OR DEATH. AUTHORIZED, TRAINED OPERATOR ONLY.**

**KNOW THE EQUIPMENT:** Know the operating, inspection, and maintenance instructions in this **Operating Manual**. Do not operate the winch unless the vehicle is equipped with a screen to protect the operator if the cable breaks.

**INSPECT THE WINCH BEFORE USE:** Make sure that the controls and instruments operate correctly. Report the need for repairs immediately. Do not work with a damaged or worn cable. Do not use a winch that needs repairs. If the cable and ferrule must be removed from the drum, make sure the end of the cable and ferrule are controlled when the ferrule is released. The end of the cable can suddenly move from the drum like a compressed spring when the ferrule is released and cause an injury.

**PROTECT YOURSELF:** Do not use the control levers for hand holds when entering or leaving the vehicle. Do not

permit other people near the control area when you inspect or repair a machine. Never inspect, repair, or perform maintenance on a machine that is in motion. Stay in the operator's seat. Do not stand on the vehicle when operating the winch.

**KEEP A CLEAR WORK AREA:** Avoid winch operation near people or other machines. Never stand nor permit others to stand in the bight (loop) of a cable. Do not stand nor permit others to be near the winch or cable when there is tension on the cable. Observe jobsite rules. Be in complete control at all times.

**USE COMMON SENSE:** Do not use the control levers as hangers for clothes, water bags, grease guns, lunch pails, etc. Do not leave the vehicle when the winch cable is under tension. Do not permit riders on the vehicle or load. Do not use the winch as an anchor for a double or two-part line. Do not pull the hook through the throat or over the drum and cause damage. When the winch is not in use, make sure the control lever is in **BRAKE ON** position and the winch brake is applied.



## **WARNING**

Indicates a condition that can cause personal injury and/or property damage.



## **CAUTION**

Indicates a condition that can cause property damage

## Notes



## General

### Introduction

This Operating Manual is divided into separate sections to describe the various models of Allied winches. Models that have similar operating characteristics are described in the same section.

### How the Winch Operates

A winch is normally installed on a skidder or tractor:

- to increase the pulling power of the skidder or tractor.
- to reach into an area where a skidder or tractor cannot go.
- to make lift functions available when special attachments are installed.

The winch has hydraulic clutches that are similar to a hydraulic (powershift) transmission. Most tractors and

skidders have a power take-off (PTO) that is used to connect the power from the engine to the winch. The **SCH** (Self Contained Hydraulics) on the winch label indicates that the hydraulic system for control of the winch is inside of the winch case. When the PTO is operating, a hydraulic pump in the winch case takes hydraulic oil from the winch sump and sends it to the hydraulic control valve. The hydraulic control valve controls the operation of the winch. Removable covers on the winch case allow access for repairs and adjustments. The design of the winch cases permits a variation in the arrangement of PTO assemblies to fit the different tractors and skidders that use these winches.

The PTO is connected to the pinion assembly in the winch. When the pinion rotates, a spur gear turns the hydraulic pump and the pinion, which turns the ring gear (bevel gear). The bevel gear is connected to an oil clutch for the **LINE IN** (power forward) operation and another oil clutch for the **LINE OUT** (power reverse) direction.



The power through the winch to the drum for the cable is controlled by a **LINE IN** and a **LINE OUT** clutch. When the **LINE IN** clutch is applied, the drum rotates to pull the cable into the winch. When the **LINE OUT** clutch is applied, the drum rotates to permit the cable to be pulled from the winch at the speed controlled by the engine rpm.

When the control lever is in the **BRAKE ON** position, an oil brake is automatically applied by a spring to hold the drum in its position. If the control lever is moved to apply one of the clutches, the brake is released by the same oil pressure that applies the clutch. In the event that hydraulic power is lost, the brake remains applied and the winch will not turn.

The winches have an intermediate gear assembly that provides a gear reduction and increases the available torque at the winch drum. A sliding sleeve with splines engages the drum pinion gear and the intermediate gear. The operator can disengage the sliding sleeve with a control lever for the **FREESPOOL** operation when there is no load on the cable. When the control lever is in the **FREESPOOL** position, the sliding sleeve disengages the drum pinion gear from the intermediate gear. The gear train is disengaged from the clutch and brake shaft so

that the cable can be pulled from the drum by hand. Only the drum and drum pinion gear rotate when the cable is pulled from the drum during a **FREESPOOL** operation.

**NOTE:** The W12E does not have a **FREESPOOL** option.

## Nameplate

Each winch is shipped from the factory with a nameplate as shown in Figure 1. The rated capacity for the winch, as it is equipped, is shown on the nameplate. Each winch must be operated within its rated capacity. If the nameplate is missing, or the cable does not match the information on the nameplate, do not operate the winch until its capacity is known.

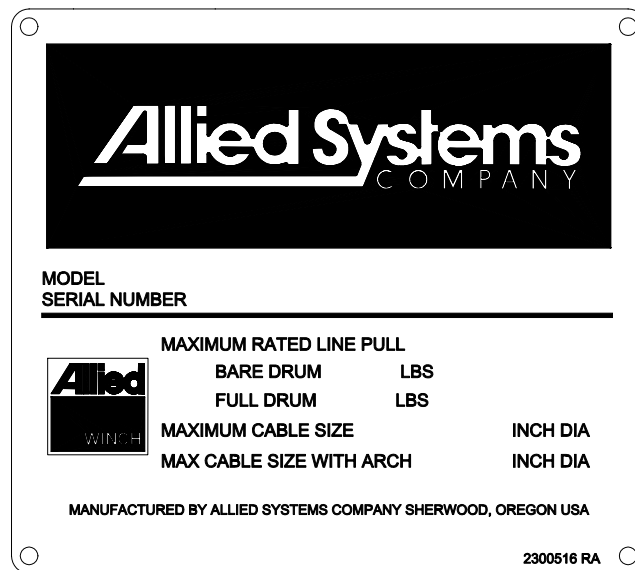


Figure 1 - Nameplate

## Cable Selection

Each winch model can have a variety of cable (wire rope) sizes installed by the user. The maximum cable size is shown on the nameplate. When a larger diameter cable is used, the length of cable installed on the drum will be shorter. In some situations, the winch can create a tension in the cable that is greater than the strength of the cable. The user must be careful to select a cable that has enough strength and length for the job.



## WARNING

**During operation of the winch, the operator must know or estimate the line pull and make sure that the line pull is within the capacity of the winch and the specifications of the cable installed on the drum. A broken cable under high tension can return suddenly in the direction of the winch and cause injury and damage.**

## Approved Oil List

The type of oil used in current Allied winches affects the line control. Use **ONLY** the following oils in the W5B, W6F, W8L and W12E winches:

### Company

Amoco Oil Company  
Exxon Company  
John Deere

Sun Oil Company

### Brand

Amoco 1000 Fluid  
Torque Fluid 56  
Hy-Gard Transmission & Hydraulic Oil  
Sunfleet TH Universal  
Tractor Fluid

Table 1 - Approved Oil List

**NOTE:** For operation in temperatures below -23°C (-10°F), use John Deere J20D “Low Viscosity Hygard” or equivalent

## W5B Winch

### W5B Winch Description

The W5B winch is a power forward (**LINE IN**) and a power reverse (**LINE OUT**) winch used on tractors with a uni-directional PTO. This winch also has a **FREESPOOL** function so that cable can be pulled from the drum by hand.

The W5B winch has a maximum line pull capacity of 222,400 N (50,000 lbf) when there is one layer or less of cable on the drum.

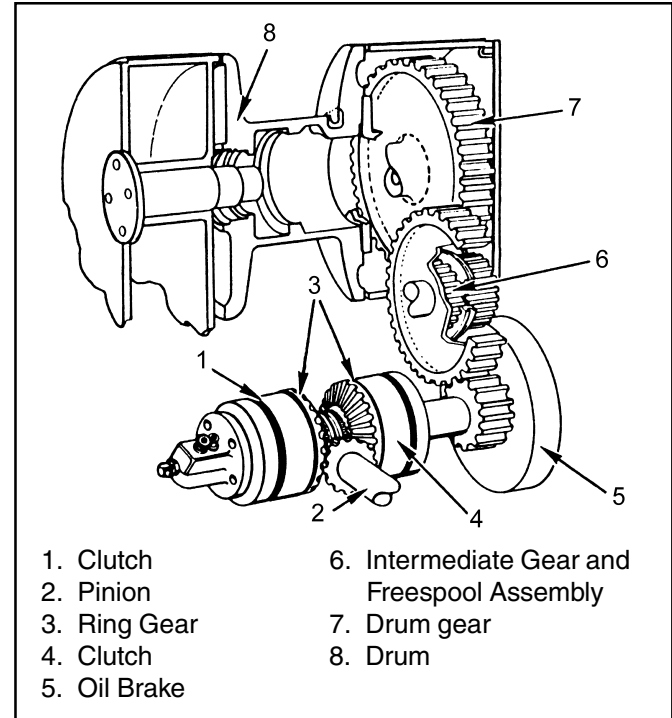
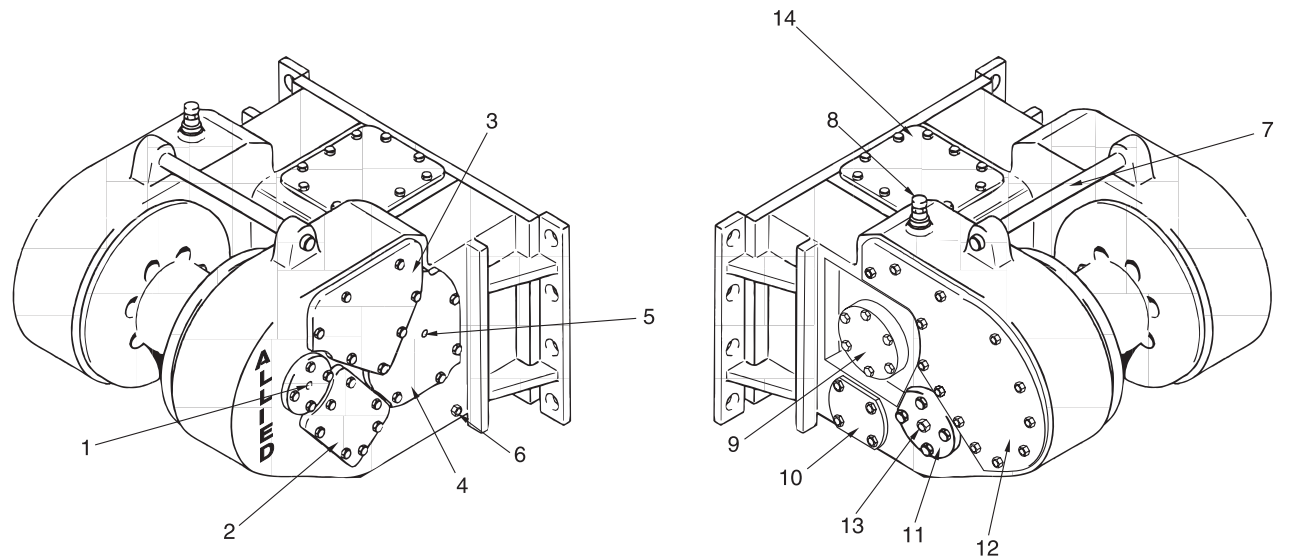


Figure 2 - W5B Winch, Typical Gear Train



- |                                    |   |
|------------------------------------|---|
| 1. Drum Shaft                      | 8. Fill Plug and Breather                                   |
| 2. Access Cover for Filter         | 9. Cover for Oil Brake                                      |
| 3. Access Cover to Hydraulic Valve | 10. Cover for Oil Strainer                                  |
| 4. Access Cover to Clutch Shaft    | 11. Bearing Retainer for Intermediate Shaft                 |
| 5. Plug to Check Oil Level         | 12. Access Cover for Drum Gear                              |
| 6. Plug to Drain Oil               | 13. Freespool Adjust (Standard on AW5B-1291 and above only) |
| 7. Tie Rod                         | 14. Cover for Bevel Gear Adjust and Gear Box                |

Figure 3 - W5B Towing Winch

## Optional Equipment

The W5B winch may be equipped with the following options:

- integral arch
- fairlead assembly
- drawbar
- alternate gear ratio

**NOTE:** Not all optional equipment listed is available for each model of tractor.

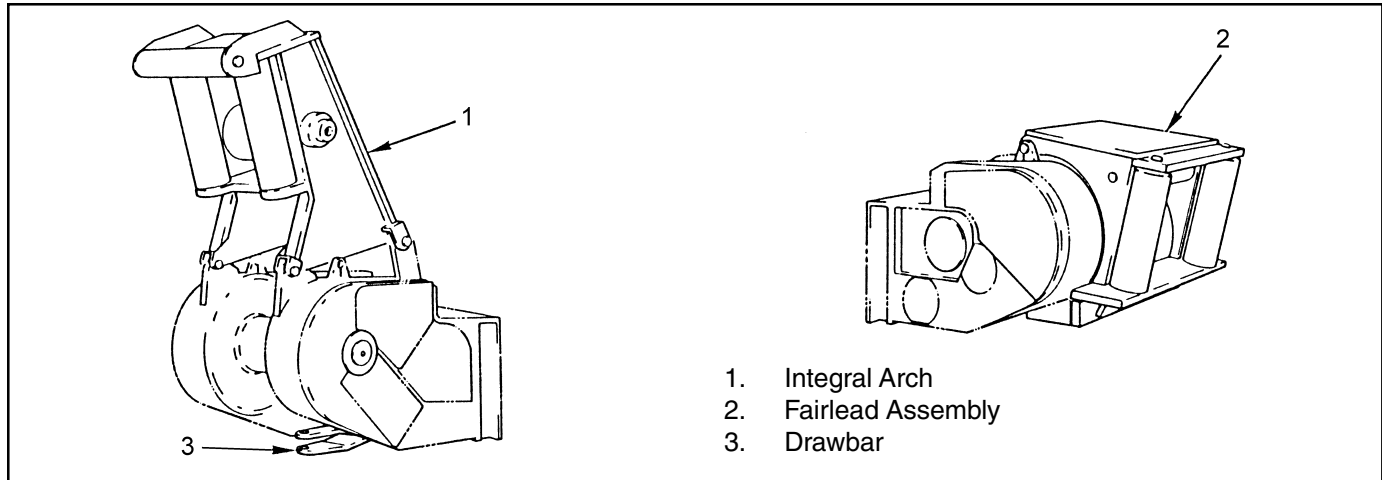


Figure 4 - W5B Towing Winch, Optional Equipment

Cable Diameter	Capacity for 216 mm (8.5 in) Drum Diameter
16 mm (5/8 in)	124 m (407 ft)
19 mm (3/4 in)	87 m (287 ft)
22 mm (7/8 in)	63 m (206 ft)

Table 2 - Drum Line Capacities for W5B Winch

## Serial Number Codes

The nameplate with the serial number code is found on the left front corner of the winch case. A serial number indicates the following information:

<b><u>A</u></b>	<b><u>W5B</u></b>	<b><u>P</u></b>	<b><u>4</u></b>	<b><u>B</u></b>	<b><u>1955</u></b>	<b><u>A34</u></b>
1	2	3	4	5	6	7

Where:

- 1 = Manufacturer (A is Allied Systems Company, while a blank indicates Hyster)
- 2 = Winch model
- 3 = Type of winch drive (P is Power Controlled Winch)
- 4 = Gear ratio code (See Table 3 on page 9)
- 5 = Internal Options  
(B is Power Forward/Reverse with Freespool)
- 6 = Sequence number of manufacture
- 7 = Application code for the model of tractor (please refer to Table 3)

NOTE: Circled numbers in Table 3 indicate available gear ratios.



