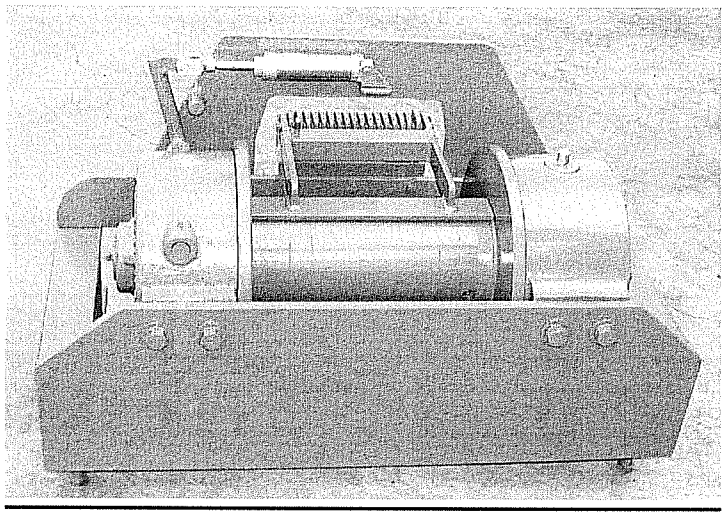
HYDRAULIC WINCH

OPERATING AND SAFETY MANUAL



WARNING!!

ALL WINCHES ARE SUPPLIED WITHOUT OIL

GEARS AND WINCHES

www.winch.com.au

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Acacia Ridge QLD 4110
Ph: (07) 3875 1568 Fax: (07) 3277 4316

MODEL - .....

SERIAL NO. .....

IMPORTANT CONSIDERATIONS

Please keep in mind the persons who have to service and maintain your winch. They may, at one time or another, have to remove the winch to make inspections and/or repairs. Therefore, please ensure your winch is installed in such a way that it is secure yet can be easily removed if need be.

Guide rollers or guide bars

These simple to make and fit additions can make winching much more profitable by keeping the rope inside the drum cheek plates when winching from one side. Spring rope tensioners can greatly improve the life of your winch rope by improving the lay of your winch rope on the drum.

Lubrication

The oil in your winch is like the oil in your car or truck. Basically, it's the life blood and is the least expensive part of the winch. If changed regularly, your winch will give good service of many years.
This being the case, easy access to the oil level, filler and drain plugs is imperative, also access to the various grease nipples should be assured.

Dog Clutch Locks

These additions should be seriously considered. They can take many forms but all will stop your dog clutch becoming disengaged, saving dollars and heartache.

Did you know that worm drive winches operate slower than planetary winches, but generally offer inherent self-braking capabilities? They do not require any added braking system where planetary winches depend solely on an added braking system to hold the load. If a brake failure occurs, a planetary style winch will release their load unless, of course, other measures have been taken where worm drive winches will not, under most cases, release the load.

Warranty Excerpt

Winch Industries Pty Ltd warrants each new winch to be free from defects in workmanship for a period of two (2) years from date of purchase. The obligation under this warranty is limited to the replacement or repair at our factory of such parts or parts as shall appear to us upon inspection to be defective in materials and workmanship.

INTRODUCTION

Thank you for purchasing a new Winch Industries winch. We are proud of our products and are certain that they will perform your winch tasks adequately. However, we do ask that you take a few minutes to read and thoroughly understand this booklet. Also, if you have new operators assigned to the winch, make sure that they read and understand it. Because of the large number of models we manufacture, we are unable to show parts list for every model in the booklet. If you want or require part lists please write or call us at the address on the front of the booklet.

WARNING!!
FAILURE TO HEED THE FOLLOWING WARNINGS MAY RESULT IN SERIOUS INJURY OR DEATH

Winches are not to be used to lift, hoist or move people. If your task involves lifting or moving people, you MUST use the proper equipment, not this winch.

Cable anchors on winches are not designed to hold the rated load of the winch. You must keep at least five (5) wraps of cable on the drum to ensure that the cable doesn't come loose.

Stay clear of suspended loads and of cable under tension. A broken cable Or a dropped load can cause serious injury or death.

