

# PULLEY-MAN USER MANUAL

MODEL  
CSW-3060

MULTIPURPOSE  
& PORTABLE **WINCH**

**PULLEY-MAN**  
[www.pulleyman.co.kr](http://www.pulleyman.co.kr)

# INTRODUCTION



Thank you very much for purchasing PULLEY-MAN. Please read this manual carefully for safe use, improved productivity and proper maintenance. Specifications may change without prior notice for product improvement. For updated information, please contact your dealer or manufacturer.

A single unit of PULLEY-MAN CSW-3060 alone can perform all the functions of conventional hoist, winch and chain block. Unlike such conventional products, which wind wire on a drum and thus can work load only within length of the wound wire rope, CSW-SERIES is designed to perform its functions quickly, easily and efficiently under any working conditions regardless of length or direction, whether it is vertical, horizontal or slant environment, as long as there is an anchor to hook the equipment.

Please consult the governing laws, rules or directives before use for standards of manufacture, safety and inspection.

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# I . Safety Instructions



## 1. Symbols



**Warning!** May lead to fatal or serious danger when handled improperly.



**Caution!** May lead to physical or property damage when handled improperly.



Caution against electric danger

Physical contacts during operation may immediately lead to bodily injury. Parts with this symbol must be handled only by qualified technicians. Power must be turned off while handling such parts.



Caution against hanging load.

Operation under hanging load may lead to a serious accident. Don't come under a hanging load.



Caution for handling during installation.

This symbol in this manual indicates warning of all kinds. Disregard of this symbol may cause damage to PULLEY-MAN or load.

## 2. Definitions

### 1) Entrepreneur(person in charge) :

Owner of PULLEY-MAN who uses PULLEY-MAN for his applications, or one who authorizes someone else to use PULLEY-MAN.

### 2) Authorized Personnel :

Qualified personnel who are authorized by entrepreneur to install, use and keep maintenance of PULLEY-MAN.

### 3) Maintenance Personnel :

Qualified personnel who are authorized by entrepreneur to install, adjust, keep maintenance, and remove defects of PULLEY-MAN.

# I . Safety Instructions

## 4) Electrician :

Those who have knowledge and experience in the field along with relevant qualification and can identify potential factors of danger in electrical and related equipment and take appropriate measures.

## 5) Knowledgeable Personnel :

Those who have extensive knowledge, technical training and experience with regard to PULLEY-MAN and can make general decisions regarding safety rules, accident-preventive tips, methods of operation and conditions of safe operation.

## 6) Operator :

Person authorized by entrepreneur to operate or to move place of PULLEY-MAN

## 7) Non-Professional User :

Person not authorized by entrepreneur to operate PULLEY-MAN and needs education and training. He has to be informed of relevant rules and safety measures along with accident-preventive tips.

## 8) PULLEY-MAN :

Product having function of lifting and conveying load like crane, hoist, winch and cable car.

## 3. Precautions against Danger

### 1) Check below after purchasing PULLEY-MAN.

- ① Type
- ② Lifting Capacity
- ③ Diameter and Length of Wire Rope
- ④ Standard parts, Components and Accessories
- ⑤ Options (in-put power source)



# I . Safety Instructions



## 2) Working Environment and Operational Conditions

Continuous operation time: within 25 minutes

## 3) Safeguards against Danger

### ① Protection over Pulley

–Press Roller Casing is designed with protective cover closed over pulley, which transports wire rope back and forth

### ② Hook: Must have a latch to prevent load-binding material from slipping off the hook,

③ End-Stopper: Fixed at the other end of wire rope to prevent wire rope, and load in consequence, from slipping off the pulley due to excessive load weight,

## 4) Safe Usage



**Warning!**



① Do not overload,

② Do not operate right beneath hanging load or PULLEY-MAN.

–When operating with hand drill as power source, maintain at least 24in.(60cm) from load,

–When operating with motor as power source, maintain at least 3,3~4.9ft. (1~1.5m).

③ Fix PULLEY-MAN or wire hook before hooking load.

④ Do not hold or lay hands on the load while lifting.

⑤ Keep workplace in order and maintain at least 300 lux.

⑥ Make sure no person or object is in front or rear of moving load.

⑦ If fixation of PULLEY-MAN or hooking of load is unstable, take immediate measure.

⑧ Do not operate near hazardous gas such as acid and alkali or in surroundings subject to inflammation.

⑨ Make sure no uncovered flame, excessive heat or sparks are near PULLEY-MAN.

⑩ Install PULLEY-MAN at least 3,3~4.9ft. (1~1.5m) from the wall or obstacle(s).

⑪ Do not operate at humid or wet places on rainy days (except manual usage). It may lead to electric shock. When operating PULLEY-MAN outdoors or at humid places, take protective measures that meet IP54 requirements,

# I . Safety Instructions

- 12 When using hand drill as in-put power source, use voltage and frequency only u specified in labels.
- 13 When standing on a conductive object during operation, make sure to ground it.
- 14 When PULLEY-MAN is not in use, or when repairing, cleaning or examining, make sure in-put power is off.
- 15 When assembling, disassembling or replacing parts, follow instructions in this manual.
- 16 Use only the parts provided or certified by manufacturer.
- 17 Improper usage or usage without proper maintenance is prohibited.
- 18 Do not allow children, or anyone unaware of precautions or incapable of proper operation, to operate PULLEY-MAN.
- 19 Be sure to grip a hand drill with both hands when using it.

## 5) Check-Up Points before Operation **Caution!**

- 1 Check PULLEY-MAN if there is a loose connection.
- 2 Check wire rope for abrasion or damage.
- 3 Check if wire hook is inserted in right direction.
- 4 Check if wire rope is properly fitted into the pulley groove and press rollers are pressing wire rope.
- 5 Check if nuts are fastened and nut-holding pins are positioned.
- 6 Check if gateway latch of wire hook is functioning.
- 7 Check if labels and danger signs are attached properly.

## 6) Preparations before Operation **Caution!**

- 1 Wear safety helmet that meets safety standards to protect your head.
- 2 Wear safety shoes to protect your feet.
- 3 Wear safety gloves that are convenient to wear.
- 4 Be careful about loose tip of your costume during operation, such as hanging necktie or sleeves.