Tractor Make Model and Starting Tractor Serial Number Where Applicable						
<b>C</b> <b>O</b> <b>D</b> <b>E</b>	<b>A</b> Fiat-Hitachi/ New Holland	<b>C</b> Caterpillar	<b>E</b> John Deere	<b>H</b> Dresser	<b>K</b> Komatsu	<b>R</b> Case
<b>27</b>					D41E-6 (6) (8)	
<b>29</b>		D6M PS (2) (5) (10)				
<b>30</b>		D5M PS (2) (5) (10)				
<b>32</b>	10B FL10B (4) (7)		JD 750/750B w/ Cab (2) (5) (10)		D41A/P (6) (8)	
<b>33</b>	10C (4) (7)		JD 750/750B w/ Cab (2) (5) (10)		D41A/P (6) (8)	
<b>34</b>	8B FD9 FL9 (4) (7)	D4D D4E *a (1) (3)	JD 750/750B w/o Cab (2) (5) (10)		D45 (4)	
<b>35</b>	10C FL10C (4) (7)	D5E (2) (10)		TD-12B/C (2) (10)	D41A-3 (6) (8)	1150D 1150E (2) (13)
<b>36</b>					D53 D58 D63 (8) (7)	

## Gear Ratios:

- 1 = 25.82:1
- 2 = 32.27:1
- 3 = 40.33:1
- 4 = 41.31:1
- 5 = 66.91:1
- 6 = 69.92:1
- 7 = 71.70:1
- 8 = 55.32:1
- 9 = 88.10:1
- 10 = 117.00:1
- 11 = 15.56:1
- 12 = 115.30:1
- 13 = 78.37:1

\*a D4BP 83J3553 & up, 47H1786 & up, 59J2553 & up, 7R926 & up.

All 28X, 51X, 52X, 69X, 71X & 77W

Table 3 - Tractor or Skidder Identification Codes and Available Gear Ratios for W5B Winch (continued on next page)

Tractor Make Model and Starting Tractor Serial Number Where Applicable						
<b>C O D E</b>	<b>A</b> Fiat-Hitachi/ New Holland	<b>C</b> Caterpillar	<b>E</b> John Deere	<b>H</b> Dresser	<b>K</b> Komatsu	<b>R</b> Case
<b>39</b>	FL10E FD10E (4) (7)	Challenger 65/75 (7) (12)				
<b>45</b>			750C (2) (5) (10)			
<b>360</b>		D4H PS I/II (2) (5) (10)				
<b>361</b>		D4H DD (2) (5) (10)				
<b>362</b>		D4H PS III/XL/LGP (2) (5) (10)				
<b>370</b>		D5H PS (2) (5) (10)				
<b>371</b>		D5H DD (2) (5) (10)				
<b>380</b>		D6H w/ Young Grapple (7) (12)				
<b>381</b>		D6H w/ Esco Grapple (7) (12)				

### Gear Ratios:

1 = 25.82:1  
 2 = 32.27:1  
 3 = 40.33:1  
 4 = 41.31:1  
 5 = 66.91:1  
 6 = 69.92:1  
 7 = 71.70:1  
 8 = 55.32:1  
 9 = 88.10:1  
 10 = 117.00:1  
 11 = 15.56:1  
 12 = 115.30:1  
 13 = 78.37:1

Table 3 - Tractor or Skidder Identification Codes and Available Gear Ratios for W5B Winch (Cont.)

## Operating Procedures

There are three different configurations of control levers to fit the variation in applications. The control lever assembly has two control levers and the operation is the same in all configurations. Both control levers are connected to the winch through control cables. The power control lever is connected to the spool in the control valve. This lever is used to select one of the following operations:

- **BRAKE OFF**
- **LINE OUT**
- **BRAKE ON**
- **LINE IN**

Except for the **BRAKE OFF** position, the power control lever will return to the **BRAKE ON** position when the control lever is released. A spring arrangement on the spool of the control valve returns the spool and control lever to the **BRAKE ON** position. A ball and detent arrangement will hold the spool and control lever in the **BRAKE OFF** position. The operator must pull the control lever from the **BRAKE OFF** position.

The **BRAKE ON** position is a neutral position. No hydraulic pressure is applied to the brake or the clutches. Springs apply the brake so that the winch drum will not rotate.

The **BRAKE OFF** position has a detent and is a neutral position for the clutches. Hydraulic pressure is applied to release the brake. The winch will not rotate easily because of friction in the clutches, brake and gear train. Cable cannot be pulled from the winch by hand. The **BRAKE OFF** position is different from the **FREESPOOL** position where the drum is disengaged from the gear train. The **BRAKE OFF** position is used when the operator has a load on the winch cable. The operator can move the tractor forward without moving the load and still keep the cable tight.

A second control lever engages and disengages a sliding sleeve to control the **FREESPOOL** operation. The **FREESPOOL** control lever has two positions: **NORMAL OPERATION** and **FREESPOOL**. The **FREESPOOL** control lever disengages the gear train so the cable can be pulled from the winch by hand.

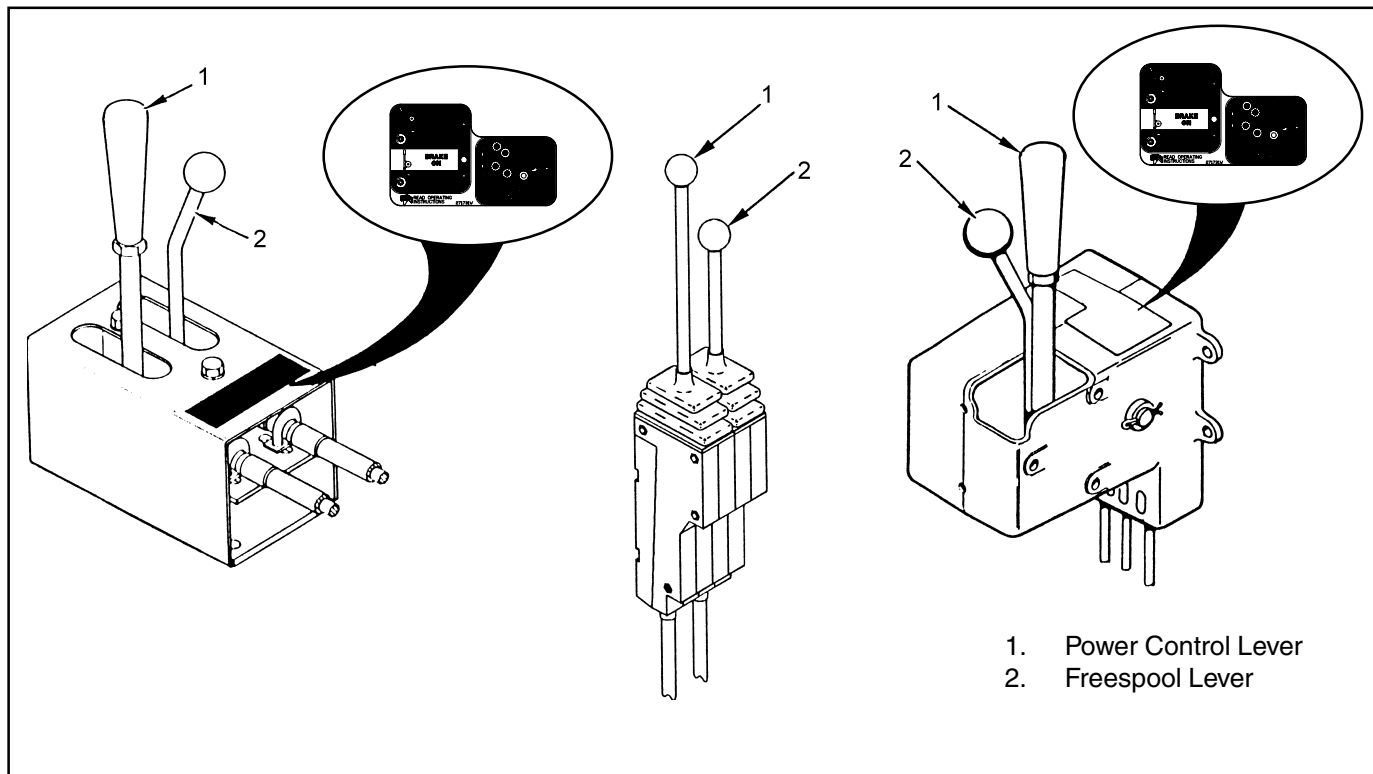
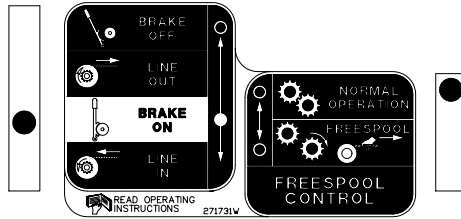


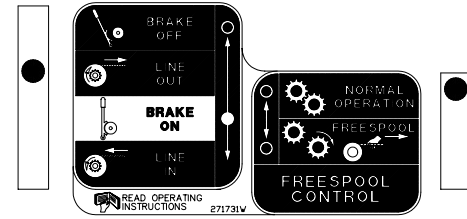
Figure 5 - W5B Towing Winch Operator Controls

# W5B Winch Operation

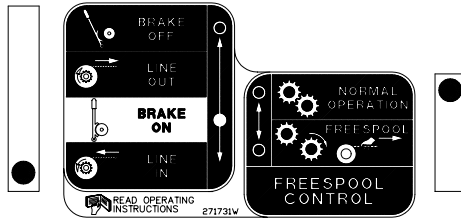
## Power Operation



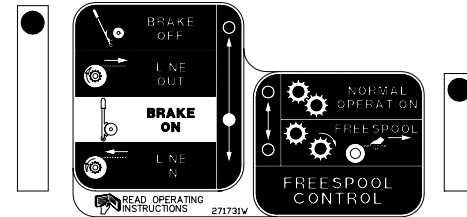
**BRAKE ON** position is a neutral position. Neither clutch is applied. The brake is fully applied.



**LINE OUT** position applies the **LINE OUT** clutch and releases the brake. The winch will unwind the cable at a speed controlled by the PTO speed of the tractor and the weight of the load.



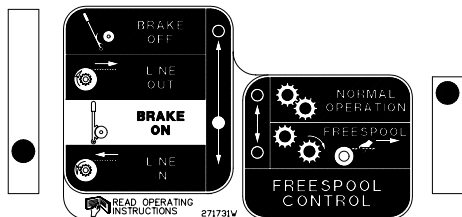
**LINE IN** position applies the **LINE IN** clutch and releases the brake. The winch will wind the cable at a speed controlled by the PTO speed of the tractor.



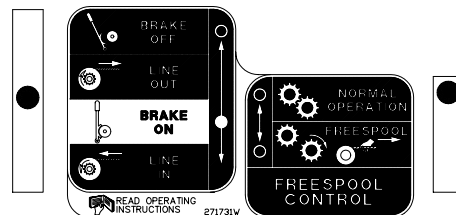
**BRAKE OFF** position is a detent position. The clutches are released and the oil pressure has released the brake. This position will permit the cable to unwind from the winch against the friction of the clutches, brake, and gear train as the tractor moves away from the load.

**Inching** is used for a fine control of the winch speed. When the power control lever is slowly moved to a position between **BRAKE ON** and **LINE IN** or between **BRAKE ON** and **LINE OUT**, inching occurs. The normal adjustment of inching for **LINE IN** is different from the adjustment for **LINE OUT**. These adjustments can be modified by changing the overlap pressures of the modulator valves. This change is necessary for some customer operations. The following paragraphs describe the normal adjustments for inching.

**NOTE: Excessive inching will accelerate clutch & brake wear.**



**Inching (LINE IN).** This operation is used to slowly move a load toward the tractor. The control valve will cause the oil pressure to slowly release the brake and slowly apply the **LINE IN** clutch. As the brake is released, the clutch takes control and begins to move the load.