Make sure that all equipment including the winch and cable, is maintained properly. Pay especially close attention to the clutch, making sure that it fully engages when shifted. Do not attempt to disengage the clutch when a load is on the winch.

Avoid shock loads. This type of load imposes a strain on the winch many times the actual weight of the load and can cause failure of the cable or of the winch.

OIL REQUIREMENTS

We recommend Castrol "Alpha 460" high pressure oil.
For light duty, the use of Castrol "EP80-140" is acceptable.

WINCH OPERATION

To familiarize yourself with the winch, run it for a few minutes to under the controls and the "feel" of the winch. Pay particular attention to the controls and how they operate. The winch has air controls on the brake or clutch, or both, operate them to see how they work and the direction of activation of the controls. If the winch is hydraulically powered, make sure you understand which way the winch will rotate when the control lever is moved.

Always make sure that all people are clear of the load and of the cable area before beginning a winching operation. A broken cable can fly in any direction.

If you are using a mechanically powered winch, learn to pay close attention to the truck engine to sense a possible overload. If using a hydraulic winch, do not attempt to defeat the relief valve, If you have any doubts about the capability of the winch to lift or move a load, either put a "snatch block" in the line or get a bigger piece of equipment

The typical winch operation cycle consists of the following steps:

(a) Disengaging the winch dog clutch and pulling off enough cable to allow hooking the load. If the winch is equipped with a manually operated drum brake, use it to keep the cable from "birds nesting" while being pulled off. Note: The drum brake is for free-spooling cable only. It is not intended to be a load-holding brake and must not be used as such.

(b) After hooking the load, engage the dog clutch and release the drum brake, if the winch is so equipped. Make sure the clutch is fully engaged. Begin winching the load slowly, watching carefully to insure that the load is moving normally and that no one is in the immediate area of the load or the cable.

WINCH MOUNTING

You must make sure that your winch is securely mounted in order for it to function properly and to insure safe operation. The mount must be flat to insure proper alignment between the gearbox side, the drum, and the clutch. A rule of thumb to sue when selecting bolts to mount the winch is to use the same size and number of bolts to fasten the winch to its mount as we use to fasten the gearbox and end housing to the winch frames. Winches must never be fastened directly to the frame of a truck.

All bolts used to mount the winch should be Grade 5 or better and should be carefully tightened to the proper torque value for their size. All moving parts used to drive mechanical winches should be secure and guards used, if they are in accessible locations. If the winch being mounted is hydraulically driven, make sure the system is clean, in line filtration installed and that all components function properly, especially the relief valve.

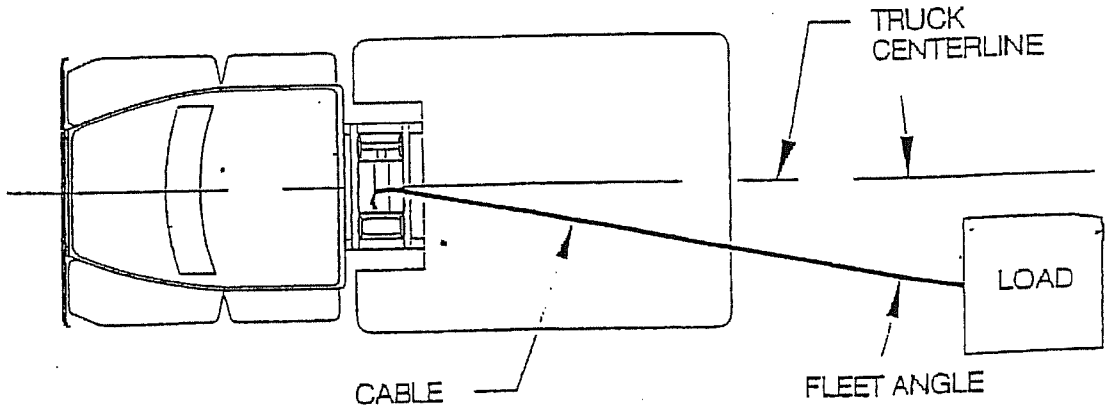
WINCH BREAK-IN

Winches, like any other kind of machinery, require a "break in" to perform well and to maximize their life. The following guidelines should be used in the break-in of winches.

