AP6108 FISHPOLE HOIST

Operation, Maintenance & Part's

Rev. 02/01/2013 for SN CXXXX hoists only

Morgan Aero Products

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FORWARD

This manual has been written to assist in the operation, maintenance and service of the Morgan AP6108 Fishpole hoist. Encourage those individuals who will operate and maintain the hoist to study its contents thoroughly before attempting any maintenance or hoist operation. By doing so you will be assured of maximum performance and long service life. Keep this manual available for future operational and maintenance needs.

1 - GENERAL DESCRIPTION

1-1. The Morgan Fishpole hoists are precision built spur geared type hoists, especially designed for close quarter lifting. They are operated by a crank type handle instead of the usual lever or hand chain.

1-2. The serial number and model number of each hoist is found on the hoist frame. When ordering parts, always give model and serial number of hoist. INFORMATION CONTAINED IN THIS MANUAL IS SUBJECT TO CHANGE WITHOUT NOTICE.

1-3. Frames are aluminum alloy; load chains are welded link type of special calibrated pitch and are heat treated alloy steel.

2 - OPERATION

2-1. A Morgan Fishpole Hoist is a special tool, designed for Aircraft use. Know its convenient controls and their functions. Always practice hoist safety, your company policy pertaining to lifting equipment and common sense. Read and follow all warnings

WARNING

This equipment is not designed, approved or suitable as a power source for lifting or lowering persons.

DO NOT USE FOR LIFTING OF PERSONNEL

2-2. TO RAISE LOAD

a. Turn finger-tip control lever to "UP" position (hoist must be free of handle loading when turning finger-tip control lever to "UP").
b. Load can now be raised by working the operating handle. Either a complete circular motion can be used or a back and forth ratcheting motion.
c. Maximum capacity of the AP6108 is 1000lb. **DO NOT EXCEED** this weight.

2-3. TO LOWER LOAD.

a. Turn finger-tip control lever to "DN" position (hoist must be free of handle loading when turning finger-tip control lever to "DN").
b. Load will now lower as the handle is actuated as noted above

GENERAL OPERATIONAL NOTES.

1) Ensure the chain is not twisted in the boom. The hex head locking screw in the lift head can be loosened, and the head turned, to align it with the chain. Make sure it is in alignment with the chain as it is fed from the drive end. If alignment is necessary make sure the drive head is seated firmly on the boom and re-tighten the locking screw.

2) When reeling chain out, make sure to pull slightly on the attachment fitting end to ensure that the chain does not become tangled or stuck in the boom tube.

3) After lifting a load and switching the ‘UP’ ‘DOWN’ control lever to the ‘DOWN’ position, it is normal for the actuating handle to be tight. This tightness is the braking action being overcome when reversing direction and will return to normal after approximately 1” of travel.
4) Check chain, lift points, boom tube and body for any knotting, damage or severe wear prior to each use. **DO NOT** use if damage or excessive wear is noted.

3 - LUBRICATION

3-1. LUBRICATION OF INTERNAL PARTS.

All internal operating parts of the Morgan Fishpole Hoist that require lubrication are prelubricated at time of assembly by the factory. Any additional lubrication requirements can be found below.

3-2. LUBRICATION OF EXTERNAL PARTS.

a. Load chain should always be protected from wear with a light film of general purpose oil, especially when subjected to damp or corrosive atmospheres.

b. Lubricate upper and lower attach points and all moving pivots and swivels with a film of light general oil, as required. (Also see section 5-5)

WARNING
Do not oil load Brake. It is extremely important the load brake friction surface be kept free of any oil film, so do not apply oil internally

4 – MAINTENANCE

4-1. GENERAL.

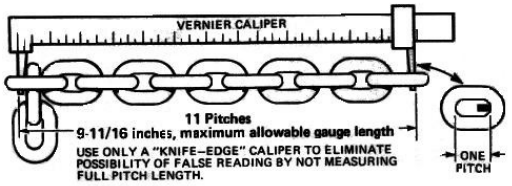
The following are preventive maintenance steps which should be performed periodically as operating conditions demand. Under most conditions, a yearly maintenance inspection is adequate and the entire hoist should be dismantled and its parts inspected for damage or wear and replaced as necessary. This can be accomplished by a qualified maintenance person or returned to the factory as required. At reassembly, the hoist should be relubricated as outlined in paragraph 6-12. If the hoist has been subjected to extremely adverse conditions, such as excessive dirt, moisture, and hard use or by overloading, a more frequent maintenance inspection should be made. Visually check hoist after each use.