**Inching (LINE OUT).** This operation will release the brake before the **LINE OUT** clutch is applied. This adjustment permits the weight of the load to unwind cable from the winch drum against the resistance of the brake. The operator controls the resistance of the brake by the position of the power control lever. The **LINE OUT** clutch is not applied until the operator moves the power control lever more toward the **LINE OUT** position. When the power control lever is moved so that the **LINE OUT** clutch is engaged, the speed that the drum unwinds is controlled by the rpm of the tractor PTO.

# W5B Winch Operation

## FREESPOOL Operation



### WARNING

The control lever normally cannot be moved to the **FREESPOOL** position if there is a load on the cable. If enough force is used to disengage the gear train for the **FREESPOOL** operation, an uncontrolled release of the load will occur. Loss of the load can result in injury and damage.

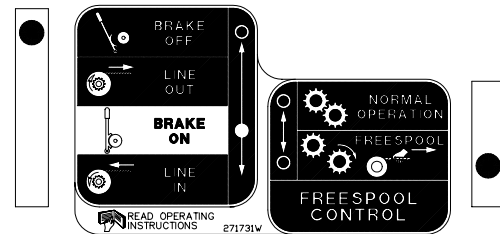
The power control lever must be in the **BRAKE ON** or **BRAKE OFF** positions to operate the **FREESPOOL** control lever. When the **FREESPOOL** control lever is moved to the **FREESPOOL** position, the winch drum is disengaged from the gear train. The **FREESPOOL** operation permits the cable to be pulled from the winch drum by hand.

If the **FREESPOOL** control lever cannot be moved to engage the gear train for power operation, apply a clutch to move the gear train a small amount. This action will align the splines in the sliding sleeve so that the intermediate gear can be engaged.

## FREESPOOL Drag Adjustment For All W5B and AW5B-1290 and below, without Exterior Drag Adjust

The preload on the bearings of the intermediate shaft controls the resistance to rotation of the drum during the **FREESPOOL** operation. The resistance to rotation is correct when the drum can be rotated by hand, but the drum will not rotate more than one-half revolution freely.

The addition or removal of shims for the preload on the bearings of the intermediate shaft requires the removal of the cover for the intermediate shaft. This adjustment is normally only necessary if the winch has had an overhaul. See the **Service Manual** if this adjustment is required.



## FREESPOOL Drag Adjustment for AW5B-1291 and Above with Exterior Drag Adjust

The preload on the bearings of the intermediate shaft controls the resistance to rotation of the drum during the **FREESPOOL** operation. The resistance to rotation is correct when the drum can be rotated by hand, but the drum will not rotate more than one-half revolution freely.

An adjusting screw is located in the center of the bearing retainer for the intermediate shaft; please refer to figure 5. This screw can be tightened or loosened to adjust the preload on the intermediate shaft. The jam nut will maintain the **FREESPOOL** setting.

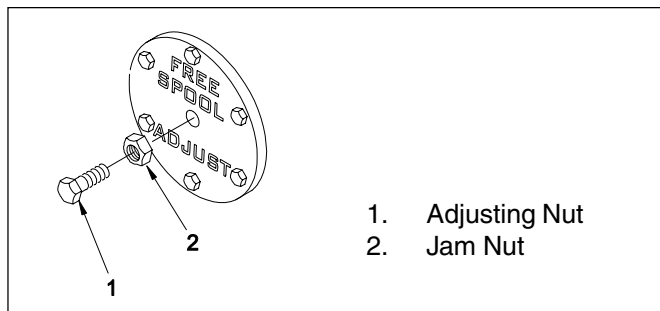


Figure 6 - FREESPOOL Adjustments

## Checks Before Operation

Check that the cable and hook are not worn or damaged. Check that the periodic inspection and maintenance have been done at the recommended operating hours. See the **Maintenance Schedule** for the W5C winch on page 18.

## Checks During Operation

The following **Troubleshooting Chart** can be used by the operator to identify a problem with the winch operation. A trained service person is needed for additional troubleshooting and repair that requires disassembly of parts of the winch.



# W5B Winch Operation

PROBLEM	POSSIBLE CAUSE	CORRECTION
Operation is rough or not regular	Hydraulic oil is too cold.	Put the control lever in the <b>BRAKE OFF</b> position. Run the engine at 1000 rpm to warm the oil before operating the winch.
	Low oil level.	Add hydraulic oil to the correct level.
	Low oil pressure.	See the <b>Service Manual</b> for additional troubleshooting.
	Wrong oil.	Drain oil and replace with correct grade. Refer to the approved oil list.
	Control cables need adjustment.	Check for correct adjustment. Make sure the ends of the cables are fastened correctly.
Hydraulic oil becomes too hot.	Winch is operated in the <b>BRAKE OFF</b> position for long periods.	Use the <b>BRAKE OFF</b> position less. When the <b>BRAKE OFF</b> position is used, the hydraulic oil flows continuously through the relief valve. See the <b>Service Manual</b> for additional troubleshooting.
	Low oil level.	Add oil.
	Clogged suction strainer.	Check and clean or replace the suction strainer.
	Defective or improperly adjusted oil relief valve.	See the <b>Service Manual</b> for additional troubleshooting.
Brake begins to release before clutch is applied.	Brake is worn or needs adjustment.	See the <b>Service Manual</b> for additional troubleshooting.
	Pressure modulator needs repair or adjustment.	

Table 4 - Troubleshooting Analysis Chart (continued on next page)

PROBLEM	POSSIBLE CAUSE	CORRECTION
Winch brake does not apply or release correctly.	Brake is worn or needs adjustment.	See the <b>Service Manual</b> for additional troubleshooting.
	Low oil pressure.	
Clutch does not apply correctly.	Worn or damaged clutch.	See the <b>Service Manual</b> for additional troubleshooting, checks and adjustments.
	Control valve or control cable needs adjustment.	
	Low oil pressure.	
Clutch does not apply correctly at low PTO rpm.	Accumulator not charged.	Check accumulator.
	PTO speed stalled (0 rpm).	Increase tractor rpm.
<b>FREESPOOL</b> does not operate correctly.		See the <b>Service Manual</b> for additional troubleshooting, checks and adjustments.
Winch engine stops during shift when engine speed is low.	Not enough engine torque.	Increase engine rpm.
	Low accumulator pressure.	See the <b>Service Manual</b> for additional troubleshooting, checks and adjustments.

Table 4 - Troubleshooting Analysis Chart (cont.)

# W5B Winch Maintenance

## Maintenance

The Maintenance Schedule is a program that includes periodic inspection and lubrication. Use the operating time

on the hour meter of the tractor to find the maintenance time for the winch.

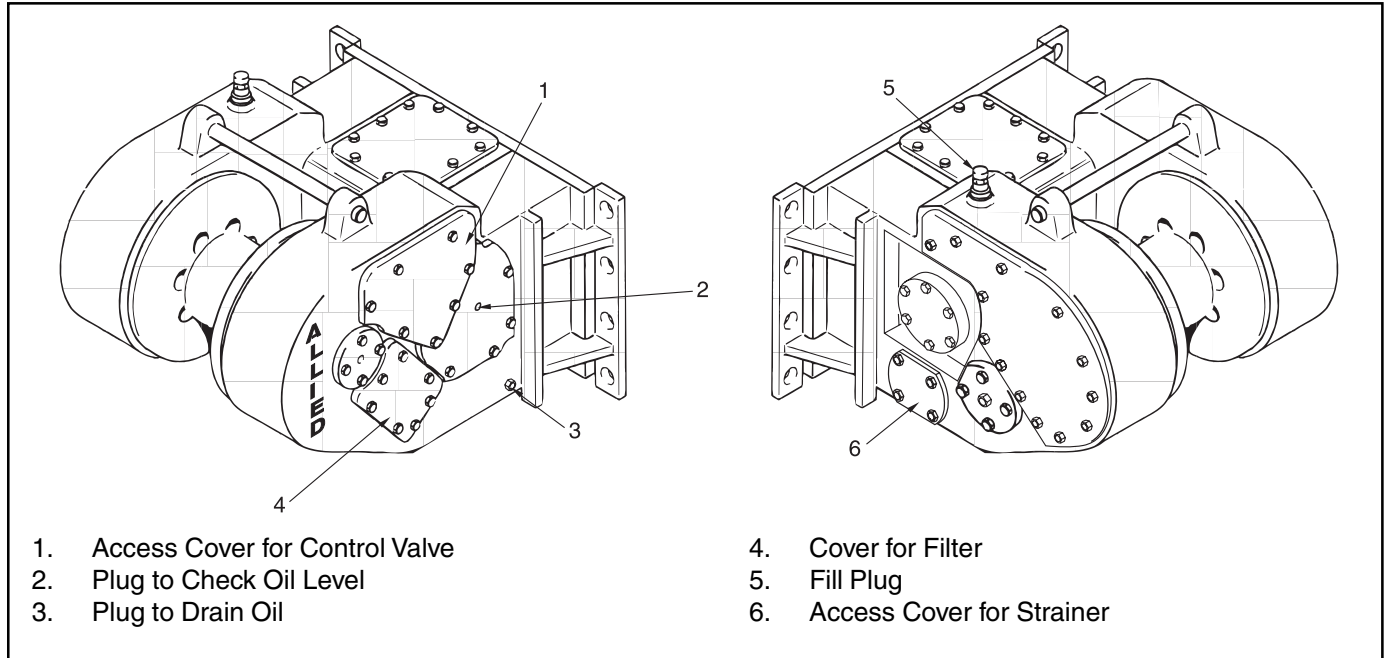


Figure 7 - W5B Winch Maintenance Points

INTERVAL	PROCEDURE OR QUANTITY	SPECIFICATION
50 hours or weekly *	Check oil level at plug (item 2). Add oil as necessary. <b>Do not operate the tractor when checking the oil level.</b>	See Table 1 – Approved Oil List.
	Lubricate the winch control lever and the <b>FREESPOOL</b> control lever.	Use SAE 30 oil on the linkage as needed. Check that the control cable and control housing are fastened correctly.
	Clean the breather in the fill plug.	Remove debris around breather. Clean the breather with solvent if necessary.
	Lubricate the rollers on the integral arch or the fairlead assembly if the winch is equipped with this option.	Use multi-purpose grease with 2-4% molybdenum disulfide.
500 hours or every 3 months	Clean the oil suction screen and magnets.*	Tilt the tractor approximately 15° to prevent loss of oil when the cover is removed. Use a new gasket between the cover and the suction tube.
	Clean the breather in the fill plug.	Clean the breather with solvent.
	Replace the filter.*	See the <b>Parts Manual</b> for filter element and cover gasket.
1000 hours or every 6 months	Change the hydraulic oil. Drain oil from plug (item 3). Clean the oil strainer. Add 24 liters (25 quarts) <sup>†</sup> through fill plug (item 5). Check the oil level at item 2.	See Table 1 – Approved Oil List.
* NOTE: Clean the oil strainer screen and change the oil filter after the first 50 hours on new and rebuilt winches. † Amount of oil may vary slightly with tractor.		

Table 5 - Maintenance Schedule

## Control Cable Adjustment

There are three configurations of operator controls normally used on the W5B winch. Adjustments of the three configurations are described in the following paragraphs. Check the operation of the power control lever to make sure it moves smoothly and will return to the **BRAKE ON** position. The power control lever will stay in **BRAKE OFF** when pushed into **DETENT** position. **Make sure the control lever does not hit the handlever housing at the end of its travel.**

**A.** See Figure 8. Make sure the positions of the power control lever (Item 2) are the same as the position indicators on the control housing. Remove the two capscrews and raise the cover. Loosen the U-bolt (Item 4) that holds the power control cable (Item 5) in the housing to adjust the hand lever.

Check that the positions of the **FREESPOOL** lever (Item 1) are the same as the position indicators on the control housing. Loosen the U-Bolt (Item 4) that holds the freespool control cable (Item 3) in the housing to adjust the control lever. The linkage and cable must be adjusted so that the **FREESPOOL** shifter mechanism will slide the drum pinion gear to both positions. Both positions have a

detent. Install the cover when the adjustments are complete.

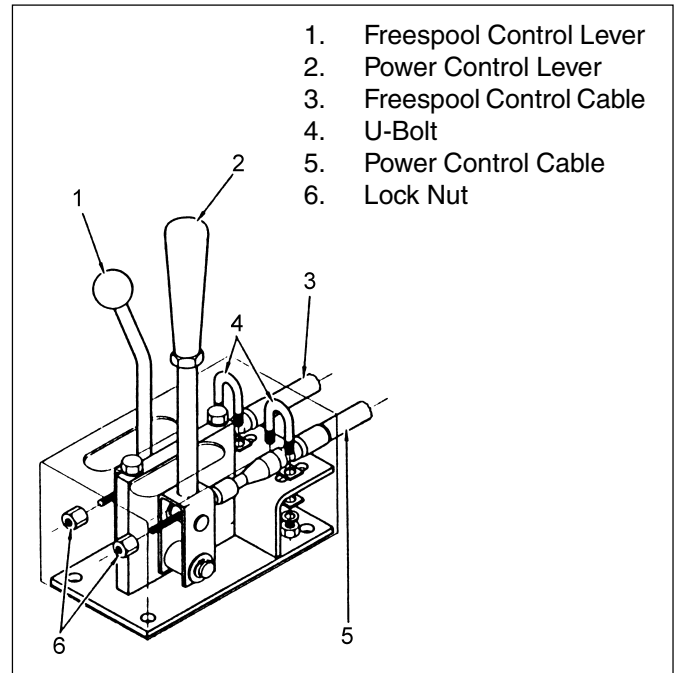


Figure 8 - Control Cable Adjustments

**B.** See Figure 9. Make sure the positions of the power control lever are the same as the position indicators on the decal. Remove the access cover (Item 1) on the housing to make adjustments. Loosen the jam nut (Item 8) that keeps the tall nut (Item 3) from turning and remove the button head capscrew (Item 9). Remove the cotter pin and link pin (Item 5) from the clevis (Item 2). Turn the tall nut and clevis to adjust the length of the control cable (Item 5). Use the link pin and cotter pin to connect the clevis to the control handle again and check the operation. When the adjustment is complete, install the access cover.