Use extreme care when first spooling cable onto the winch. Do NOT run the winch at high speeds when performing this operation. Make sure that the cable is unrolled in a line (to prevent kinks) and SLOWLY inhaul the winch to install the cable. Do not exceed one half-rated load or one half-rated line speed for the first thirty minutes of operation. This will ensure that the worm and gear have an opportunity to wear in properly. Periodically, check the gearbox for temperature rises and allow the winch to cool down between pulls. Worm gear winches are designed and intended for intermittent duty applications only; using them in extremely long pulls may generate excessive heat and shorten the life of the winch.

THE IMPORTANCE OF A PROPER FLEET ANGLE

Maintaining the proper fleet angle is important to the success of the winching operation, the lift of your winch and the lift of the cable you are using. The fleet angle can best be described by the following illustration:

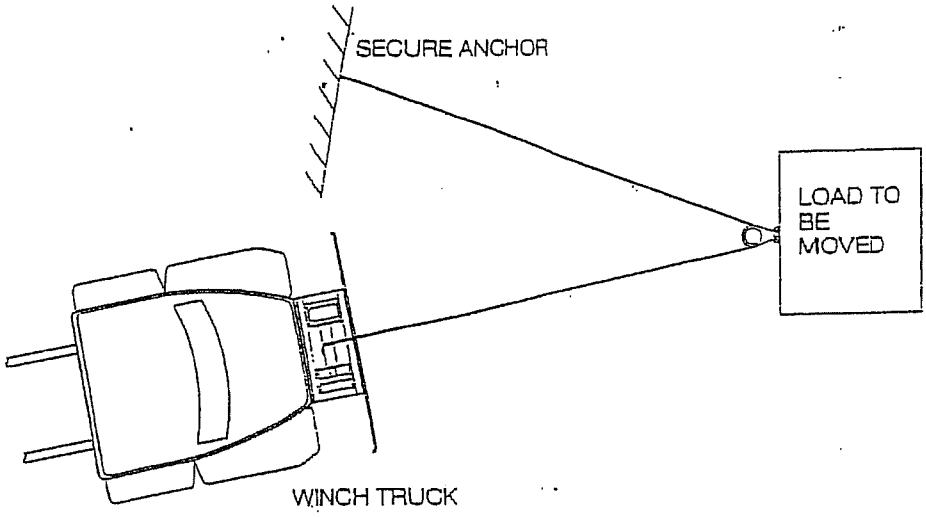


The fleet angle should be kept as small as possible to insure proper spooling and to maximize cable and winch life. To promote even cable spooling, keep the fleet angle below three degrees. Whenever possible, spool through a block at the back of the truck body. Never pull directly against the flange of the winch cable drum as this may cause the cable or the winch to be structurally compromised.

If you are using a front mounted winch for vehicle recovery, use a snatch block to avoid pulling sideways on the winch. If your winch is equipped with a four-way roller and you absolutely must pull against a side roller, do so only for a long as is necessary and carefully watch the cable on the drum. It will pile up on one side of the drum and you must insure that it doesn't jump over the drum flange. When you are finished using the winch in a manner where the cable doesn't spool evenly, disengage the clutch and pay out the uneven cable. Then slowly re-spool the cable, making sure that it lies evenly.

USING A SNATCH BLOCK

By using a snatch block, you effectively cut the load on the winch in half. A snatch block should be used anytime you have a concern about the ability of the winch or cable to move a load. The following instruction shows one way to rig such a block.



CABLE CONSIDERATIONS

As the number of layers of cable on a winch increases, the rated capacity of the winch goes down. If you are operating at near the top of the drum flanges, the effective rating of the winch is about half of what it is on the first layer. You should therefore, only keep as much cable on the winch as you need for your job.

Never use larger or smaller cable on your winch than is recommended for it. The use of larger cable will not allow you to pull larger loads.

Consult your local cable supplier for recommendations on the best type of cable and hardware to use in your specific information.

WINCH MAINTENANCE

A winch, like other types of machinery, needs to have regular maintenance if it is to perform properly, give lasting value, and provide safe winching. Good maintenance consists of two parts, a daily inspection and periodic servicing.