## 7) Storage after Usage

- ① Separate in-put power source (e.g. hand drill) from main body before storage.
- ② Separate wire rope from main body in order to prevent warping or bending and keep it properly rolled.
- ③ When keeping for long time unused, clean it properly and keep it oiled.
- ④ When main body is damaged, repair it before storage. If replacement part(s) is required, use one(s) supplied or recommended by manufacturer.
- ⑤ Keep PULLEY-MAN safe from humidity and dust.

## 8) Exemptions from Liability

- ① Accidents from improper handling.
- ② Accidents occurring from disregard of instructions in this manual.
- ③ Accidents in result of improper repair, arbitrary modifications or revisions.
- ④ Accidents due to use of parts or components unapproved of by manufacturer
- ⑤ Accident caused due to lifting a person.
- ⑥ If used in lifting a high-priced equipment whose the price is more than twenty thousand US dollars.



### **Warning!**

men using PULLEY-MAN as a hoist consult relevant laws and rules enacted by your government for manufacturing, safety and inspection standards.

It is not allowed to we PULLEY-MAN for transportation of people. When that is inevitable, please contact manufacturer for relevant safety rules or laws to consult.



## II . A description for a speed reducer



The speed reducer is torque-up with 102,5:1 speed ratio of input speed.

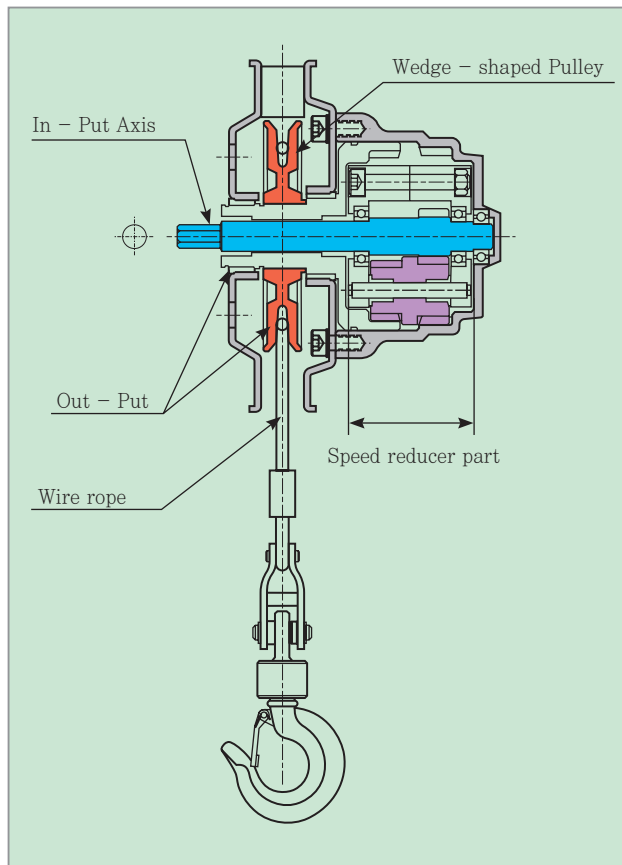
So, It can lift up or pull the heavy object without heavy energy.

It consists of wire, speed reducer, wedge-shaped pulley system.

The 9 gears in speed reducer have brake power that multiply the blocking friction from output speed.

### **Warning!**

1. It is safe if there is no movement of an input axis in state of lifted up a object. When you take down a heavy object, the brake function can be minimize or lost because of increasing energy of inertia & potential.
2. Every power source must has own brake system. It is safe using in speed 3m/min
3. Do not apply the object heavier than the proof load.



# III. Uses and Operations



## 1. Standard Offerings and Options

CSW-3060



AC Motor



Double Line Options



# III. Uses and Operations



## 2. Specifications

### Standard Specifications

	Number of Falls	Lifting capacity		Line Speed		Working Distance
		kgs	lbs.	No Load(MPM/FPM)	Full Load(MPM/FPM)	
Hand Drill Load capacity	Single Line	300	600	6,0/19,8	3,75/12	∞
	Doulle Line	600	1,200	3,0/9,9	1,85/6	∞
Wire Rope	Diameter	4,76mm(3/16in.) Steel Wire Rope (7×19)				
	Standard Spec.	Wire Rope 12M(40ft.) with Hook and Wire-Rope Reel, Hook Socket & End-Stopper				
Weight : CSW-3060 of Main Body(kgs/lbs.)				3,8/8,4		
Weight : CSW-3060 of Wire Hook(kgs/lbs.)				1,9/4,2		
Options	Hand Drill Cordless Drive Drill AC Motor	single phase 220V, min. 550W, 3000rpm, reversible 3/8" (10mm), 18V DC, max. torque 230in./lbs. or above, reversible single phase 220V, min 1500W, Hz60/50, 5200rpm, reversible.				

\* MPM : meter per minute

\* FPM : feet per minute



### Caution!

- ▶ The above instructions should be observed for safety
- ▶ Use indoors only for safety on a rainy, snowy, windy or dark day.
- ▶ Do never lift a person.