Check that the positions of the **FREESPOOL** lever are the same as the position indicators on the decal. Remove the access cover on the housing. Loosen the nut that keeps the tall nut from turning and remove the button head capscrew. Remove the cotter pin and link pin from the clevis. Turn the tall nut and clevis to adjust the length of the control cable. Use the link pin and cotter pin to connect the clevis to the control handle again and check the operation. The linkage and cable must be adjusted so that the **FREESPOOL** shifter mechanism will slide the drum pinion gear to both positions. Both positions have a detent. When the adjustment is complete, tighten the tall nuts and install the cover.

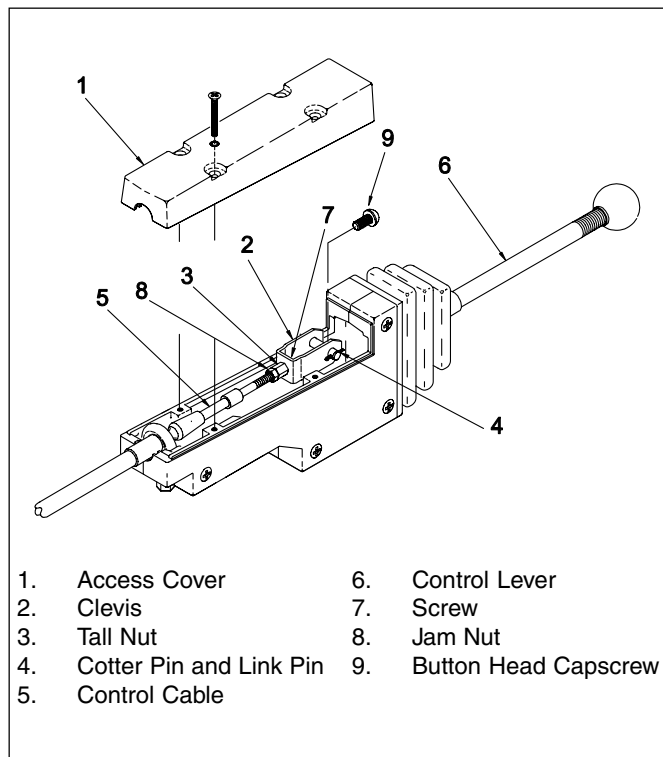


Figure 9 - Control Cable Adjustments

# W5B Winch Maintenance

C. See Figure 10. This configuration was last used during 1993.

Check the operation of the power control lever (Item 1) to make sure it moves smoothly and will return to the **BRAKE ON** position. The power control lever will stay in the **BRAKE OFF** position when pushed into the detent position.

Check that the positions of the power control lever are the same as the position indicators on the decal. Loosen the U-bolt (Item 6) that holds the power control cable (Item 8) in the housing to adjust the control lever. **Make sure the control lever does not hit the housing at the end of its travel.** Check the operation of the **FREESPOOL** lever (Item 2) for smooth operation. Each of the two positions has detent.

Make sure the positions of the **FREESPOOL** lever are the same as the position indicators on the decal. Loosen the U-bolt that holds the freespool control cable (Item 7) in the housing to adjust the control lever. The linkage and cable must be adjusted so that the **FREESPOOL** shifter mechanism will slide the drum pinion gear to both positions. Both positions have a detent.

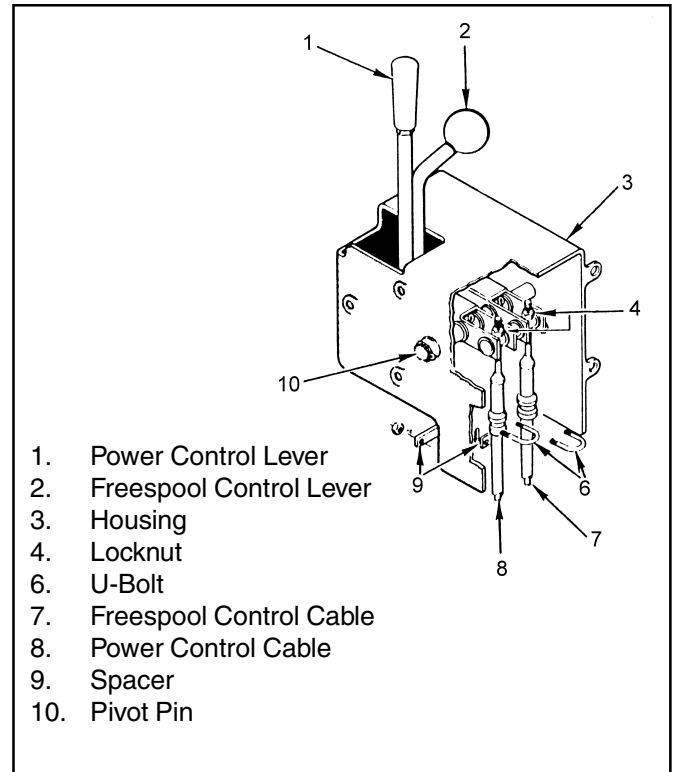


Figure 10 - Control Cable Adjustments

## W6F, W8L & W12E Winches

### W6F, W8L & W12E Winch Description

The W6F, W8L and W12E are similar in design. They are winches with power forward (**LINE IN**) and power reverse (**LINE OUT**) functions used on tractors with a unidirectional PTO.

On most of the available gear ratios, the **LINE IN** function has a greater gear reduction to provide more power for the line pull. The **LINE OUT** function has less gear reduction so the cable can be unwound from the drum at a faster rate.

A **FREESPOOL** function is standard on the W6F winch (except in Asia) and is available as an option on the W8L winch. The **FREESPOOL** function is not available on the W12E winch.

The W6F winch has a maximum line pull capacity of 266,880 N (60,000 lbf) when there is one layer or less of cable on the drum.

The W8L winch has a maximum line pull capacity of 355,480 N (80,000 lbf) when there is one layer or less of cable on the drum.

The W12E winch has a maximum line pull capacity of 533,760 N (120,000 lbf) when there is one layer or less of cable on the drum.



# W6F, W8L & W12E Winch

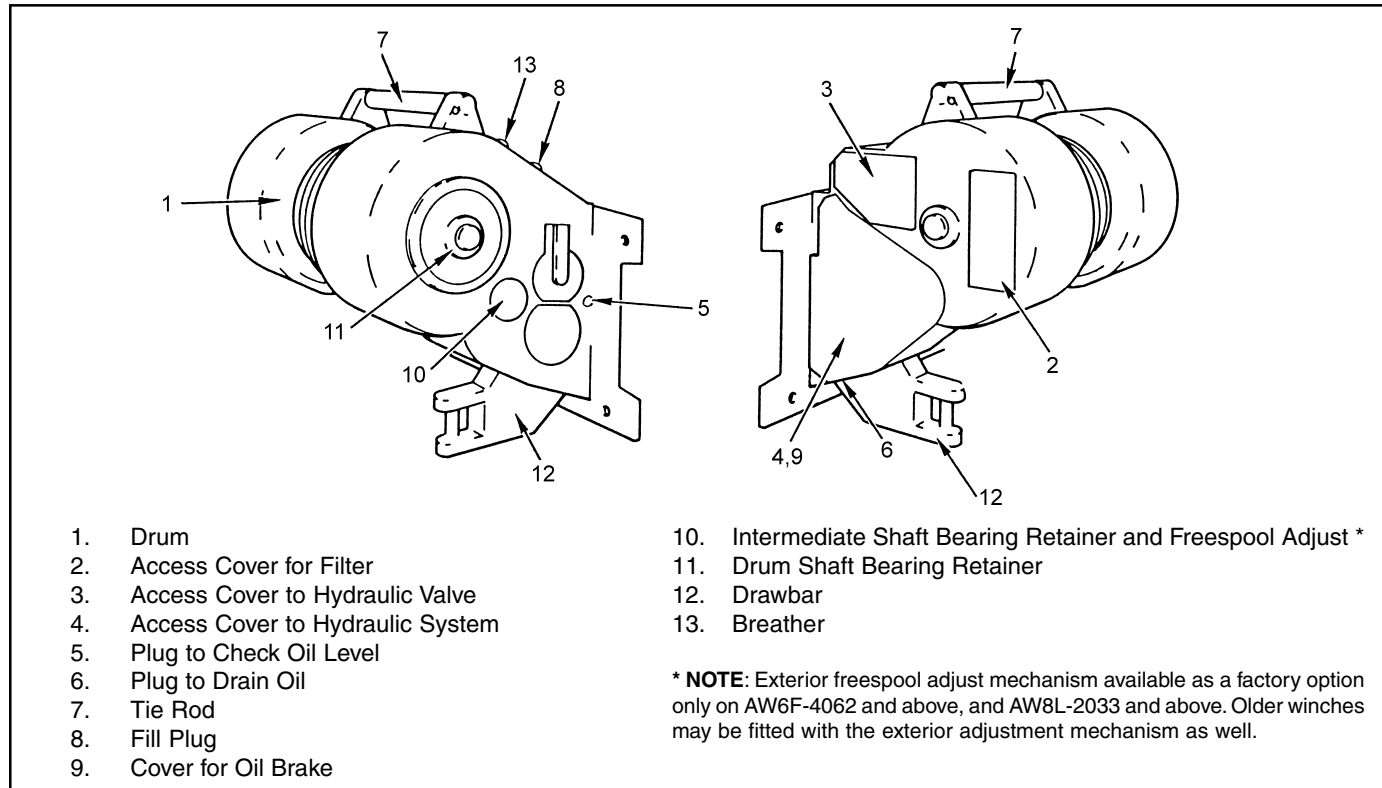


Figure 11 - W6F, W8L & W12E Towing Winches

## Optional Equipment

The W6F, W8L and W12E winches may be equipped with the following options:

**NOTE:** Not all optional equipment listed is available for each model of tractor.

- integral arch
- fairlead assembly
- alternate diameter drum
- alternate gear ratio
- freespool function

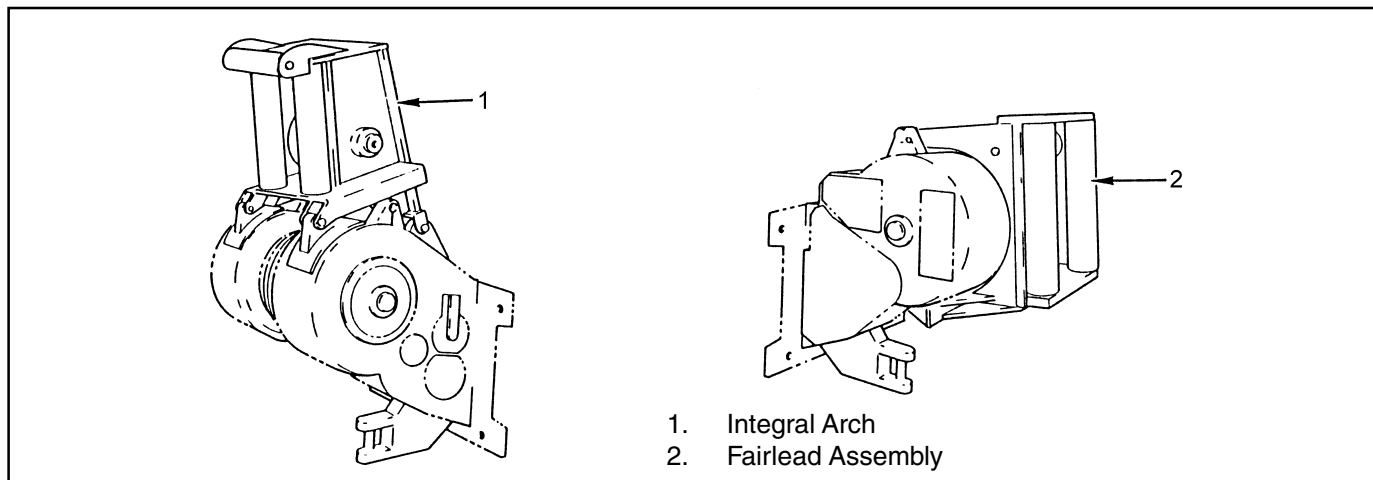


Figure 12 - Optional Equipment

# W6F, W8L & W12E Winch

Cable Diameter	Capacity For 254 mm (10 in) Drum Diameter	Capacity For 178 mm (7 in) Drum Diameter
19 mm (3/4 in)	113 m (307 ft)	129 m (425 ft)
22 mm (7/8 in)	89 m (293 ft)	93 m (305 ft)
25 mm (1 in)	63 m (206 ft)	72 m (237 ft)
NOTES: Loosely or unevenly spooled line will change capacities. Use flexible cable with independent wire rope center.		

Table 6 - Drum Line Capacities for **W6F** Winch

Cable Diameter	Capacity For 305 mm (12 in) Drum Diameter	Capacity For 203 mm (8 in) Drum Diameter
22 mm (7/8 in)	89 m (293 ft)	93 m (305 ft)
25 mm (1 in)	63 m (206 ft)	72 m (237 ft)
28.6 mm (1 1/8 in)	65 m (214 ft)	68 m (224 ft)
NOTES: Loosely or unevenly spooled line will change capacities. Use flexible cable with independent wire rope center.		