Each day, or after every one or two hours of winch use, the following items should be inspected and adjusted, if necessary:

1) If the winch is mechanically driven, check all drive components for alignment and tighten mounting. If it is hydraulically driven, check for leaks and for proper fluid level in the hydraulic reservoir.

2) Check the cable for excessive wear, for broken strands and lubrication.

3) Check the automatic worm brake for proper adjustment and adjust it if necessary.

4) Check the drum clutch to make sure it is fully engaging when shifted in. Make adjustments if necessary.

Once a week, or every 10 hours of operation, the following task should be performed for proper maintenance of your winch;

1) Lube all bushes which are equipped with grease nipples with good quality lithium-based chassis lube.

2) Inspect the oil level in the winch gearbox and add lubricant if necessary.

3) Lubricate the cable based on your wire rope supplier's recommendations.

Every six months, the gearbox should be drained and filled with new, clean gear lubricant. All Winch Industries worm gear winches should be filled with EP140 gear lube, ideal for most conditions. If the ambient temperatures where your winch will be working will not exceed 0 degrees C, you can use EP90.

All Winch Industries worm gear winches (excluding 8000lb models) are fitted with a grease nipple in the drum and require greasing with quality lithium based grease.

We recommend the use of CASTROL ALPHA 460 for the Winch Industries 45,000/100,000 and 125,000lb models.

AIR RAMS

WHAT WE RECOMMEND

We highly recommend the use of a spring loaded Air Ram which means the piston inside the ram has a spring fitted on one side. These are available off the shelf.

The spring ensures the piston always returns to the same position with or without air. When using this set up the dog clutch will engage under all circumstances even if the air is cut off while the winch is free spooling.
In other words, the dog clutch is always engaged unless the operator actuates the air to disengage the dog clutch. This effectively acts as a lock-in device.

When fitting, please heed the next page regarding Air Rams.

Our winches are supplied with two detents in the shaft which identify the engaged and disengaged position of the dog clutch – the detent is identified by a spring loaded spring and ball that's seats itself into the detent.

A grub screw in the dog clutch applies the pressure to the spring and ball.

When fitting air rams we suggest you remove the ball spring and grub screw. This is very simple exercise and will allow much lower air pressure to be used to engage and disengage he dog clutch.

The dog clutch housing simple slides of the end of the shaft. Remove ball spring and grub screw – replace dog clutch housing making sure the yoke selector is positioned correctly into the groove of the dog clutch – this is all very straight forward.

AIR RAMS

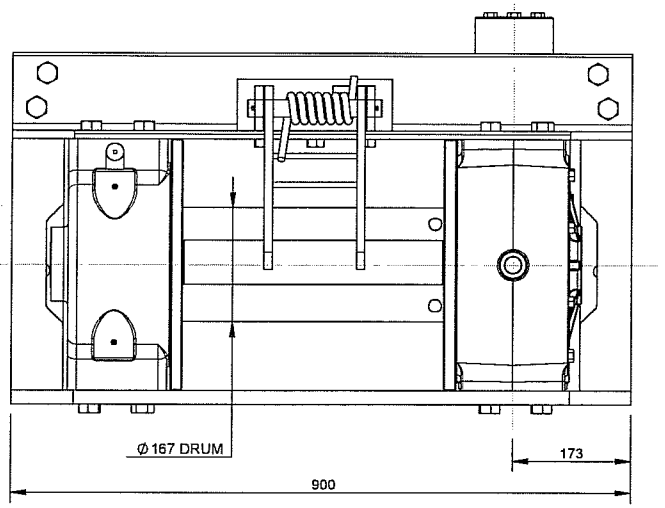
SPECIAL NOTE FOR THE FITMENT OF AIR RAMS ONTO THE DOG CLUTCH LEVER.