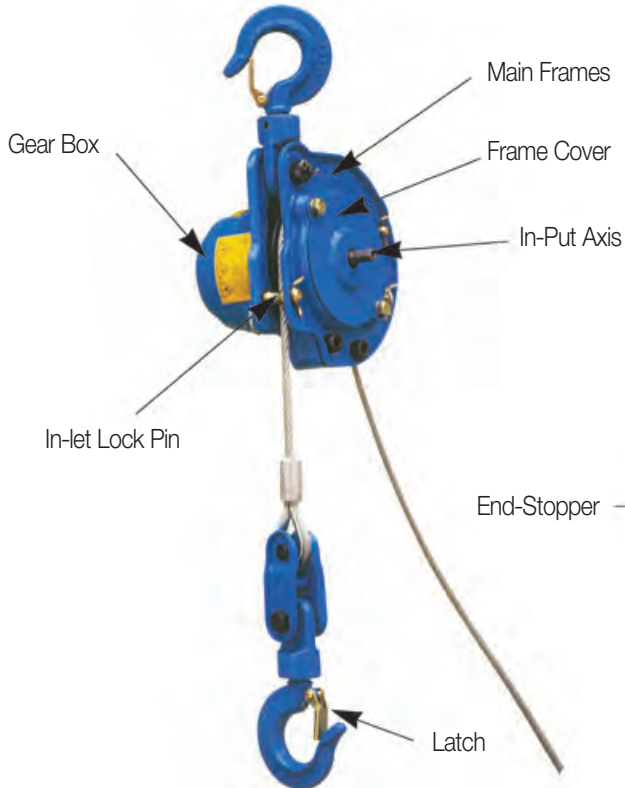
# III. Uses and Operations



## 3. Parts and Names

CSW-3060

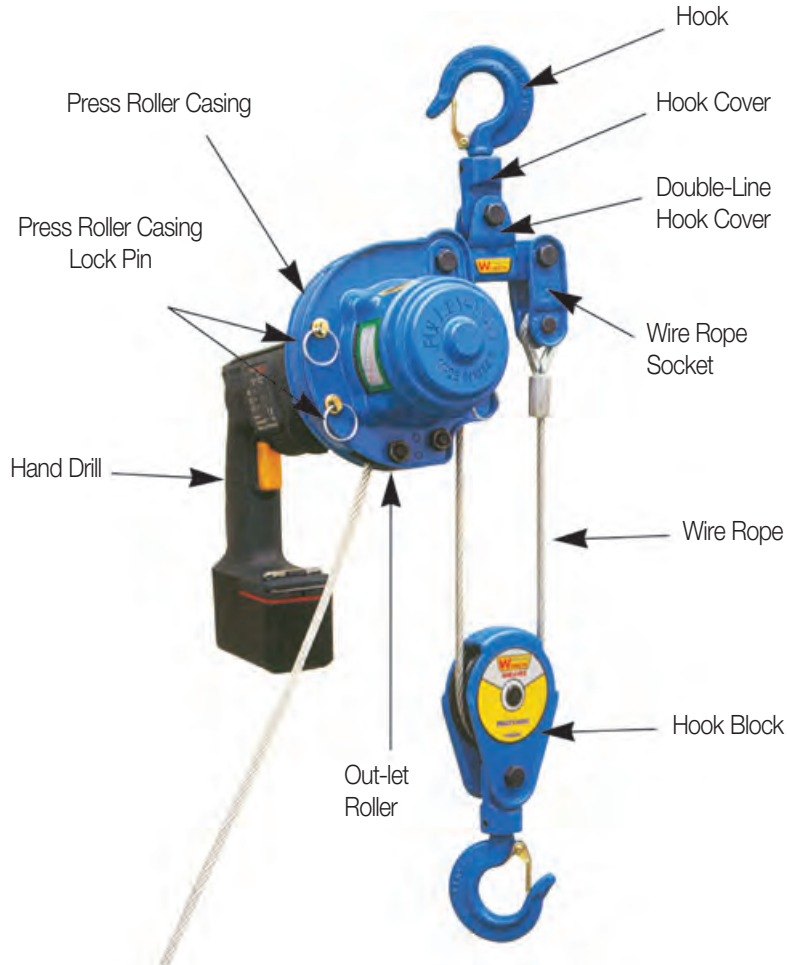
### Single-Line Use



### Wire-Hook



## Double-Line Use



# III. Uses and Operations

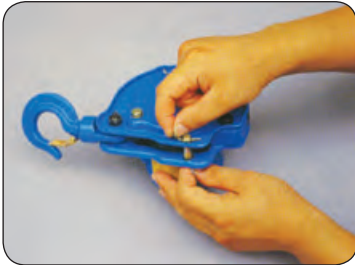


## 4. Incorporation and Removal of Wire Rope

Wire rope of PULLEY-MAN is separate from main body unless it is incorporated.

Before installation, assemble main body with wire rope. Incorporate wire rope into main body in following procedures. (Follow the procedures backwards when removing wire rope from main body).

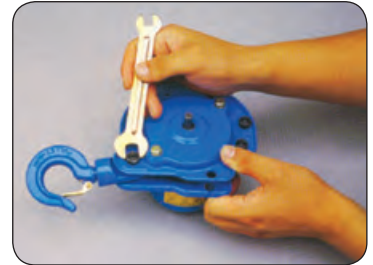
### 1) Procedures of Incorporation: CSW-3060



- ① Pull off In-Let Lock Pin.  
Remove split pin and pull loop of in-let lock pin.



- ② Pull off two press Roller Casing Lock Pins.  
Remove split pins and pull loops of press roller casing lock pins.




- ③ Remove Hook of main body (Single-Line Use).  
Remove nut-holding pin and nut and pull off hexagon bolt.




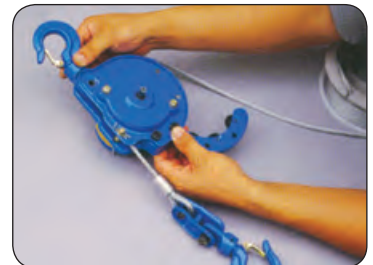
- ③ Remove Double-Line Hook Cover (Double-Line Use).  
Remove nut-holding pin and nut and pull off hexagon bolt.



- ④ Incorporate Wire Rope into pulley groove.

 **Caution!** Inserting direction is from in-let lock pin toward press roller casing.

 **Caution!** Pull out Wire Rope long enough for operation before fitting onto pulley groove.



- ⑤ Push in In-Let Lock Pin.  
Push in the pin from gear-side frame and insert split pin.

- ⑥ Re-assemble main body Hook (Single-Line Use).  
Screw in hexagon bolt, lock nut, and insert nut-holding pin.

### III. Uses and Operations



- ⑥ Re-assemble double-line Hook Cover (Double-Line Use). Screw in hexagon bolt, lock nut, and insert nut-holding pin.



- ⑦ Press Wire Rope with Press Roller Casing.

Lift press roller casing about 90° and pass wire rope between out-let roller and press roller casing. Pull wire rope in end-stopper direction so that it fits to bottom of pulley groove. Close press roller casing toward frame so as to press wire rope.

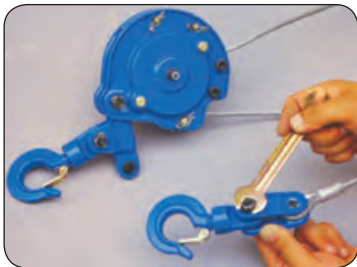
**⚠ Caution!** Check if press rollers are pressing wire rope.



- ⑧ Push in Press Roller Casing Lock Pin.