Table 7 - Drum Line Capacities for **W8L** Winch

Cable Diameter	Capacity For 355 mm (14 in) Drum Diameter	Capacity For 235 mm (9.5 in) Drum Diameter
28 mm (1 1/8 in) 32mm (1 1/4 in)	67 m (220 ft) 53 m (175 ft)	84 m (276 ft) 67 m (220 ft)
NOTES: Loosely or unevenly spooled line will change capacities. Use flexible cable with independent wire rope center.		

Table 5 - Drum Line Capacities for **W12E** Winch

## Serial Number Codes

The nameplate with the serial number code is found on the left front corner of the winch case. A serial number indicates the following information:

**A**      **W6F**    **P**      **1**      **F**      **1995**    **H42**  
1          2          3          4          5          6          7

Where:

- 1 = Manufacturer (A is Allied Systems Company, while a blank indicates Hyster)
- 2 = Winch model
- 3 = Type of winch drive  
(P is Power Controlled Winch)  
(X is Direct Drive - Gear Drive)

- 4 = Gear ratio codes (See Table 7, 8 and 9)
- 5 = Internal Options  
(F = Freespool)  
(G = Freespool without automatic brakes)  
(H = Freespool with automatic brakes)  
(N = Non-freespool)
- 6 = Sequence number of manufacture
- 7 = Application code for the model of tractor (please refer to Tables 8, 9 and 10)

NOTE: Circled numbers in tables indicate available gear ratios

# W6F, W8L & W12E Winch

Tractor Make Model and Starting Tractor Serial Number Where Available							
C o d e	A	C	E	H	K	M	R
	Fiat-Hitachi	Caterpillar	John Deere	Dresser	Komatsu	MF	JI Case
32			750/750B w/Cab (3)(4)(6)(8)				
40		527 (1)(2) (6)(8)(9)					
41	11B PS (1)	D5B 24X 25X D5E-PS 95J 96J (1)(2)(4)	750/750B w/o Cab (3)(4)(6)(8)	TD15B/C PS 175C (1)(2)(4) (6)(8)(9)	D60-6DD D7OLE (2)(3) (4)(6)(8)	D600C/D (1)	1550 (2)(3)(4) (6)(8)(9)
42	11B DD (1)	D5B D53-DD 22X 23X 26X (1)(2)(4)	850/850B w/Cab (2)(3)(4) (6)(8)(9)	TD15BG DD 501 (1)(2)(4)	D65A/E6 (1)(2)(4)		
43	12G (1)	D6D PS 3X 4X 5X 10K 76A (1)(2)(4) (6)(8)(9)	850/850B w/o Cab (2)(3)(4) (6)(8)(9)	250C/E (1)(2)(4) (6)(8)(9)	D65S-6 (1)		
44	14B PS 14 C FL 14B (1)	D6D DD 3X 5X 74A 99J (1)(2) (4)(6)(8)	855 (1)	TD15E PS (1)(2)(4) (6)(8)(9)	D75S-3 (1)		

Table 8 - Tractor or Skidder Identification Codes and Available Gear Ratios for W6F Winch

Tractor Make Model and Starting Tractor Serial Number Where Available							
C o d e	A	C	E	H	K	M	R
	Fiat-Hitachi	Caterpillar	John Deere	Dresser	Komatsu	MF	JI Case
45	14B 14C DD FD14 DD (1) (2) (3)	977 (S/N 46H, 11K) (1) (2) (4)	750C (6) (8)	TD15E DD (1) (2) (4) (6) (8)	D65E-8 D68-1 (1) (2)		
46	14C FL14C FD14 (1) (2) (3) (6) (8) (9)	977L (1) (2) (4)	850C (2) (6) (8) (9)		D65EX-12 (1) (2)		
47	10C PS (1) (2) (3) (6) (8) (9)				D61EX-12 (1) (2)		
48	FD14E (1) (2) (6) (8) (9)						
480		D6H/D6R PS (1) (2) (4) (6) (8) (9)					
481		D6H DD (1) (2) (4) (6) (8) (9)					

Table 8 - Tractor or Skidder Identification Codes and Available Gear Ratios for W6F Winch (Cont.)

#### Gear Ratios

Code = Fwd Ratio/Rev Ratio

1 = 45.10:1 / 19.47:1

2 = 56.40:1 / 24.3:1

3 = 64.90:1 / 28.1:1

4 = 81.00:1 / 35.0:1

5 = 44.00:1 / 19.0:1

6 = 106.40:1 / 45.9:1

7 = 27.90:1 / 12.1:1

8 = 85.20:1 / 36.8:1

9 = 55.6:1 / 45.9:1

# W6F, W8L & W12E Winch

Tractor Make Model and Starting Tractor Serial Number Where Applicable						
<b>C</b> <b>O</b> <b>D</b> <b>E</b>	<b>A</b> Fiat Hitachi/ New Holland	<b>C</b> Caterpillar	<b>G</b> Terex	<b>H</b> Dresser	<b>K</b> Komatsu	<b>M</b> MF
<b>51</b>	16B PS S/N 10301 & UP (1) (2)	D7F/G PS *a (1) (2) (3) (7)	D700A (1) (2) (3)	TD20E/G PS (1) (2) (3) (7)	D80A-12 (2)	D700C (1)
<b>52</b>	16B DD S/N 10301 & UP (2)	D7F/G DD *b (2) (3)			D85A-12 (1) (2)	
<b>53</b>	AB/BD 20 PS 20B FL20 (2)	572 *c (1) (2) (3)			D85E/P-18 D85A E/P-18 (1) (2) (3) (7)	
<b>54</b>	20 DD (2)	983-38K D7H D7R PS (1) (2) (3) (7)			D85E/P-21 (1) (2) (3) (7)	
<b>55</b>	FD/FL20 FP60 (1) (2) (3) (7)	D8N *d (3)			D83-1 D85ESS-1 (2) (3) (7)	
<b>56</b>	DX/FD255L (1) (2) (3) (7)	D8N *e D8R (3) (7)			D135A (3)	
<b>57</b>					D85ESS-2 *f (1) (5) (6)	

## Gear Ratios

Code = Forward Ratio/Reverse Ratio

1 = 49.8:1/19.9:1

2 = 71.6:1/38.6:1

3 = 94.0:1/37.6:1

4 = 84.0:1/33.6:1 (No Longer Available)

5 = 90.1:1/36.0:1 (No Longer Available)

6 = 68.8:1/27.5:1

7 = 47.1:1/31.1:1

\*a Caterpillar D7 PS S/N 92V, 93E1752 & UP, 94N5660 & UP, 65V

\*b Caterpillar D7 DD S/N 91V, 93N, 64V & 45W

\*c Caterpillar 572 40U & 6J

\*d Caterpillar prior to D8N S/N 5TJ0001, same as C56 for AW8L-2293 & up

\*e Caterpillar D8N S/N 5TJ0001 & UP

\*f Komatsu D85ESS-2 Gear Ratio 1 & 5 are both 90.1:1

Table 9 - Tractor or Skidder Identification Codes and Available Gear Ratios for W8L Winch

Tractor Make Model and Starting Tractor Serial Number Where Applicable					
<b>C</b> <b>O</b> <b>D</b> <b>E</b>	<b>A</b> Fiat-Hitachi/ New Holland	<b>C</b> Caterpillar	<b>G</b> Terex	<b>H</b> Dresser	<b>K</b> Komatsu
<b>60</b>					D275A (4)
<b>61</b>	21-C (3) FD30 (3) (4)	D8K PS (1) (3) (4)	D750A (3) (4)	TD25C PS (3) (4)	D155A-1 & 2 (3)
<b>62</b>	FD40B 31 (3)	D9 PS (1) (3) (4)	D800 (3) (4)		D355
<b>63</b>	41-B (3)	78V 61A 583 (1) (3) (4)		TD25E PS (3) (4)	
<b>64</b>	FD30B/C (1) (3) (4)	96V 62H 594 (1) (3) (4)		TD25E/G (3) (4)	D375A-1 (1)
<b>65</b>	FD40	D8L D9N D9R (4)		TD40	
<b>66</b>		D10N D10R (4)			

### Gear Ratios

1 = 46.10:1

3 = 60.40:1

4 = 83.60:1

Table 10 - Tractor or Skidder Identification Codes and Available Gear Ratios for W12E Winch



# W6F, W8L & W12E Winch Operation

## Operating Procedures

The control lever assembly has a power control lever for the winch control. If the winch has the **FREESPOOL** function, a second control lever is added. Both control levers are connected to the winch through control cables. The power control lever is connected to the spool in the control valve. This lever is used to select one of the following operations:

- **BRAKE OFF**
- **LINE OUT**
- **BRAKE ON**
- **LINE IN**

Except for the **BRAKE OFF** position, the power control lever will return to the **BRAKE ON** position when the control lever is released. A spring arrangement on the spool of the control valve returns the spool and control lever to the **BRAKE ON** position. A ball and detent arrangement will hold the spool and control lever in the **BRAKE OFF** position. The operator must pull the control lever from the **BRAKE OFF** position.

The **BRAKE ON** position is a neutral position. No hydraulic pressure is applied to the brake or the clutches. Springs apply the brake so that the winch drum will not rotate.

The **BRAKE OFF** position has a detent and is a neutral position for the clutches. Hydraulic pressure is applied to release the brake. The winch will not rotate easily because of friction in the clutches, brake and gear train. Cable cannot be pulled from the winch by hand. The **BRAKE OFF** position is different from the **FREESPOOL** position where the drum is disengaged from the gear train. The **BRAKE OFF** position is used when the operator has a load on the winch cable. The operator can move the tractor forward without moving the load.

A second control lever engages and disengages a sliding sleeve to control the **FREESPOOL** operation. The **FREESPOOL** control lever has two positions: **POWER** and **FREESPOOL**. The **FREESPOOL** control lever disengages the gear train so the cable can be pulled from the winch by hand.

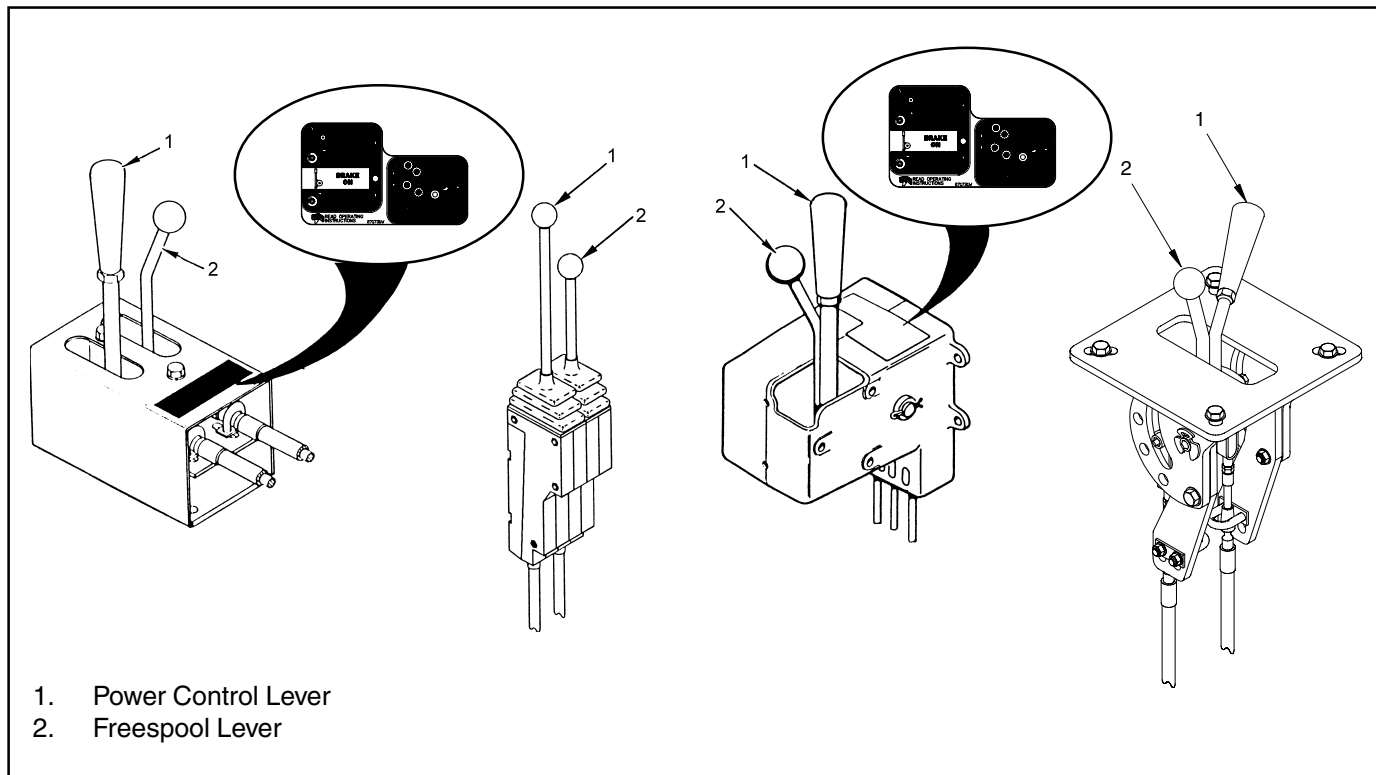
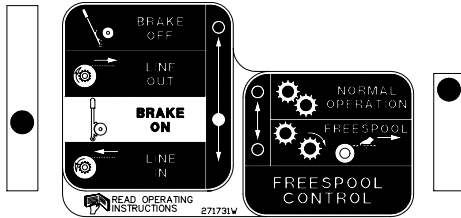


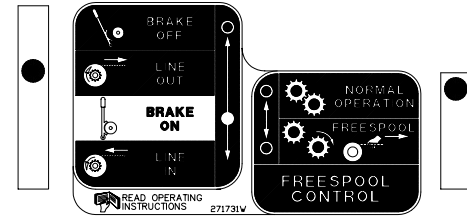
Figure 13 - W6F, W8L & W12E Winch Operator Controls

# W6F, W8L & W12E Winch Operation

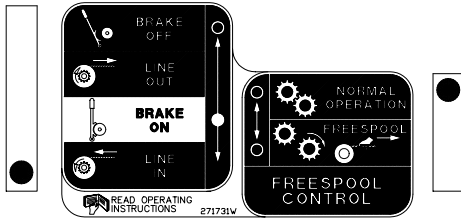
## Power Operation



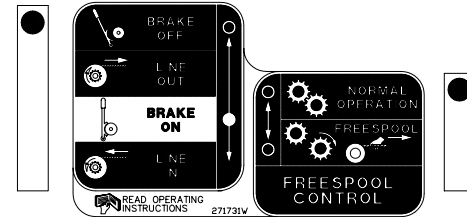
**BRAKE ON** position is a neutral position. Neither clutch is applied. The brake is fully applied.