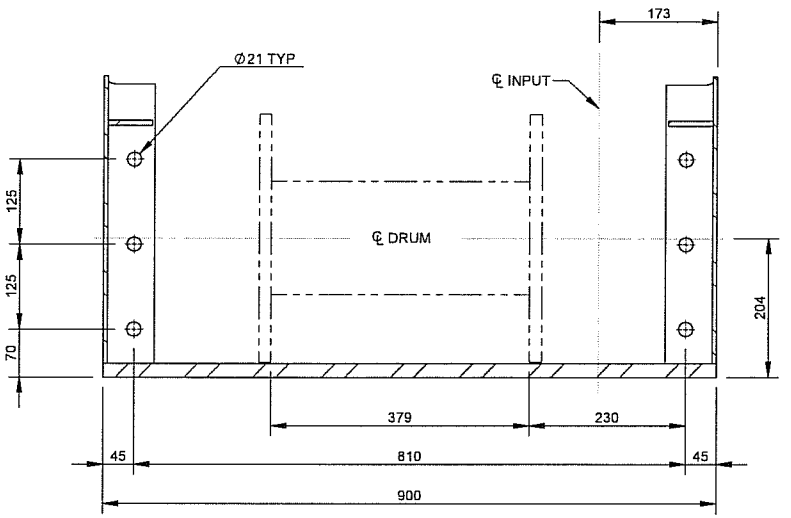
The dog clutches on our winches have been designed to be engaged and disengaged by hand so they need very little amount of pressure to operate them effectively. Our clutches utilize a yoke which is pinned onto the engaging shaft using high tensile pins and Loctite to secure them. This system is many times stronger than necessary for manual operations. Done correctly, it is also many times strong enough for air operation.

Firstly, only use enough pressure to engage and disengage the dog clutch. Start with 20 PSI and slowly increase the pressure until engagement or disengagement is achieved. The amount of pressure will depend on a few variants i.e. how far up the dog clutch handle the ram is fitted and the size of the ram etc. Our winches are fitted with a ball and detent system to identify the engaged and disengaged positions.

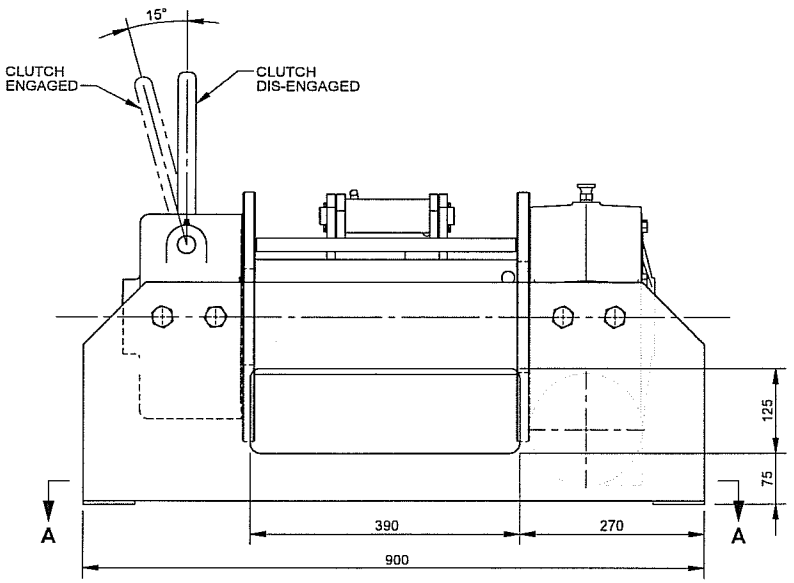
Secondly, the travel of the ram itself should bottom out just before the dog clutch is fully engaged. This will allow a small amount of play, so the yoke is not forcing the dog clutch onto the drum all the time but will not allow the dog to come out. Once the dogs are fully engaged and are under load, they cannot come apart because of the back cut faces which force them together.