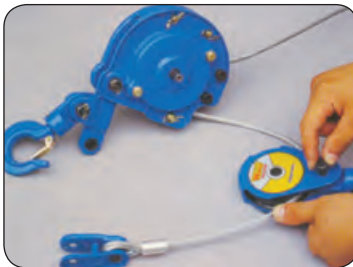
When holes for lock pins on frames and press roller casing are in line, insert lock pins from speed-reducer-side frame and insert split pins.

(Single-Line User : END)



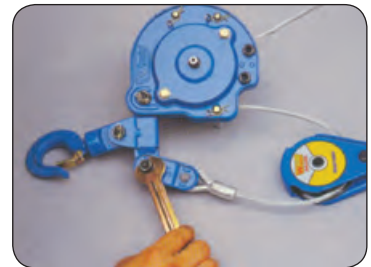
- ⑨ Separate Hook from Wire Rope Socket.

Remove nut-holding pin, bolt and nut from wire rope socket, which is connecting wirerope hook and wire rope at tip of wire rope.



- ⑩ Insert wire rope over Hook Black and re-assemble Hook.

Insert wire rope between sheave and side plates, and re-assemble hook with wire rope socket. Before re-assembling hook, check if wire rope is properly laid in the middle of sheave groove. Screw in bolt and nut and insert nut-holding pin.



- ⑪ Connect wire rope socket to double-line hook cover.

Assemble wire rope socket to double-line hook cover. Screw in nut and insert nut-holding pin. Incorporation of Wire Rope completed.

(Double-Line User : END)

# III. Uses and Operations



## 5. Treatment of Wire Tip

### 1) Clip Fixation

For wire ropes whose diameters are less than 5/8in. (16mm), use 4 clips and give spacing between clips wider than 6 times diameter of Wire Rope.



### 2) Press Fixation

Use cold-pressed steel.



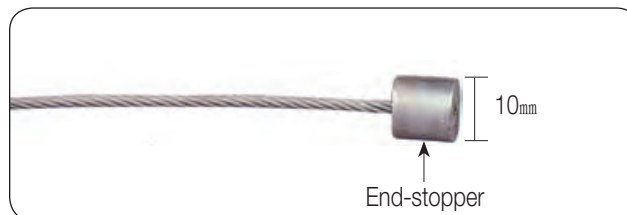
**⚠ Caution!** ▶ When using a wire rope longer than the one provided by manufacturer (40ft. (12m)), use one recommended by manufacturer, and fix wire tip by either method shown above and connect wire rope socket (wire rope provided by manufacturer is fixed by press fixation method).

**⚠ Caution!** ▶ When fixing wire tip, its safety factor must be at least 5 times and a safety test must be conducted before using it.

**⚠ Caution!** ▶ Contact manufacturer when employing wire rope longer than 40ft. (12m)

### 3) Fixation of End-Stopper **⚠ Caution!**

Fix the other tip of wire rope with steel cube by press fixation method. Thickness of the steel should be more than 10mm after press. Grind remnant wire rope off the end-stopper.







## 6. In-Put Power Sources

### 1) Hand Drill

- ① Specifications: single phase 110/220V, min. 550W, 3000rpm, reversible
- ① Precautions
  - Install anti-leakage insulator at main power and make sure to ground it.
  - Use voltage of main power as specified in label.
  - When using as in-put power source, check if its chuck is properly connected to hexagonal tip of in-put axis.
  - Do not touch spinning chuck.

### 2) Cordless Drive-Drill

- ① Specifications: 3/8" (10mm), 18V DC, max. torque 230in./lbs. or above, reversible
- ① Precautions :
  - Use when it is fully charged.
  - When using as in-put power source, check if its chuck is properly connected to hexagonal tip of in-put axis.
  - Do not touch spinning chuck.

### 3) Motor

- ① Specifications: single phase 220V, 50/60Hz, 5,200rpm (max.), remote control switch.
- ① Precautions:
  - Apply voltage as specified in the label.
  - After attaching motor, check joints and attachment to main body.

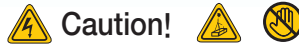
 **Caution!** ▶ For products not supplied by manufacturer, check accordingly.

▶ When using PULLEY-MAN as a hoist, ground and discharge the in-put power source in order to protect from thunderbolt.


# III. Uses and Operations



## 7. Applications (CSW-3060)

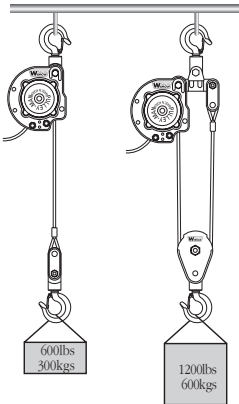


PULLEY-MAN CSW-3060 is designed to be multifunctional and adaptable to perform functions of conventional hoist, winch and chain block altogether. CSW-3060 can work load quickly and easily regardless of working length, direction and condition, whether it is vertical, horizontal or slant, as long as there is an anchor to hook.

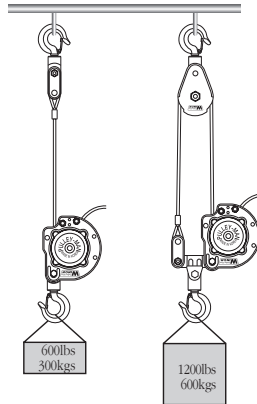
 **Caution!** Before using PULLEY-MAN for whatever application, consult the governing law.

### How to Use & Install CSW-3060

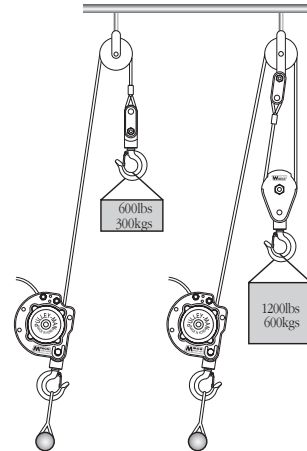
#### ◆ Fixed Pulley-Man



#### ◆ Fixed Wire Hook



#### ◆ Fixed Pulley-Man on the Bottom

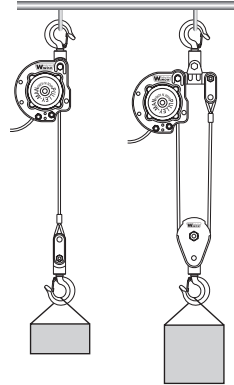


# III. Uses and Operations

## 2) Set-Up Modes of PULLEY-MAN

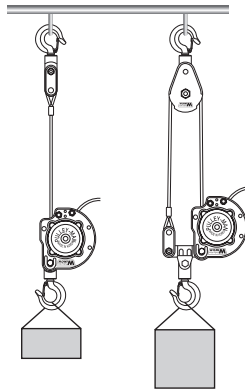
### ① Fixed PULLEY-MAN

Fix main body at an I-beam, round beam or other stable overhead structure and hook load with wire rope to move load vertically.