4-2. LOAD BRAKE.

If load brake shows a tendency to slip or drag, remove brake parts and inspect brake friction surfaces for signs of damage, wear, dirt, or an oil film. Contact surfaces of brake flange and ratchet wheel must be free of excessive scoring and clean of all oil and grease. Faces of brake washers should be lightly wire brushed and buffed. Also, be certain that the inside diameter of the brake washers are free of loose material and burrs. Replace any worn parts. Load brake pawl should also be checked for signs of wear or damage.
NOTE: Be sure to keep brake friction surfaces free of oil at reassembly.

4-3. LOAD CHAIN.

Clean chain for inspection. Examine visually for gouges, nicks, weld splatter, corrosion or distorted links. Slacken chain and check bearing surfaces between links for wear (Figure 4-1). Greatest wear will often occur at sprocket at high or low point of lift, particularly when hoist is subjected to repetitive lifting cycles. Case hardness of chain is .010 - .015" deep. Chain must be replaced before the case is worn through. Also check chain for elongation using a vernier caliper. Select an unworn, un-stretched section of chain (usually at slack or tail end) and measure and record the length over the number of chain links (pitches). Measure and record the same length of a worn section in the load side of the chain. Obtain the amount of wear by subtracting the measurement of the unworn section from the measurement of the worn section. If the result (amount of wear) is greater than the amount specified in Table 4-1, the chain has elongated beyond the maximum allowable length and must be replaced. Chain with excessively pitted, corroded, nicked, gouged, twisted or worn links should be replaced using only factory approved chain. Never weld or attempt to repair coil chain.



Pitches to Measure	Nominal Length	Max. Wear Limit
13	10.56”	.164

Table 4-2. Allowable Chain Wear – Elongation

CAUTION

Do not assume that the load chain is safe because it measures below replacement points given herein. Other factors, such as those mentioned in visual checks above, may render chain unsafe or ready for replacement long before elongation replacement is necessary.

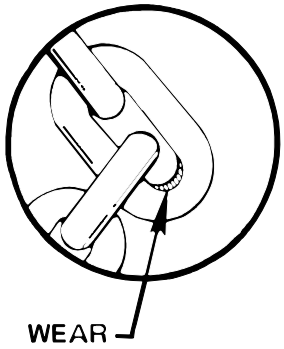


Figure 4-1. Check Chain Wear at Bearing Surfaces Between Links

WARNING

When replacing load chain, use only factory approved chain conforming to factory specifications for material, hardness, strength and link dimensions. Chain not conforming to Morgan Fishpole hoist specifications may be dangerous as it will not fit in the load sprocket and chain guide correctly, causing damage to hoist, and it will wear prematurely, deforming and eventually break.

4-4. ATTACHMENT FITTINGS.

Inspect fittings and attachment points regularly for evidence of overloading or damage. Your Morgan Fishpole hoist is equipped with special mounting hardware, contact the factory for any needed parts giving complete model number and factory serial number.

5 - DISASSEMBLY & REASSEMBLY

5.1 DISASSEMBLY.

5-2. GENERAL.

The following disassembly procedure applies to the complete hoist and a complete tear down procedure is given. However, when servicing specific parts, only a partial tear down may be required.

5-3. REMOVAL OF LOAD CHAIN

Lay the Morgan Fishpole hoist on a flat work surface. Remove the load attachment fixture from the end of the load chain (section 5-7). Turn hoist travel select lever to the ‘UP’ position. Turn the hand crank lever to draw the load chain down through the boom and through the end of the hoist.

5-4. GENERAL DISASSEMBLY

When disassembly and assembly is required refer to the exploded view and parts list. This shows the proper relationship of the parts, part names and the required quantities of the parts. In addition observer the following:

a. The liftwheel gear (673-11) is under spring pressure and may spring out when the gear cover (673-5) is removed.
b. Needle bearings are pressed into the gear cover (673-5). Unless they are to be replaced, do not attempt to remove these bearings.
c. The brake cover (673-8) includes a rubber seal and care should be taken to make sure it is not cut or damaged.