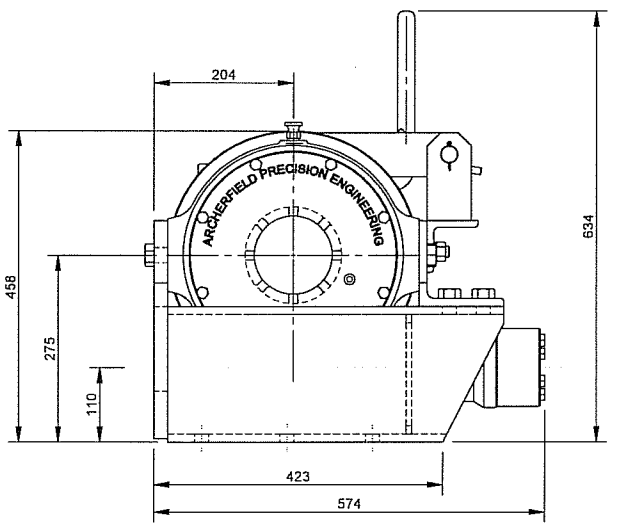
Also the winch is fitted with spring loaded drag brakes mounted in the fact of the worm box to stop the rope from bird-nesting and if the air rams forces the dog in, it can place pressure on the drum then, in turn, force the drum against the worm box housing. We must have a small air gap between the drum and worm box housing.

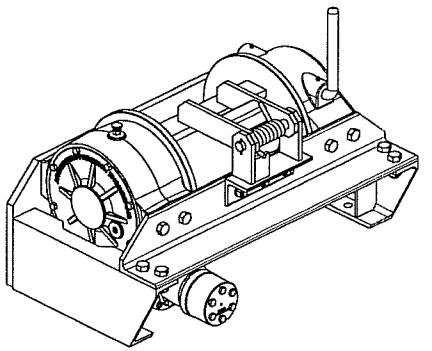


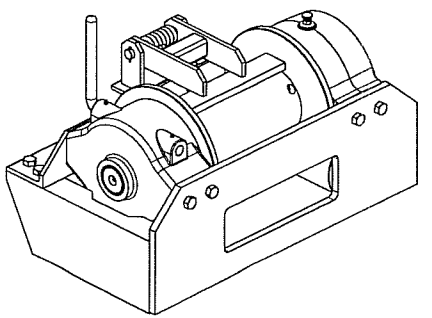


SECTION A-A
HOLD DOWN DETAIL









DWG No	REFERENCES	REV	DATE	DESCRIPTION	DRAWN	CHECK	APPD
		0	5/11/2012	FOR INFORMATION	RCT		

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DRAWN	RCT 05/11/12
CHECKED	
MATERIAL	
MATERIAL NOTES	
FINISH	
DATE PRINTED	5/11/2012
WEIGHT	258.3 Kg
SCALE	1:7.5
SHEET No.	1 OF 1
DWG No	W30-0032-0 - REV

W30-900 LOW MOUNT WINCH
BASE FRAME MOUNTED
RIGHT HAND STANDARD DRUM
HYDRAULIC WITHOUT WORMBRAKE

FOR MANUFACTURE

A3

AUTOMATIC WORM BRAKES

Winch Industries are optionally equipped with an automatic worm brake to hold suspended loads. If you winch is not equipped with one, it is intended for pulling loads only.

The worm brake is an important safety feature of your winch and must be maintained properly. There are two types of worm brakes used on Winch Industries winches:

1) Single-disc wet brakes (conventional mechanical style, W8 – W30).

2) Multiple-disc failsafe brakes (spring applied hydraulic release, W45/100/125). The use of a shuttle valve may be necessary.

Each of these types is designed to operate in the same manner. As a load is hauled in, the brake is released and the load is moved or raised.

As the load is stopped, the brake engages and prevents if from falling.

The most common Winch Industries worm brake is the single-disc style and when the operator beings to pay out cable to lower the load, he must overcome the drag of the brake to lower the load.

In order for this brake to operate properly, it must be set to engage in the pay out mode. To check this, run the winch for one minute under no load in both directions at low speed. If there is evidence of heat build up in the pay out direction, the brake is installed properly. If the heat rise occurs in the inhaul direction, the brake is installed backwards and must be changed.

Most winches are set up to spool over the drum to the load. If the winch is set up in this manner and you decide to spool the cable under the drum, you must reverse the direction of brake engagement.

NOTE

Winch Industries 45,000/100,000/125,000 winches are fitted with hydraulic motor with intergral multi-disc designed to release the discs on actuating the hydraulic pressure.

BRAKE ADJUSTMENT

In general, worm brakes on Winch Industries winches should only be adjusted enough to hold the load you are currently working with. Over adjustment will result in excessive heat generation and brake wear.