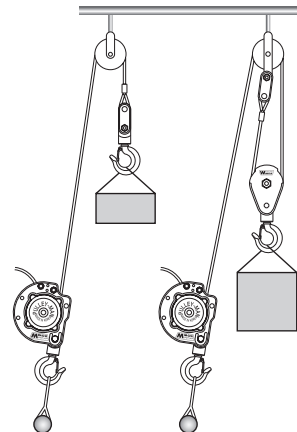
### ② Fixed Wire-Hook

Fix wire-hook at an I-beam, round beam or other stable overhead structure and hook load with main body hook to move load vertically.



### ③ Fixed PULLEY-MAN on Ground

Fix main body at a stable anchor on the ground, pass wire rope through block fixed at an I-beam, round beam or other stable overhead structure, and hook load with wire rope to move load vertically.





## 3) Precautions for Installation and Usage of PULLEY-MAN **Caution!**

- ① Requirements for an overhead structure to fix PULLEY-MAN or wire-hook:
  - Should be hard enough to endure load weight.
  - When fixing PULLEY-MAN to a shackle at tip of an extension arm, length of the extension arm should not be too long. Consult table below for appropriate dimensions of extension arm with regard to moment, bending stress, etc
  
- ② Selection of Material for Binding Load
  - ① Steel Wire Rope
    - Connection must be made at its tips and there must be no twisting or folding in between.
    - It must have safety factor of at least 5 times the load.
  - ② Chain
    - A chain with welded connection must be connected in short-connection mode.
    - It must have 4 times safety factor of the load.
  - ③ Fibrous Rope or Sling
    - Except for one without open ends, connection must be made at its tips and there must be no twisting, folding or knot in between.
    - It must have at least 7 times safety factor of the load.
  
- ③ Methods of Binding Load with Wire Rope or Chain (See table & drawings below.)
  - Find center of weight before hooking.
  - Bind the load at least twice with a proper binding wire or chain.
  - When lifting load, make inner angle between top of load and binding material less than 60° Otherwise, rope or chain may break off due to load weight.
  - When hooking load, place binding material on center of hook.
  - Hook must have a protective gateway latch to prevent binding material from slipping off.

# III. Uses and Operations



## 4) Operation of PULLEY-MAN **Caution!**

When installation of PULLEY-MAN is completed, start operation as instructed in this manual.

### ① Check below before operation.

- Remove all factors of potential danger and obstacles around work area.
- Check main body and hook and if there is entanglement or twisting on wire rope.
- Check if wire moves up and down properly without load.

### ② Get ready to hang load.

- Hook load with wire rope, chain, I-bolt or shackle safely as instructed in this manual.

 **Caution!** Overloading is prohibited.

### ③ Follow guidelines below during operation.

- To prevent top of binding material from colliding with bottom of PULLEY-MAN main body, maintain at least 12in. (30cm) between bottom of main body and wire hook.
- Do not ride on moving load.
- Do not change direction of in-put power abruptly.
- Do not operate under hanging load or PULLEY-MAN and stay away from vertical line of hanging load.
- Make it sure that loose wire rope does not entangle with in-put power cable.
- Keep loose wire rope away from load being lifted.
- Do not step on loose wire rope.

### ④ Check-up points after operation

- Turn off in-put power source after operation.
- Do not finish operation while load is hanging.
- After outdoor operation, keep things around in order and keep PULLEY-MAN as instructed in this manual.



## 8. PULLEY-MAN used as a Winch

- ◆ PULLEY-MAN can function as a winch by moving load horizontally or in slant angle.
- ◆ Pulling capacity varies by load weight and inclination of wire rope. Refer to table below for maximum capacity at given condition and inclination.
- ◆ Set-up modes of PULLEY-MAN used as a hoist are the same as when used as a winch. Choose a mode that best suits the working condition.

### ◆ Precautions in using PULLEY-MAN as Winch **Caution!**

- ① When pulling load, make sure that wire rope is in straight line with pulley groove.
- ② When pulling load, do not allow any intermediate obstacle between pulley and load that gives angle on wire rope. (It may damage or break wire rope)
- ③ Make sure no person or object is at front or rear of moving load.
- ④ Do not change revolving direction of in-put power source abruptly.
- ⑤ Do not step on loose wire rope during operation.
- ⑥ Keep loose wire rope untangled with in-put power cable.
- ⑦ Keep loose wire rope that just passed pulley away from load being lifted.
- ⑧ When road surface on which load is being pulled is uneven or has depression or pit, use a plate to make the path even.  
Ex) When there is a ditch, stairs or elevation on ground, or when pulling load onto power tractor, etc
- ⑨ When pulling load on a slant surface and load loses balance, take a safety measure to prevent load from slipping down.
- ⑩ Do not stop operation while pulling load on slant surface without any control or safety measures
- ⑪ Do not ride on moving load.
- ⑫ Do not use PULLEY-MAN for passenger purpose without permission of manufacturer.
- ⑬ Observe other related laws or rules regarding safety.

## 9. Precautions for Non-Professional Users **Caution!**

Be fully prepared with knowledge about PULLEY-MAN before operation in order to prevent accidents. Read this manual carefully before operation and conduct a trial operation without load at a safe place until accustomed to it, following instructions in this manual regarding safety guidelines. Best way would be to conduct the operation under supervision of maintenance personnel or a knowledgeable person.

# IV. Maintenance

For PULLEY-MAN to function to its maximum capacity and stay fit, it must be used and maintained properly. Refer to relevant laws or rules for detailed information about its maintenance. When performing maintenance, follow guidelines specified below in presence of personnel in charge.

## 1. Appointment of Maintenance Personnel

Though PULLEY-MAN is simple to install and operate, it must be used and maintained properly to function to its maximum capacity and stay fit. Entrepreneur(person in charge) should appoint maintenance personnel for consistent maintenance of the equipment.