5-5. REMOVAL OF HOIST MAST AND LIFT HEAD

a. Remove load chain.
b. Loosen allen screws in the side of the mast socket.
c. Remove mast by pulling it from the socket with a twisting motion. Take care NOT to dent or damage mast.

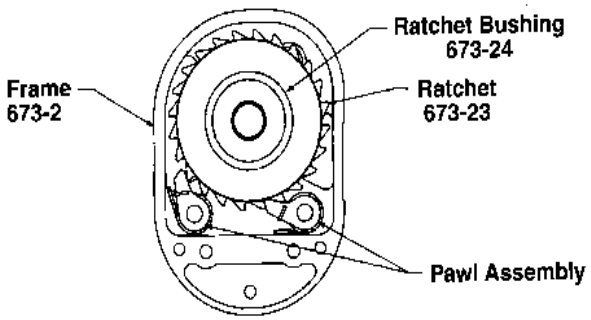
5-6. ASSEMBLY

5-7 CLEANING AND INSPECTION OF PARTS.

a. Before assembly, all parts should be thoroughly cleaned and inspected to determine their serviceability.
b. Replace parts that show signs of being excessively worn or damaged.
c. Lubricate gearing with grease. Apply a light film to sprocket bearing surfaces and sprocket bearings. Apply a light film of grease to the pinion bushing surfaces, bushings and pinion washer. Lubricate lever pawl with a small amount of grease at support pin and ratchet engagement tip. To make sure that the brake hub friction surfaces do not become greased, do not lubricate the ratchet bearing surface. Apply a small amount of grease on the pinion shaft. Lubricate both diameters of brake hub where it contacts handle and lever cover. Apply a light film of grease to the surfaces of the lever spring and thumb lever.

WARNING
It is extremely important that load break friction surfaces be kept dry, as an oily film may cause slippage, thereby, permitting a load to drop.

d. Load chain should be lubricated with a light film of high quality general purpose oil.



e. When assembling the unit, lubricate the various parts as required and observe the following:

f. Maintain the proper relationship of the lever plunger (673-46) and the trigger (673-43) as shown in figure 5-2
g. Assemble pinion washer (673-2) and then bushing (673-25) to pinion (673-9) and slide this assembly into the frame (673-2).
h. Place the large end of the spring (673-20) in the recess of the liftwheel gear (673-11) and slide the gear onto the liftwheel (673-10) spline spring end first.
i. Assemble snap ring (673-33) to handle bolt (673-48). SNAP RING MUST BE ON GEAR SIDE OF FRAME.