**LINE OUT** position applies the **LINE OUT** clutch and releases the brake. The winch will unwind the cable at a speed controlled by the PTO speed of the tractor and the weight of the load.



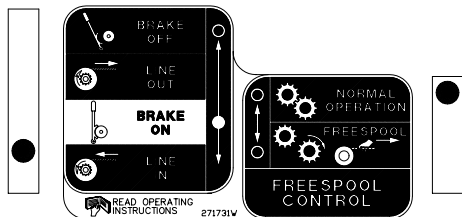
**LINE IN** position applies the **LINE IN** clutch and releases the brake. The winch will wind the cable at a speed controlled by the PTO speed of the tractor.



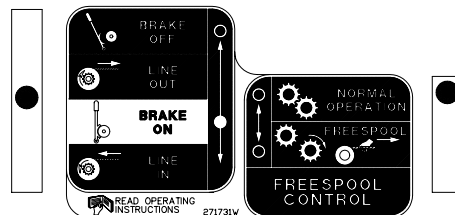
**BRAKE OFF** position is a detent position. The clutches are released and the oil pressure has released the brake. This position will permit the cable to unwind from the winch against the friction of the clutches, brake, and gear train as the tractor moves away from the load.

**Inching** is used for a fine control of the winch speed. When the power control lever is slowly moved to a position between **BRAKE ON** and **LINE IN** or between **BRAKE ON** and **LINE OUT**, inching occurs. The normal adjustment of inching for **LINE IN** is different from the adjustment for **LINE OUT**. These adjustments can be modified by changing the overlap pressures of the modulator valves. This change is necessary for some customer operations. The following paragraphs describe the normal adjustments for inching.

**NOTE: Excessive inching will accelerate clutch & brake wear.**



**Inching (LINE IN).** This operation is used to slowly move a load toward the tractor. The control valve will cause the oil pressure to slowly release the brake and slowly apply the **LINE IN** clutch. As the brake is released, the clutch takes control and begins to move the load.



**Inching (LINE OUT).** This operation will release the brake before the **LINE OUT** clutch is applied. This adjustment permits the weight of the load to unwind cable from the winch drum against the resistance of the brake. The operator controls the resistance of the brake by the position of the power control lever. The **LINE OUT** clutch is not applied until the operator moves the power control lever more toward the **LINE OUT** position. When the power control lever is moved so that the **LINE OUT** clutch is engaged, the speed that the drum unwinds is controlled by the rpm of the tractor PTO.

# W6F, W8L & W12E Winch Operation

## FREESPOOL Operation



### WARNING

The control lever normally cannot be moved to the **FREESPOOL** position if there is a load on the cable. If enough force is used to disengage the gear train for the **FREESPOOL** operation, an uncontrolled release of the load will occur. Loss of the load can result in injury and damage.

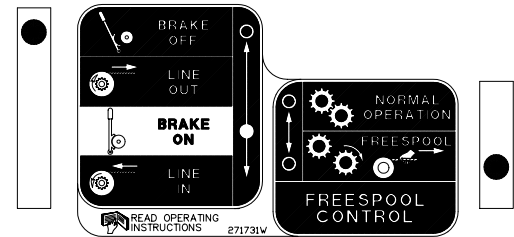
The power control lever must be in the **BRAKE ON** or **BRAKE OFF** positions to operate the **FREESPOOL** control lever. When the **FREESPOOL** control lever is moved to the **FREESPOOL** position, the winch drum is disengaged from the gear train. The **FREESPOOL** operation permits the cable to be pulled from the winch drum by hand.

If the **FREESPOOL** control lever cannot be moved to engage the gear train for power operation, apply a clutch to move the gear train a small amount. This action will align the splines in the sliding sleeve so that the intermediate gear can be engaged.

## FREESPOOL Drag Adjustment for AW6F-4061 and below, and AW8L-2032 and below without Exterior Drag Adjust

The preload on the bearings of the intermediate shaft controls the resistance to rotation of the drum during the **FREESPOOL** operation. The resistance to rotation is correct when the drum can be rotated by hand, but the drum will not rotate more than one-half revolution freely.

The addition or removal of shims for the preload on the bearings of the intermediate shaft requires the removal of the cover for the intermediate shaft. This adjustment is normally only necessary if the winch has had an overhaul. See the **Service Manual** if this adjustment is required.



## FREESPOOL Drag Adjustment for AW6F-4062 and above, and AW8L-2033 and above with Exterior Drag Adjust

The preload on the bearings of the intermediate shaft controls the resistance to rotation of the drum during the **FREESPOOL** operation. The resistance to rotation is correct when the drum can be rotated by hand, but the drum will not rotate more than one-half revolution freely.

On W6F winches S/N 4062 and above, and W8L winches S/N 2033 and above, an adjusting screw is located in the center of the bearing retainer for the intermediate shaft; please refer to figure 13. This screw can be tightened or loosened to adjust the preload on the intermediate shaft. The jam nut will maintain the **FREESPOOL** setting.

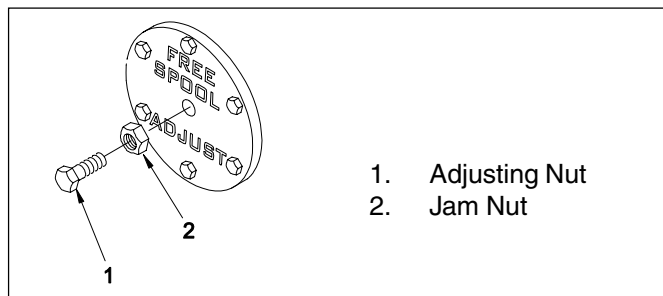


Figure 14 - FREESPOOL Adjustments

## Checks Before Operation

Check that the cable and hook are not worn or damaged. Check that the periodic inspection and maintenance have been done at the recommended operating hours. See the **Maintenance Schedule** for the W6F, W8L and W12E winches.

## Checks During Operation

The following **Troubleshooting Chart** can be used by the operator to identify a problem with the winch operation. A trained service person is needed for additional troubleshooting and repair that requires disassembly of parts of the winch.

# W6F, W8L & W12E Winch Operation

PROBLEM	POSSIBLE CAUSE	CORRECTION
Operation is rough or not regular	Hydraulic oil is too cold.	Put the control lever in the <b>BRAKE OFF</b> position. Run the engine at 1000 rpm to warm the oil before operating the winch.
	Low oil level.	Add hydraulic oil to the correct level.
	Low oil pressure.	See the <b>Service Manual</b> for additional troubleshooting.
	Wrong oil.	Drain oil and replace with correct grade. Refer to the approved oil list.
	Control cables need adjustment.	Check for correct adjustment. Make sure the ends of the cables are fastened correctly.
Hydraulic oil becomes too hot.	Winch is operated in the <b>BRAKE OFF</b> position for long periods.	Use the <b>BRAKE OFF</b> position less. When the <b>BRAKE OFF</b> position is used, the hydraulic oil flows continuously through the relief valve. See the <b>Service Manual</b> for additional troubleshooting.
	Low oil level.	Add oil.
	Clogged suction strainer.	Check and clean or replace the suction strainer.
	Defective or improperly adjusted oil relief valve.	See the <b>Service Manual</b> for additional troubleshooting.
Brake begins to release before clutch is applied.	Brake is worn or needs adjustment.	See the <b>Service Manual</b> for additional troubleshooting.
	Pressure modulator needs repair or adjustment.	

Table 11 - Troubleshooting Analysis Chart

PROBLEM	POSSIBLE CAUSE	CORRECTION
Winch brake does not apply or release correctly.	Brake is worn or needs adjustment.	See the <b>Service Manual</b> for additional troubleshooting.
	Low oil pressure.	
Clutch does not apply correctly.	Worn or damaged clutch.	See the <b>Service Manual</b> for additional troubleshooting, checks and adjustments.
	Control valve or control cable needs adjustment.	
	Low oil pressure.	
Clutch does not apply correctly at low PTO rpm.	Accumulator not charged.	Check accumulator.
	PTO speed stalled (0 rpm).	Increase tractor rpm.
<b>FREESPOOL</b> does not operate correctly.		See the <b>Service Manual</b> for additional troubleshooting, checks and adjustments.
Winch engine stops during shift when engine speed is low.	Not enough engine torque.	Increase engine rpm.
	Low accumulator pressure.	See the <b>Service Manual</b> for additional troubleshooting, checks and adjustments.

Table 11 - Troubleshooting Analysis Chart (Cont.)



# W6F, W8L & W12E Winch Maintenance

## Maintenance

The Maintenance Schedule is a program that includes periodic inspection and lubrication. Use the operating time

on the hour meter of the tractor to find the maintenance time for the winch.

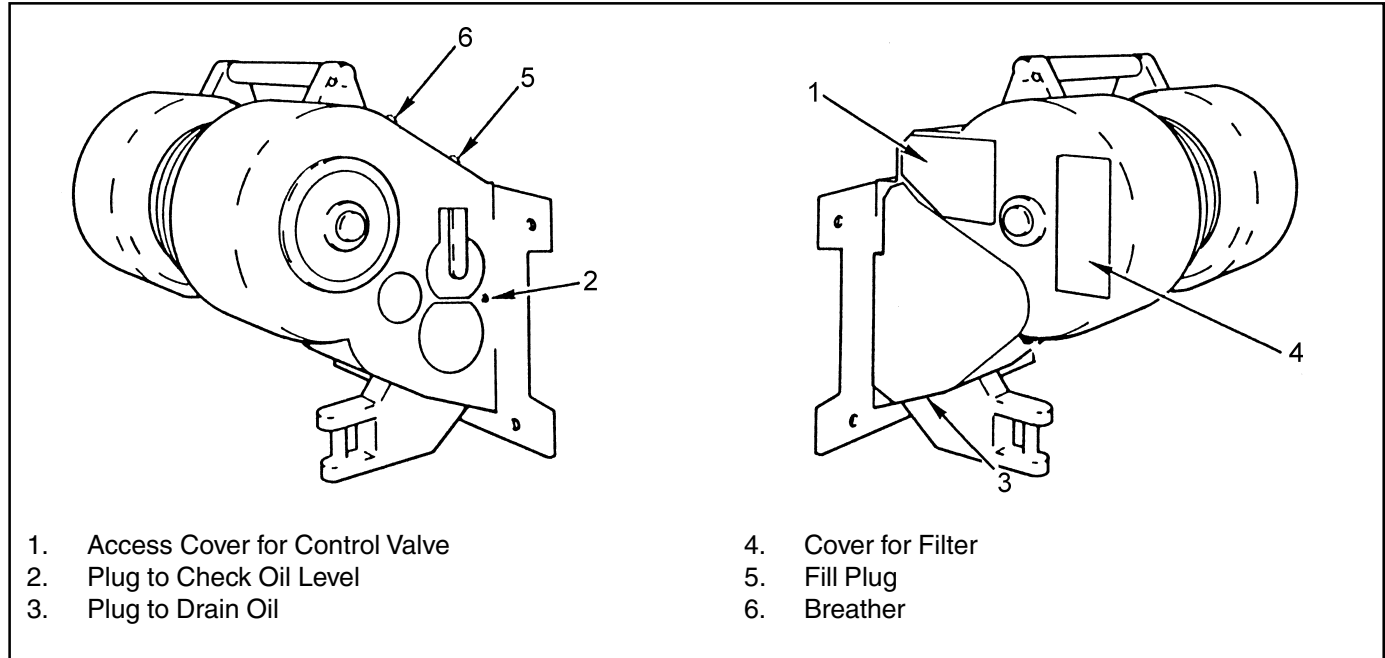


Figure 15 - W6F, W8L & W12E Winch Maintenance Points

INTERVAL	PROCEDURE OR QUANTITY	SPECIFICATION
50 hours or weekly *	Check oil level at plug (item 2). Add oil as necessary. <b>Do not operate the tractor when checking the oil level.</b>	See Table 1 – Approved Oil List.
	Lubricate the winch control lever and the <b>FREESPOOL</b> control lever.	Use SAE 30 oil on the linkage as needed. Check that the control cable and control housing are fastened correctly.
	Clean the breather in the fill plug.	Remove debris around breather. Clean the breather with solvent if necessary.
	Lubricate the rollers on the integral arch or the fairlead assembly if the winch is equipped with this option.	Use multi-purpose grease with 2-4% molybdenum disulfide.
500 hours or every 3 months	Clean the oil suction screen and magnets.*	Tilt the tractor approximately 15° to prevent loss of oil when the cover is removed. Use a new gasket between the cover and the suction tube.
	Clean the breather in the fill plug.	Clean the breather with solvent.
	Replace the filter.*	See the <b>Parts Manual</b> for filter element and cover gasket.
1000 hours or every 6 months	Change the hydraulic oil. Drain oil from plug (item 3). Clean the oil strainer. Add 24 liters (25 quarts) <sup>†</sup> through fill plug (item 5). Check the oil level at item 2.	See Table 1 – Approved Oil List.
* NOTE: Clean the oil strainer screen and change the oil filter after the first 50 hours on new and rebuilt winches. † Amount of oil may vary slightly with tractor.		