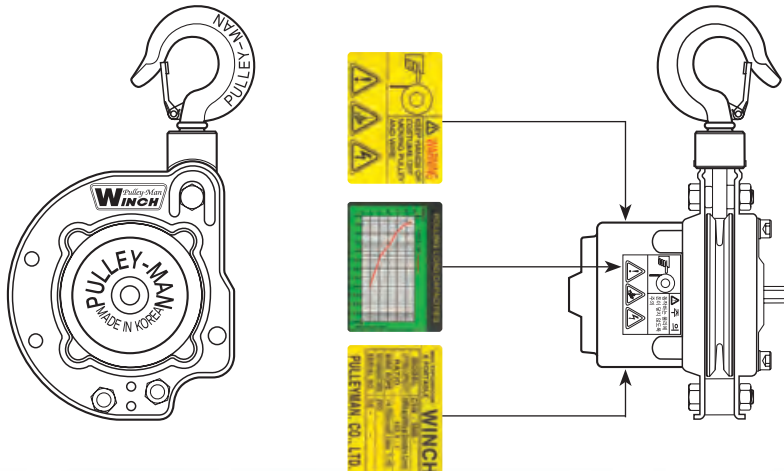
## 2. Safety Rules for Maintenance & Trouble-shooting Caution!

Observe following rules when performing maintenance or trouble-shooting job.

- 1 Turn off in-put power source.
- 2 Post a label saying 「No Operation」 over the wall socket.
- 3 Never start maintenance job while load is hanging.
- 4 Maintenance job must be done by maintenance personnel.
- 5 When doing maintenance job while PULLEY-MAN is installed in Fixed PULLEY-MAN mode, use a ladder or a mobile platform for safety.

## 3. Warning Labels for Danger

Warning labels are attached on PULLEY-MAN for safe use and maintenance job. Keep the label attached.

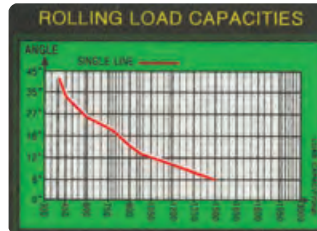


# IV. Maintenance



## 4. Labels and Details

Following labels are attached on PULLEY-MAN. Keep them unspoiled for instant reference.



MULTIPURPOSE & PORTABLE WINCH	
MODEL	CSW - 3060 -
LIFTING CAPACITY	300kg(600kg:Double Line)
RATIO	102.5 : 1
WIRE ROPE	φ4.76(Aircraft Cable 7-19)
DATE MANUFACTURED	200
SERIAL NO.	CS -

PULLEYMAN, CO., LTD.

## 5. Grease Replenishment

Inside speed reducer of PULLEY-MAN is filled with grease. Depending on frequency of operation, replenish grease at least once a year as a part of maintenance program.

※Grease used: Mos2

## 6. Assembly and disassembly

 **Caution!** Assembly or disassembly must be done by maintenance personnel.

PULLEY-MAN is composed mainly of speed reducer, frame and pulley and is disassembled in following procedures. Check condition of PULLEY-MAN if there is abrasion or damage at gears, bushings, bearings, shaft or pulley groove.



① Get ready to disassemble PULLEY-MAN.



② Remove frame cover.  
Screw off the two M6 bolts and remove cover from in-put side frame.



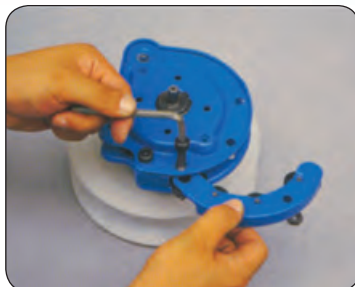
③ Pull off In-Let Lock Pins and Press Roller Casing.



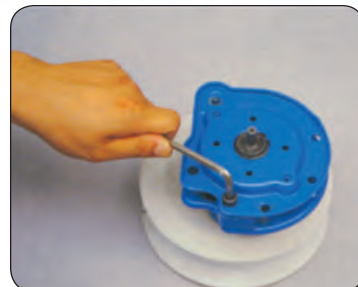
## IV. Maintenance



- 4** Take off Hook.  
Pull off the nut-holding pin and screw off hexagon bolt.



- 5** Remove Press Roller Casing.  
Take off hexagon socket head bolt(M8) and nut and then remove press roller casing from between frames.



- 6** Remove hexagon socket head bolt(M8) of Frame Space.



- 7** Remove snap ring on in-put side frame.



- 8** Pull off in-put-side frame from out-put axis.



- 9** Remove snap ring which is fixing pulley on out-put axis.



- 10** Remove Frame Space.

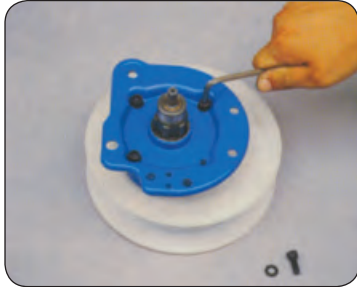


- 11** Take off pulley from out-put axles.



- 12** Remove snap ring which is fixing out-put-side frame to out-put axis.

## IV. Maintenance



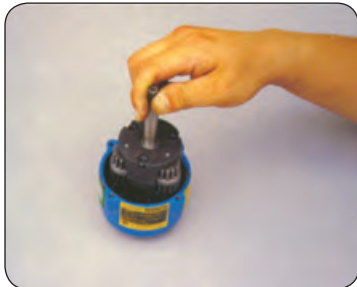
- 13 Screw off four hexagon socket head bolts(M6) which are fixing speed reducer to frame.



- 14 Take off out-put side frame from out-put axis.



- 15 Take off out-put axis from internal gear casing.



- 16 Take off in-put axis assembly (of planetary and sun gears) from internal gear casing.



 **Caution!**

Do not disassemble in-put axis assembly. Once it is disassembled, it cannot be re-assembled. When the gears are worn away or damaged by an external cause, it must be exchanged.

# IV. Maintenance



## 7. Precautions for Re-Assembly **Caution!**

For re-assembly, follow procedures of disassembly in reverse order. When re-assembling, do not use extraordinary force or impact, which may affect the products life and damage parts and components. Most of all, do not disassemble in-put axis assembly. Check before re-assembly.