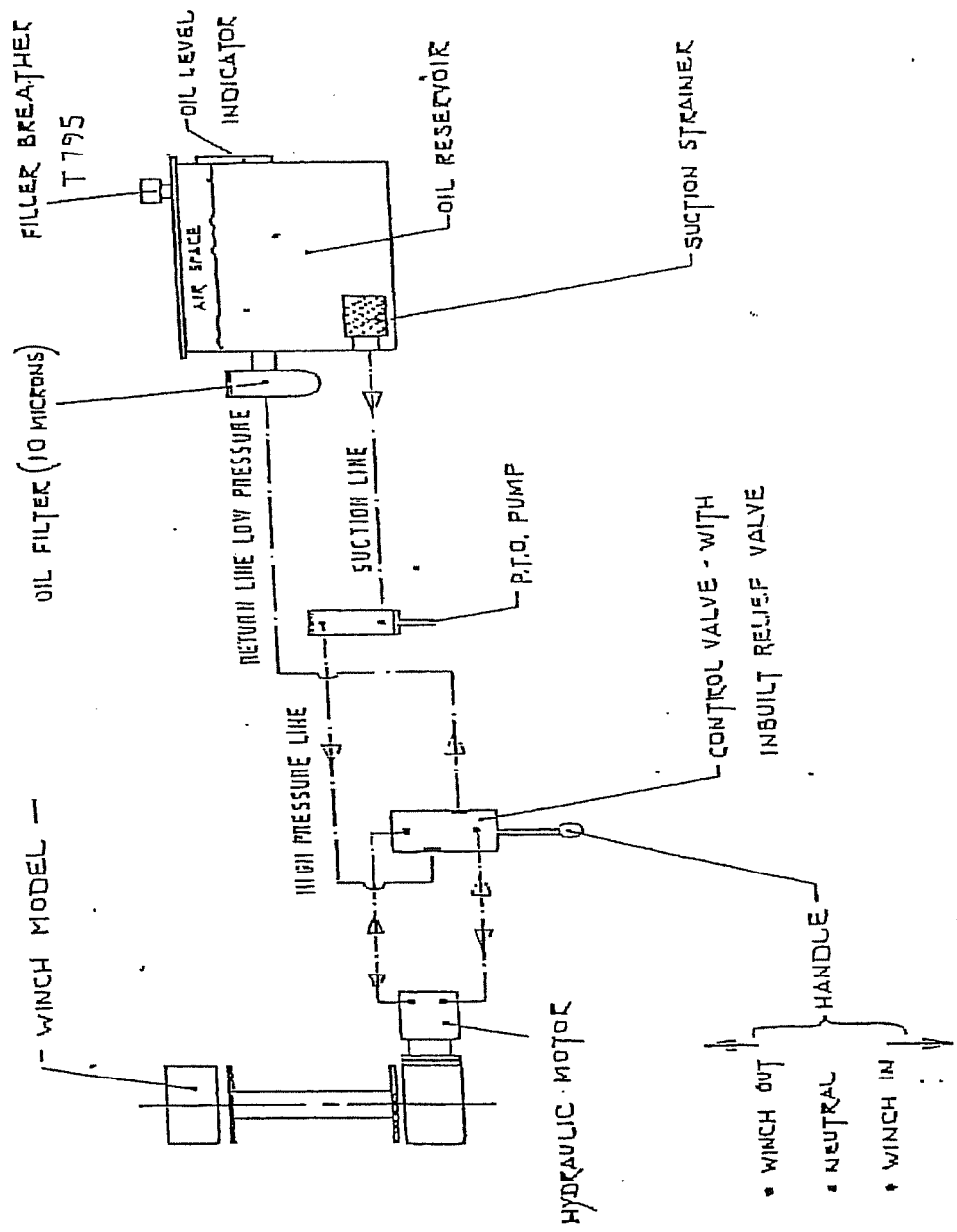
The most positive way to insure proper brake adjustment is to lift a test load just barely off the ground, jog the winch out and see if the brake holds. If it doesn't, tighten the brake slightly and try it again. If the brake is tightened completely and the load still drifts, the brake must be services. DO NOT use the winch to lift loads with a worn brake.