Table 12 - Maintenance Schedule

# W6F, W8L & W12E Winch Maintenance

## Control Cable Adjustment

There are three configurations of operator controls normally used on the W6F and W12E winches, and four configurations for the W8L. Adjustments of the four configurations are described in the following paragraphs. Check the operation of the power control lever to make sure it moves smoothly and will return to the **BRAKE ON** position. The power control lever will stay in **BRAKE OFF** when pushed into **DETENT** position. **Make sure the control lever does not hit the housing at the end of its travel.**

**A.** See Figure 16. Make sure the positions of the power control lever (Item 2) are the same as the position indicators on the control housing. Remove the two capscrews and raise the cover. Loosen the U-bolt (Item 4) that holds the power control cable (Item 5) in the housing to adjust the hand lever.

Check that the positions of the **FREESPOOL** lever (Item 1) are the same as the position indicators on the control housing. Loosen the U-Bolt (Item 4) that holds the freespool control cable (Item 3) in the housing to adjust the control lever. The linkage and cable must be adjusted so that the **FREESPOOL** shifter mechanism will slide the drum pinion gear to both positions. Both positions have a

detent.

Install the cover when the adjustments are complete.

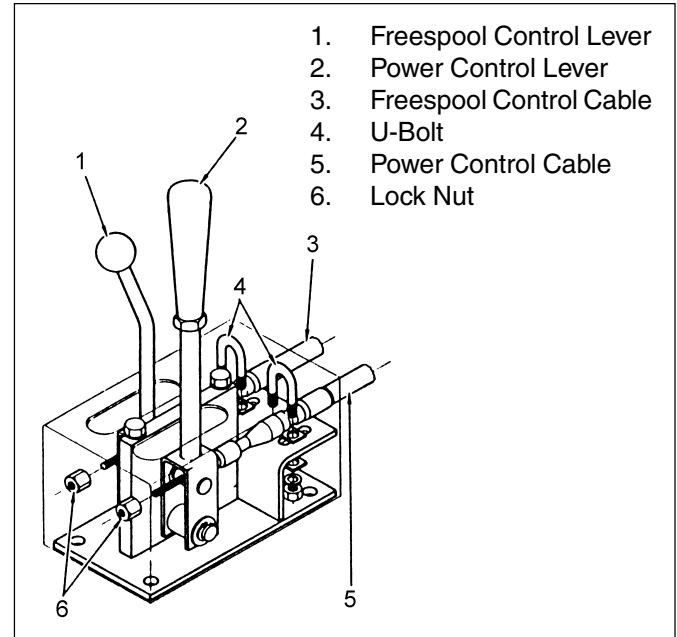


Figure 16 - Control Cable Adjustments

**B.** See Figure 17. Make sure the positions of the power control lever are the same as the position indicators on the decal. Remove the access cover (Item 1) on the housing to make adjustments. Loosen the jam nut (Item 8) that keeps the tall nut (Item 3) from turning and remove the button head capscrew (Item 9). Remove the cotter pin and link pin (Item 5) from the clevis (Item 2). Turn the tall nut and clevis to adjust the length of the control cable (Item 5). Use the link pin and cotter pin to connect the clevis to the control handle again and check the operation. When the adjustment is complete, install the access cover.

Check that the positions of the **FREESPOOL** lever are the same as the position indicators on the decal. Remove the access cover on the housing. Loosen the nut that keeps the tall nut from turning and remove the button head capscrew. Remove the cotter pin and link pin from the clevis. Turn the tall nut and clevis to adjust the length of the control cable. Use the link pin and cotter pin to connect the clevis to the control handle again and check the operation. The linkage and cable must be adjusted so that the **FREESPOOL** shifter mechanism will slide the drum pinion gear to both positions. Both positions have a detent. When the adjustment is complete, tighten the tall nuts and install the cover.

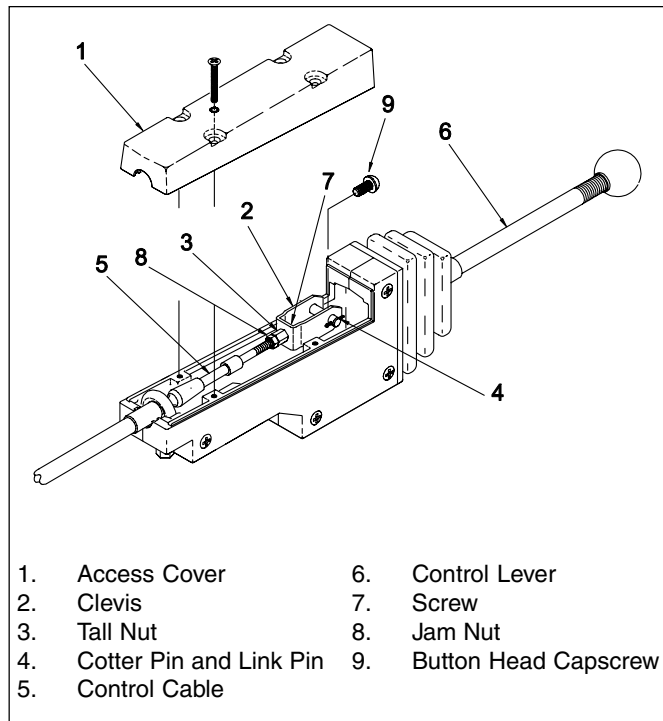


Figure 17 - Control Cable Adjustments

C. See Figure 18. This configuration is used only on the W8L winch.

Make sure the positions of the power control lever (Item 2) are the same as the position indicators on the decal. Loosen the U-bolt (Item 5) that holds the power control cable (Item 6) in place. Turn the jam nut (Item 3) to adjust the power control cable.

Check that the positions of the **FREESPOOL** lever (Item 1) are the same as the position indicators on the decal. Loosen the U-bolt that holds the **FREESPOOL** cable (Item 9) in place. Turn the jam nut to adjust the **FREESPOOL** cable. The linkage and cable must be adjusted so that the **FREESPOOL** shifter mechanism will slide the drum pinion gear to both positions. Both positions have a detent.

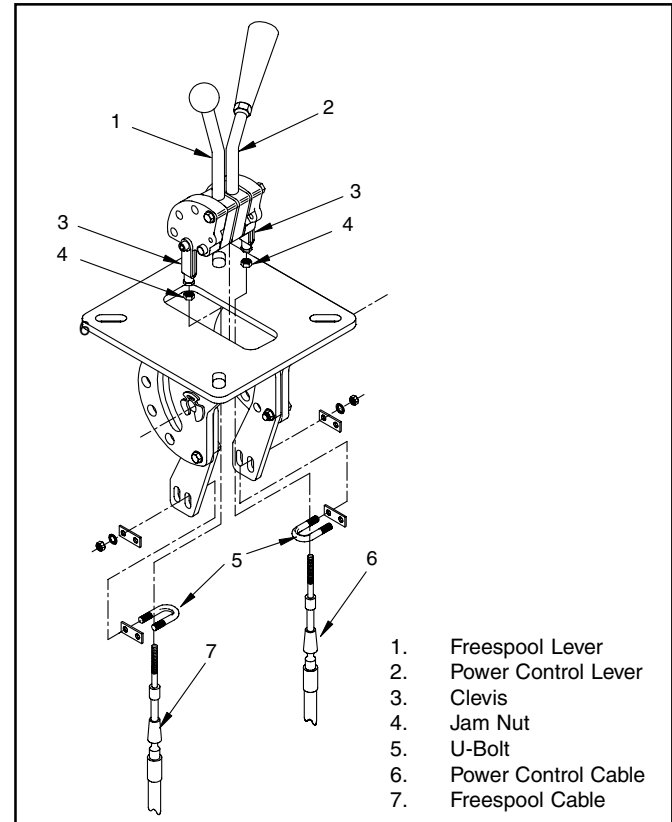


Figure 18 - Control Cable Adjustments

D. See Figure 19. This configuration was last used during 1993.

Check the operation of the power control lever (Item 1) to make sure it moves smoothly and will return to the **BRAKE ON** position. The power control lever will stay in the **BRAKE OFF** position when pushed into the detent position.

Check that the positions of the power control lever are the same as the position indicators on the control housing (Item 3). Loosen the U-bolt (Item 6) that holds the power control cable (Item 8) in the housing to adjust the control lever. **Make sure the control lever does not hit the housing at the end of its travel.** Check the operation of the **FREESPOOL** lever (Item 2) for smooth operation. Each of the two positions has detent.

Make sure the positions of the **FREESPOOL** lever are the same as the position indicators on the control housing. Loosen the U-bolt that holds the freespool control cable (Item 7) in the housing to adjust the control lever. The linkage and cable must be adjusted so that the **FREESPOOL** shifter mechanism will slide the drum pinion gear to both positions. Both positions have a detent.

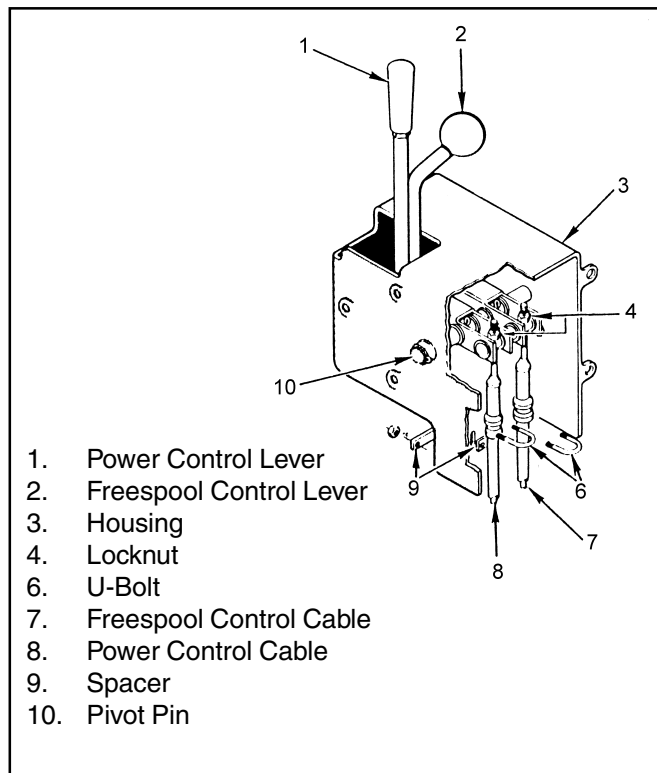
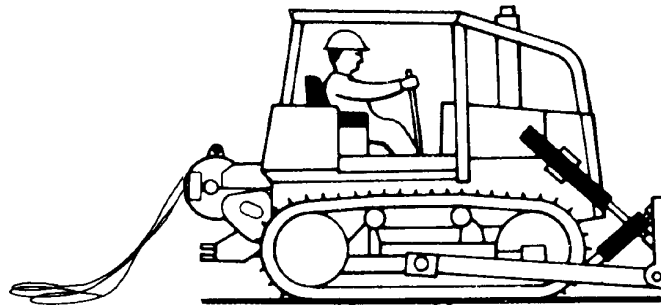
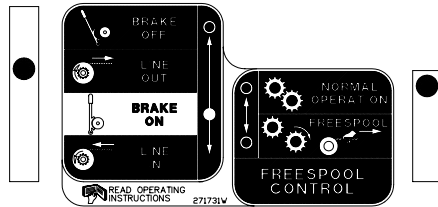


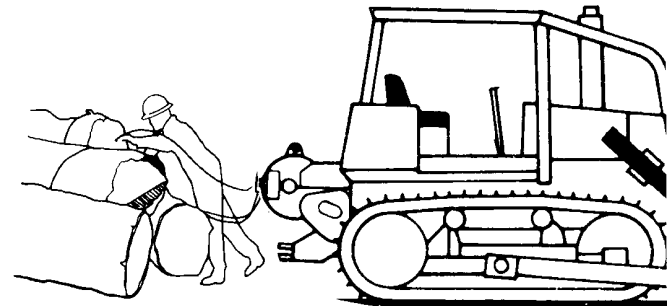
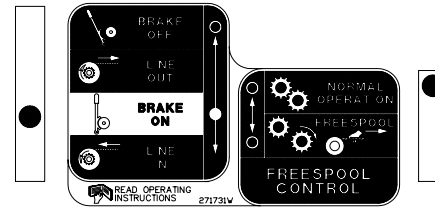
Figure 19 - Control Cable Adjustments

## Operating Techniques

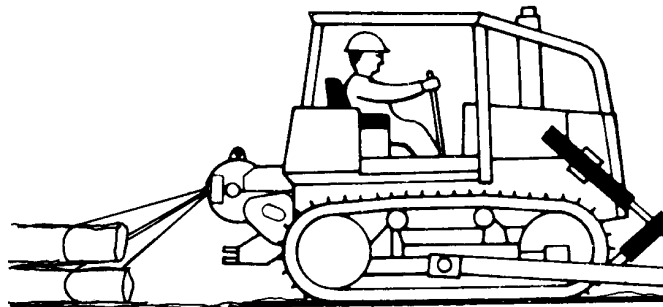
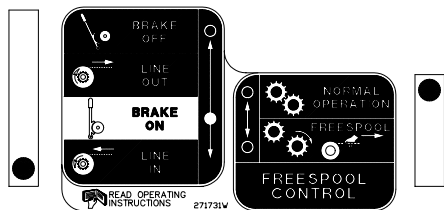
### Tractor or Skidder Operation



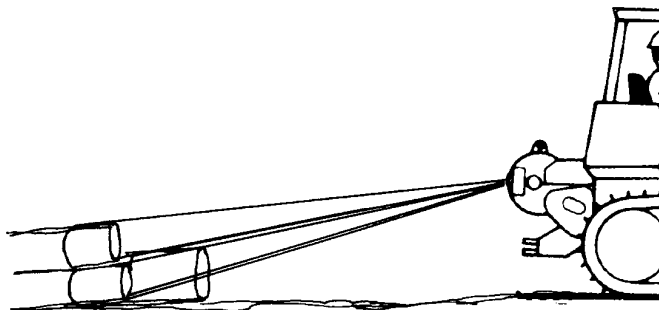
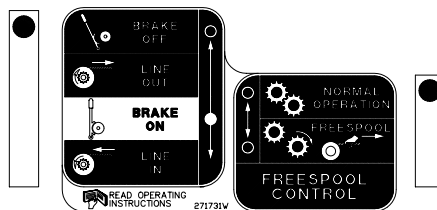
- **Step 1.** The tractor or skidder is moved to an area where a load will be connected. The operator moves the control lever to the **LINE OUT** or the **FREESPOOL** control lever into **FREESPOOL** position so that the cable can be pulled from the winch drum.