### 1) Abrasion and Damage

- Abrasion at gear, bushing, shaft and pulley groove
- Deformation of frame
- Abrasion and rotation of hook and hook cover

### 2) Application of Grease

- Apply grease on gears, bushings and shaft.
- Apply grease or oil on connection of hook and hook cover.
- Apply grease on rollers in Press Roller Casing.
- Disassemble hook block and apply grease on its axis.

### 3) Re-assembly

- Do not give excessive force on gear and axis.
- Be careful not to damage bushings.
- Before fixing gear to the frame, apply holding bond on the four hexagon socket head bolts(M6) in advance.

## 8. Check-Up Points after Re-Assembly

- 1) Operate PULLEY-MAN without load to see if it is assembled properly.
- 2) Check if it makes excessive noise.
- 3) When no problem is detected, incorporate wire rope.

## 9. Replacement of Parts and Components **Caution!**

Through daily and periodical examination, replace parts or components whose lifetime is due or past with new ones according to maintenance guidelines.

### 1) Wire Rope

- ◆ Conditions and Limits of Usags ◆
- Less than 10% of elementary strips should break by one twist ( 1 pitch).
- Less than 7% of wire Rope's diameter should have been reduced.
- Should not have kink or corrosion.
  - ※ kink: state of wire bended and entangled
- When replacing wire rope, fix End Stopper at the tip.
- Treatment of wire tip must be solid without damage, and free of danger of loosening or secession from wire rope.

# IV. Maintenance



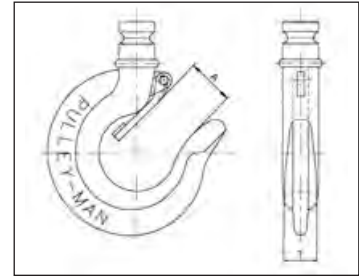
## 2) Hook

Must have a latch to keep binding wire rope or chain from slipping off the hook.

Areas most subject to abrasion are gateway and center of hook on which weight lays,

### ◆ Value Limits of Hook ◆

Item		Normal value	Limit value
Gateway	in.	0,72	0,8
	A (mm)	18,3	20,5
Genter of hook	in.	0,52	0,46
	T (mm)	13,15	11,8



## 3) Pulley

Since abrasion at pulley groove occurs by wire rope, check wire rope too when abrasion is detected at pulley groove.

### ◆ Methods for Recognizing Value Limits of Pulley Groove by Naked Eye ◆

- After processed and heat-treated, surface of pulley groove is coated with black zinc.
- When working load, black zinc coating is scratched off down to the point where wire rope does not move toward bottom of groove any more.
- As the equipment is continuously used, the scratch line moves toward bottom of groove. The reason that the scratch line nears toward bottom may be either wire rope's diameter is reduced or pulley groove is worn off.

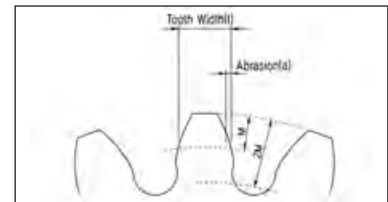
### Time to Replace:

If a new wire rope hanging maximum load touches bottom of groove, it is time to replace pulley.

Item	Worn Wire Rope touching bottom off Pulley Groove	New Wire Rope touching bottom off Pulley Groove
Measures	1. Replace Wire Rope 2. Paint groove with magic pen	Replace pulley

## 4) Gears

When abrasion value(a) reaches 0,15t, it is time to replace it.





## 10. Daily and Periodical Maintenance

Checking condition of PULLEY-MAN through constant maintenance is critical to its life and user safety. Keep maintenance schedule always at hand. When trouble(s) occur to the equipment, consult dealer or manufacturer.

### 1) Daily Check-up

For safety reason, check below before starting operation.

- Check if there is loose connection.
- Check damage or abrasion at wire rope.
- Check if wire rope is inserted in right direction.
- Check if wire rope is inserted properly toward pulley and press rollers are pressing wire properly.
- Check if nuts are screwed up tightly and anti-loosening pins are fixed.
- Check if hook has a latch and if it works.
- Check if labels and warning signs are at their positions.

### 2) Periodical Check-up

Maintenance personnel should make a yearly plan and record damage, abrasion, deformation, malfunction, etc. in a logbook.

- 3) Also, consult guidelines set up by government in your location for proper use and maintenance of PULLEY-MAN.



## PULLEY-MAN MAINTENANCE TABLE

🟡 Daily Maintenance

🌟 Monthly Maintenance

🌟 Annual Maintenance

Dividing	Maintenance		Items to Check	Method	Standards
	Daily	Periodical			
Wire Rope	🟡	🌟 🌟	Snapping of Wire	Daily–naked eyes Peri. –measurement	Less than 10% of elementary strips should break by one twist (1 pitch).
	🟡	🌟 🌟	Abrasion	"	Less than 7% of dia. is reduced
	🟡		Deformation & Corrosion	Naked eyes	Should not have kink or corrosion.
	🟡		End Stopper	"	Must be firmly fixed at wire tip.
Hook	🟡	🌟 🌟	Gateway	Daily–naked eyes Peri. –measurement	Should not be widened
	🟡		Deformation	Naked eyes	No warping or twisting.
	🟡	🌟	Latch	Naked eyes	No abrasion or deformation.
	🟡	🌟	ABrasion & Corrosion	Naked eyes	No excessive abrasion or corrosion.
	🟡	🌟	Defect & other flaws	Naked eyes	No kink or other defects
Main Body	🟡	🌟	Frame	Daily–naked eyes Peri. –measurement	No deformation or corrosion.
	🟡	🌟	Gear Case	Naked eyes	No deformation or corrosion
		🌟	Gear	Measurement	No abrasion or corrosion
		🌟	Bushing	Measurement	No excessive abrasion or damage.
	🟡	🌟	Press Roller Casing	Naked eyes	No abrasion, deformation or damage.
	🟡	🌟	Pulley	Naked eyes	No excessive abrasion or corrosion. Wire rope must not touch groove bottom, (Paint groove with magic pen)
	🟡		Accessories	Naked eyes	No abrasion, damage or corrosion
In-Put Power Source		🌟	Hand Drill	Measurement	Should perform normally at 90% of required power voltage.
		🌟	Cordless Hand Drill	Measurement	Check condition of rechargeable battery.
		🌟	DC 12V Motor	Measurement	Condition of Switch.
	🟡		Grounding	Measurement	Must be completely grounded.