Versions of Winch Industries W45 are equipped with a multi disc failsafe brake which is not adjustable.

CAUTION DURING REMOVAL!
SPRING LOADED

For detailed service instructions contact your Winch Industries distributor or directly to Winch Industries.

HYDRAULIC WINCH CIRCUIT



HYDRAULIC OIL TANK OR RESERVIOR

Must be spotlessly clean and should contain a permanent suction strainer of 125 microns inside the tank, and a return line filter of 10 microns outside the tank with replacement cartridge.

HYDRAULIC OIL

The ultimate (SEA Grade 10 hydraulic oil, under cold to normal temperatures) is Castrol TQ Dexron Automatic transmission fluid – red – as used in your motor cars automatic transmission. But it is very expensive. (Do NOT fill you winch gear box with this oil or damage to the gears will occur!). Alternatively, s a quality less expensive oil, you should use Castrol AWS32, (SAE 10 Viscosity). Under very hot conditions you can use Castrol AWS 68 (SAE 20 Viscosity). These oils must be filtered and all hoses leading to the winch motor must be FLUSHED by joining these hoses to form a continuous loop and allow the system oil to flow through these hoses for at least 5 minutes before connecting to the winch motor. If you ignore this very important instruction damage will occur.

Some people choose to ignore this fact BUT hydraulic oil must be SURGICALLY CLEAN. If this condition is achieved, you will ensure maximum life of all parts in the hydraulic system. When others are broken down fixing up hydraulic problems caused by dirty oil, you will still be winching!!! If this procedure is not carried out Hydraulic Motor failure will occur and you will void your warranty.

WINCH INDUSTRIES PTY LTD

GENERAL WARRANTY

Winch Industries Pty. Ltd. warrants parts and labour, directly to the first purchaser of each winch against defects in material and workmanship appearing under normal use and service only for a period of two (2) years from the date of purchase. If you discover a covered defect, Winch Industries will, at its option, repair, replace or refund the purchase price of this winch or winch parts at no charge to you, provided you return it during the applicable warranty period, transportation charges prepaid, to Winch Industries Service Department or Factory Authorized Servicing Distributor. (You can obtain additional information from Winch Industries directly at the address printed below). Please attach your name, address, telephone number, a description of the problem and a copy of a bill of sale bearing the appropriate proof of original retail purchase, to each product returned for warranty service. To obtain any warranty coverage, it is absolutely necessary that you present proof of purchase acceptable to Winch Industries, such as a copy of the purchase receipt.

This warranty applies only to winches sold and/or manufactured by Winch Industries, which can be identified by the "Winch Industries" trademark, trade name or logo affixed to them. This warranty does not apply if the product has been damaged by accident, abuse, misuse, collision, overloading, exhaust, or misapplication, or has been improperly installed, has been improperly used, has been improperly serviced, or has been modified without the written permission of Winch Industries. This warranty does not apply if any Winch Industries serial number has been removed or defaced. The finish and wire rope on the product are excluded from this warranty.

EXCEPT AS EXPRESSLY STATED HEREIN, THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH BY LAW MAY NOT BE EXCLUDED IS LIMITED IN DURATION TO TWO (2) YEARS FROM THE DATE OF ORIGINAL RETAIL PURCHASE OF THIS PRODUCT.

THE WARRANTY AND THE REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHERS, ORAL OR WRITTEN, EXPRESS OR IMPLIED. No Winch Industries dealer, agent or employee is authorised to make any modification, extension or addition to this warranty.

IN NO EVENT IS WINCH INDUSTRIES RESPONSIBLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY, OR UNDER ANY OTHER LEGAL THEORY, INCLUDING, BUT NOT LIMITED TO LOST PROFITS, DOWN TIME, GOODWILL, DAMAGE TO OR REPLACEMENT OF EQUIPMENT AND PROPERTY, LOSS OF USE OF THE PRODUCT OR OF ANY ASSOCIATED EQUIPMENT, OR COST OF SUBSTITUTED PRODUCTS.

WARRANTY ENQUIRIES SHOULD BE DIRECTED TO:

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EMAIL - admin@winch.com.au