- **Step 2.** A load (logs) is connected to the cable. The operator moves the **FREESPOOL** control lever to the **NORMAL OPERATION** position.



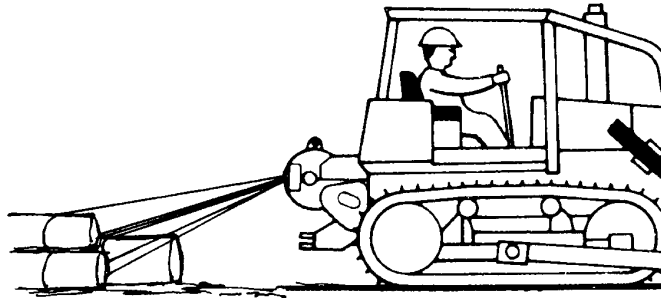
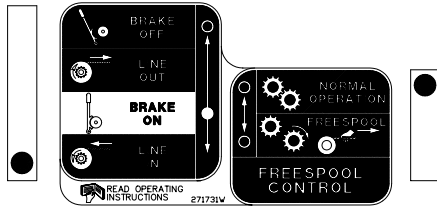
- **Step 3.** The operator can move the control lever to the **LINE IN** position. If the load is less than approximately 75% of the maximum line pull, the operator can begin traveling with the vehicle at the same time. The winch will wind the load toward the vehicle as it travels. If the load is nearly the capacity of the line pull, the operator must move the load close to the vehicle before beginning to travel.



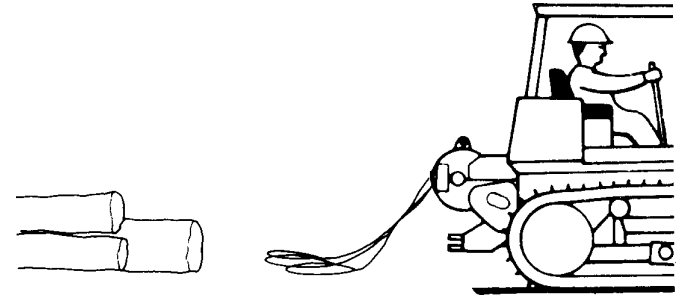
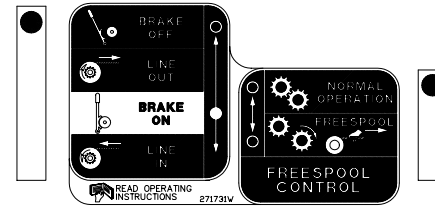
- **Step 4.** If the tractor or skidder must travel through an area with bad traction conditions, the operator can move the control lever to the **BRAKE OFF (DETENT)** position. This procedure will permit the vehicle to move through the bad traction area without pulling the load at the same time.



# Operating Techniques



- **Step 5.** When the vehicle is on firm ground, the operator can move the control lever to **LINE IN** to pull the load toward the vehicle.



- **Step 6.** When the operator wants to disconnect from the load, the vehicle is stopped and the control levers are moved to the **BRAKE OFF** (DETENT) or **FREESPOOL** positions to loosen the cable. The cable is then disconnected from the load.

## How to Move a Disabled Vehicle

**A.** A tractor or skidder often travels in areas where traction conditions are bad. A vehicle equipped with a winch can be used to remove itself from mud or other areas where it cannot move using only the drive wheels or tracks. See Figure 18. Use the following procedure:

1. Fasten the winch cable to a structure, tow bar of another vehicle, or a tree that has enough strength for the line pull. The cable must be in a direction that is approximately parallel to the direction of travel of the vehicle.
2. Use the throttle to set the engine speed at a power level to operate both the winch and the tracks or drive wheels. (Operator experience is required, because the winch can use most of the engine power in some vehicles.)
3. Use the **LINE IN** control lever to tighten the winch cable. When the winch cable is tight, put the vehicle transmission in **REVERSE\*** and engage the tracks or drive wheels. Use the power from the engine to the winch and tracks together to remove the vehicle from the bad area.

4. If the vehicle travels faster than the winch winds the cable, disengage the transmission until the winch cable is tightened again.

**\* NOTE: If the tracks or drive wheels on the vehicle stop turning, the torque converter in the transmission has stalled and the winch will stop also. If this happens, put the vehicle in neutral to operate the winch.**

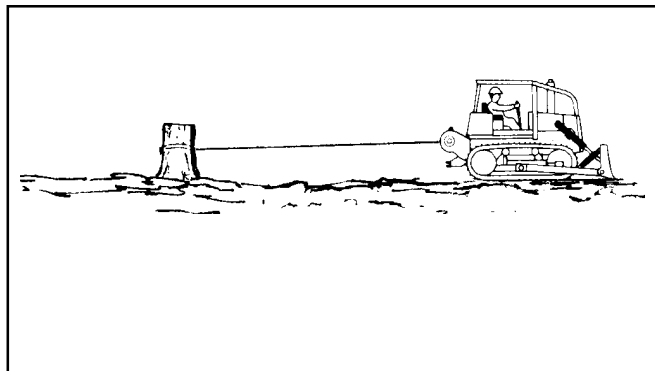


Figure 20 - Moving a Disabled Vehicle (Step A)

B. A tractor or skidder equipped with a winch can be used to pull another vehicle from mud or other areas where it cannot move using only the drive wheels or tracks. See Figure 19. Use the following procedure:



## WARNING

**Use extra care if the traction conditions are bad or if the vehicles are on a slope. Bad traction conditions can cause the disabled vehicle or the tractor to slide. A slope can require additional distance to stop the vehicles.**

**Make sure the cable and tow chain have the capacity to do the job. If the disabled vehicle does not have a tow pin or other equipment for towing, carefully fasten the tow chain around the axle of the disabled vehicle. Make sure the tow chain is fastened so that the chain will not cause injury to people or damage to the vehicle.**

**An operator must be on the disabled vehicle to operate the steering and brakes when it is towed.**

1. Fasten the winch cable to the tow bar of the other vehicle. The cable must be in a direction that is ap-

proximately parallel to the direction of travel of the vehicle. Apply the brakes on the tractor or skidder. Use the throttle to set the engine speed at a power level to operate the winch. (Operator experience is required, because the winch can use most of the engine power in some vehicles.)

2. Use the **LINE IN** control lever to tighten the winch cable. When the winch cable is tight, use the power from the engine to the winch to pull the vehicle from the bad area. If the disabled vehicle moves under its own power, keep the towing cable tight so that the cable does not pass under the drive wheels or tracks of the vehicle being towed.

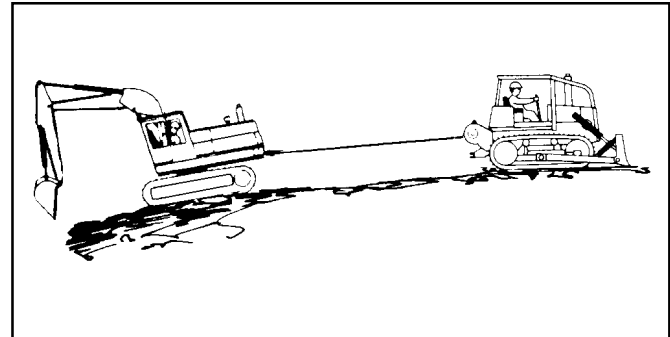


Figure 21 - Moving a Disabled Vehicle (Step B)

## Working on a Steep Slope



### WARNING

The winch and the tractor must be in good condition for the following procedures. Make sure that the required maintenance has been done on the tractor and winch. Use only a cable that is in good condition. Make sure the cable and winch have enough capacity for the load. Make sure the anchor for the cable has enough capacity for the load. A failure of the tractor, winch, or cable while working on a steep slope can cause death or injury and loss of equipment.

### Tractor is Down the Slope (See Figure 20).

Sometimes a tractor must work on a steep slope and can use a winch to give assistance when moving on the slope. Fasten the winch cable to the drawbar of another tractor, a structure or a tree that has enough strength to hold the tractor on the slope.

### A. Moving down the slope:

1. Set the throttle on the tractor for the required engine speed.
2. Put the tractor in **FORWARD**. At the same time, move the winch control lever to a position between **BRAKE ON** and **LINE OUT** (inching) to control the speed of the tractor down the slope.

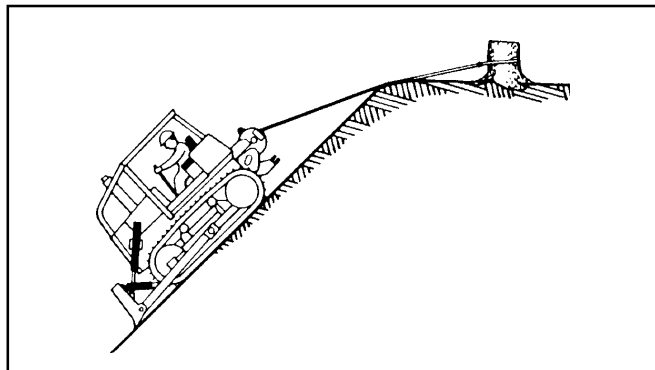


Figure 22 - Working on a Steep Slope

# Operating Techniques

## B. Moving up the slope:

1. Set the throttle on the tractor for the required engine speed.
2. Use the **LINE IN** control lever to tighten the winch cable. When the winch cable is tight, put the tractor transmission in the **FIRST** speed range and **REVERSE** and engage the tracks or drive wheels. At the same time, move the control lever on the winch to **LINE IN**.
3. Use the steering on the tractor to keep the travel of the tractor in line with the winch cable.
4. Fully engage the **LINE IN** clutch as necessary and use minimal inching to prevent additional heat and wear. Do not permit the winch cable to loosen and pass under the drive wheels or tracks of the tractor.

## Other Equipment is Down the Slope (See Figure 21).

In this operation, the tractor and winch are on stable ground and other equipment is working on a steep slope. The winch is used to give additional control to the equipment working on the steep slope. A winch with a fairlead option is recommended for this operation if alignment of the other equipment with the winch and tractor is a problem.

Make sure the tractor and winch are on stable ground and will not slide when the load is applied. Align the tractor and winch with the load. Apply the parking brake on the tractor.

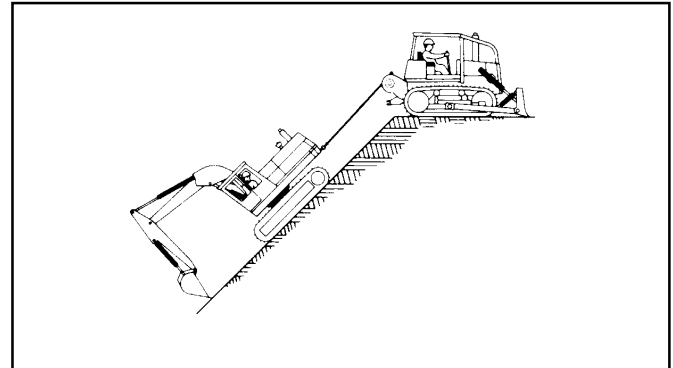


Figure 23 - Other Equipment on a Steep Slope

#### A. Lowering the equipment on the slope:

1. Set the throttle on the tractor for the required engine speed. Operator experience is required for this operation so that the load is carefully controlled.
2. Keep the winch cable tightened between the tractor and the equipment being lowered down the slope. Use the control lever in the **LINE OUT** position to control the lowering of the equipment down the slope.
3. Move the control lever between **LINE OUT** and **BRAKE ON** if inching is required. Use minimum inching to prevent additional heat and wear.

#### B. Raising the equipment on the slope:

1. Set the throttle on the tractor for the required engine speed. Operator experience is required for this operation so that the load is carefully controlled.
2. Keep the winch cable tightened between the tractor and the equipment being lowered down the slope. Use the control lever in the **LINE IN** position to control the lowering of the equipment down the slope.
3. Move the control lever between **LINE IN** and **BRAKE ON** if inching is required. Use minimal inching to prevent additional heat and wear.
4. Keep the equipment being raised in alignment with the winch and tractor. Do not permit the winch cable to loosen and pass under the drive wheels or tracks of the tractor.

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## Notes

## Notes



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## Notes

## Notes

NO MATTER HOW YOU SAY IT . . .

La Prudence Paye  
La Seguridad Paga  
Betriebssicherheit Macht Sich Bezahlt  
Passaa Olla Huolellinen  
Veiligheid Voor Alles  
Säkerhet Först  
Essere Sicuro Paga  
Segurança Paga  
Sikkerhet Først  
Pinter Be Awas

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في التاني السومة

安全第一



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