## IV. Maintenance



### 11. Trouble-Shooting

Condition	Thing(s) to Check	Situation	Measures
Cannot start operation	Is power on?	In-put power switch is turned off.	<ul style="list-style-type: none"><li>☞ Press switch firmly.</li><li>☞ Connect power line properly.</li><li>☞ Check power cable.</li></ul>
Cannot work the load.	Is wire hook inserted properly? Is load weight within capacity?	In-put power source produces excessive noise and heat.	<ul style="list-style-type: none"><li>☞ Check power voltage.</li><li>☞ Check condition of in-put power source.</li><li>☞ Work load within capacity.</li></ul>
Slippage	Slipping during stop mode?	Wire rope abrasion	Change wire rope
		Pulley groove abrasion	Change pulley
Electric Accident	Power leakage	Electricity leaked along main body & wire rope	<ul style="list-style-type: none"><li>☞ Ground completely.</li><li>☞ Check insulation.</li><li>☞ Remove moisture and dry up.</li></ul>

※ When operation is abnormal, take measures according to instructions in Trouble-Shooting of this manual.  
For other abnormalities, contact your dealer or manufacturer.

### 12. Education and Training for User

Operator of PULLEY-MAN or maintenance personnel must acquaint himself with daily and periodical check points and safety rules in this manual. Also, appropriate education must be provided to ensure maintenance in a timely manner. When troubles arise, take measures according to instructions in Trouble-shooting of this manual.



Thank you very much for purchasing Pulley–Man. You should be familiar with this user manual for safe use and high efficiency. It contains essential instructions for maintenance.

## 1. Warranty service without charge

The warranty service shall apply to:

- 1) Defects in material and workmanship in normal use.
- 2) Defects in accessories attached to the machine.
- 3) Other defects or problems set forth in the warranty information.

## 2. Warranty service with charge

The warranty service with charge shall apply to:

- 1) Defects caused after the warranty period.
- 2) Defects due to improper use by the user.
- 3) Damages due to acts of God.
- 4) Defects resulting from unauthorized repair or modification.
- 5) Troubles due to external causes other than defects in material and workmanship.
- 6) Troubles due to use of improper voltage.
- 7) Services to be provided by the user's request.
- 8) Other products not made by PULLEY–MAN CO.,LTD.

## 3. Exclusions

We shall not be liable for loss, damage or accident resulting from:

- 1) Unauthorized repair or modification
- 2) Improper use or misuse by the user
- 3) Careless use or neglect by the user
- 4) Improper installation
- 5) Lifting a person
- 6) Lifting an expensive equipment with more than twenty million Korean won
- 7) Use of parts or accessories not approved by us
- 8) Nonfulfillment of daily or regular check
- 9) Nonobservance of cautions or warnings

The warranty does not cover loss, damage or accident described above.

We shall not be liable for them.

We will do our best to achieve quality improvement and customer satisfaction.

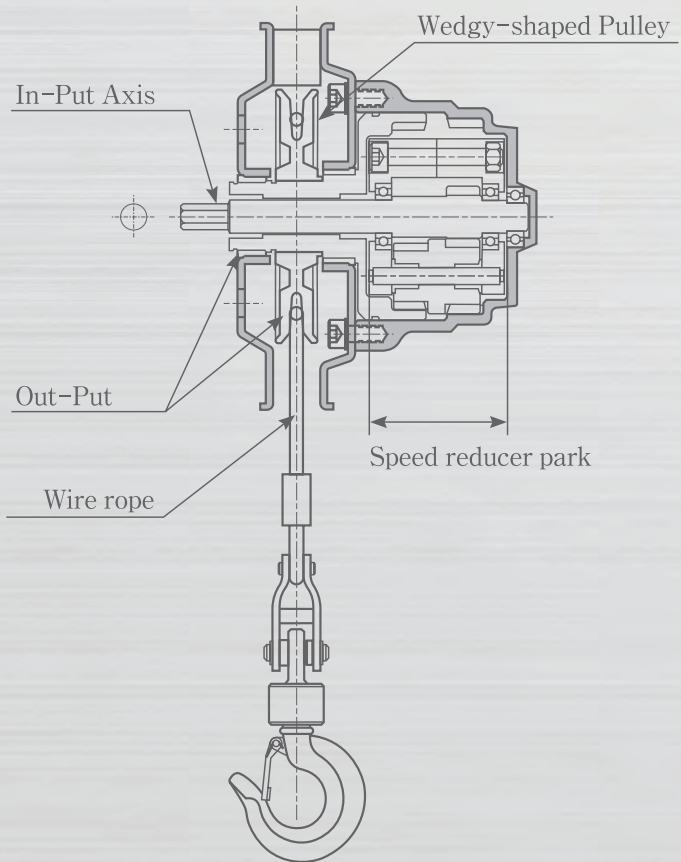




## 4. Quality Assurance

Quality Defects		Indemnification		
		within warranty period	after warranty period	
Quality deficiency or mechanical defect under normal conditions	Major repair is necessary within 10 days of purchase	Exchange or refund		
	Major repair is necessary within 1 month of purchase	Exchange		
	An exchange needs major repair within 1 month of purchase	Refund		
	Exchange unavailable			
	Repairable	Discrepancy	Repair (free of charge)	Repair (charge)
		Discrepancy after repair (4 times)	Exchange or Refund	Refund after depreciation amount
	Irreparable			
	Irreparable due to lack of parts			
Manufacturer lost goods for repair				
	Damage during delivery	Exchange		
Mechanical defect due to user's abuse or misapplication	Repairable	Repair (charge)	Repair (charge)	
	Irreparable	Exchange with charge up to repairable cost	In accordance with PULLEY-MAN U.S.A policy	
<ul style="list-style-type: none"> <li>▶ Defect or malfunction due to natural disaster such as fire, earthquake, flood, thunder, tornado, sea wind and so forth</li> <li>▶ Defect from misapplication of voltage</li> <li>▶ User's unauthorized repair/modification on product</li> <li>▶ Exchange of consumption articles</li> <li>▶ Discrepancy from other than mechanical defect itself</li> </ul>		Repair (charge)	Repair (charge)	

※ Warranty Period = 1 year from delivery



# Pulley-Man

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