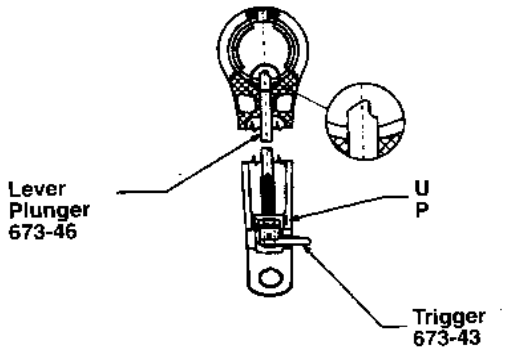


Figure 5-2

j. Push on liftwheel gear to compress the spring and attach the gear cover (673-5) to the frame (673-2)
k. Assemble pawl (673-19) to pawl shafts (673-32). Place pawl springs (673-21) on pawl shafts and insert these assemblies in to frame(673-2)
l. Slide friction hub (673-12) onto pinion (673-9) and place one friction disc (673-13) on top of friction hub. Assemble ratchet bushing (673-24) to ratchet
m. (673-23). Spring apart pawls and slide ratchet/bushing assembly on friction hub as shown below.
n. To assemble and adjust the brake, place the second friction disc (673-13) on top of the ratchet. Thread the ratchet hub (673-14) onto the pinion (673-9). Insert the two locking pins (673-78) into the holes of the ratchet hub. Holding the pinion steady, rotate the ratchet hub from the stop in the full clockwise position to the stop in the full counterclockwise position. From stop to stop there should be 10-45 degrees of rotation. If the rotation does not fall within theis range, remove the locking pins, ratchet hub, pawl assemblies (see step f), friction discs, ratchet and ratchet bushing. Slide the friction hub partially off the pinion until the splines disengage. Rotate the friction hub slightly clockwise of the rotation is more than 45 degrees or counterclockwise if the rotation is less than 10 degrees. Repeat assembly steps until the rotation from stop to stop is 10-45 degrees. NOTE – The ratchet hub can be started onto the thread of the pinion in one of four positions. Each time the ratchet hub is threaded onto the pinion, maintain the same orientation. Install the pawl assemblies per step 23.
o. Assemble the snap ring (673-31) to the stripper pin (673-34). Slide the stripper (673-15) into the recess in the bottom of the frame and secure by sliding the striper pin thru the holes in the frame and stripper.
p. Assemble brake cover (673-8) to frame.
q. Assemble the hand crank assembly to the ratchet hub (673-14) and secure by attaching the handle cover (673-17) to the ratchet hub.
r. Install load chain and mast.
s. After any maintenance the hoist must be functionally tested and a proof load test performed.

6 TESTING

Prior to initial use repaired units or ones that have not been operated in the previous 12 months must be tested by the user for proper and safe operation.

Test the unit first in the unloaded state and then with a light load of 50 lbs (23kg.). Verify proper operation of all controls, the ability to lift and lower the load properly and the load brakes function properly. (no slippage under load). Next test the fishpole hoist with a load of 125% (1,250 lb) of the 1000 lb rated capacity. In addition, hoists in which load sustaining parts have been replaced shall be tested with 125% of rated capacity by or under the direction of an appointed person and a written report prepared for record purposes.

NOTE – For additional information on inspection and testing, refer to the current issue of ASME B30.21

WARNING
It is extremely important that load brake friction surfaces be kept dry, as an oily film may cause slippage, thereby, permitting a load to drop.

7 - TROUBLE SHOOTING

CONDITION	PROBABLE CAUSE	REMEDY
1 Load Brake slips. (Hoist will not support loads.)	1 Brake friction surfaces coated with oil, or brake washers glazed 1. No lubrication on cam surfaces of load brake. 2. Brake parts damaged or worn. 3. Load chain installed backwards.	1 Remove brake parts and clean surfaces. Lightly wire brush friction faces of brake washers: remove any inside diameter burrs, and buff or replace if necessary. 2 Clean thoroughly and add lubrication. 3 Remove and inspect brake parts. Replace if necessary.
2 Handle works hard (load brake drags)	1 Hoist is overloaded. 2 Brake friction surfaces are scored. 3 Sprocket bearings are damaged. 4 Load gearing is damaged. 5 Excessive dirt inside of internal parts corroded.	1 Remove a portion of the load. 2 Remove and inspect brake parts, bearings and load gearing. Replace damaged or defective parts. See section VI. 3 Disassemble and thoroughly clean. See Section V & VI.
4 Erratic Operation.(Chain gags or jumps in lowering direction)	1 Load chain installed wrong, welds on links facing sprocket. 2 Load brake pawl or ratchet teeth worn or damaged.	1 Remove and reinstall. See paragraph 6-18. 2 Remove load brake parts and inspect pawl and ratchet as outlined in Section VI, Replace if necessary.
5 Finger-Tip Control Lever Sticks.	1. Dirt inside handle or lack of lubrication	1. Disassemble and thoroughly clean Add lubrication as outlined in Section VI
6 Frame cracked or badly mutilated.	1 Hoist subjected to overloading. 2 Load chain run thru hoist too far, in lowering, causing welded end link bind against frame. 3 Hoist subjected to extreme angular or side pulls, causing chain to bind on side of frame. 4 hoist dropped or thrown.	1 Whenever the frame shows evidence of damage from misuse or rough handling, the hoist should be completely dismantled, all parts inspected and damaged or worn parts replaced, as outlined I Sections VI. Always use the proper safety rules when using the Morgan Fishpole hoist.

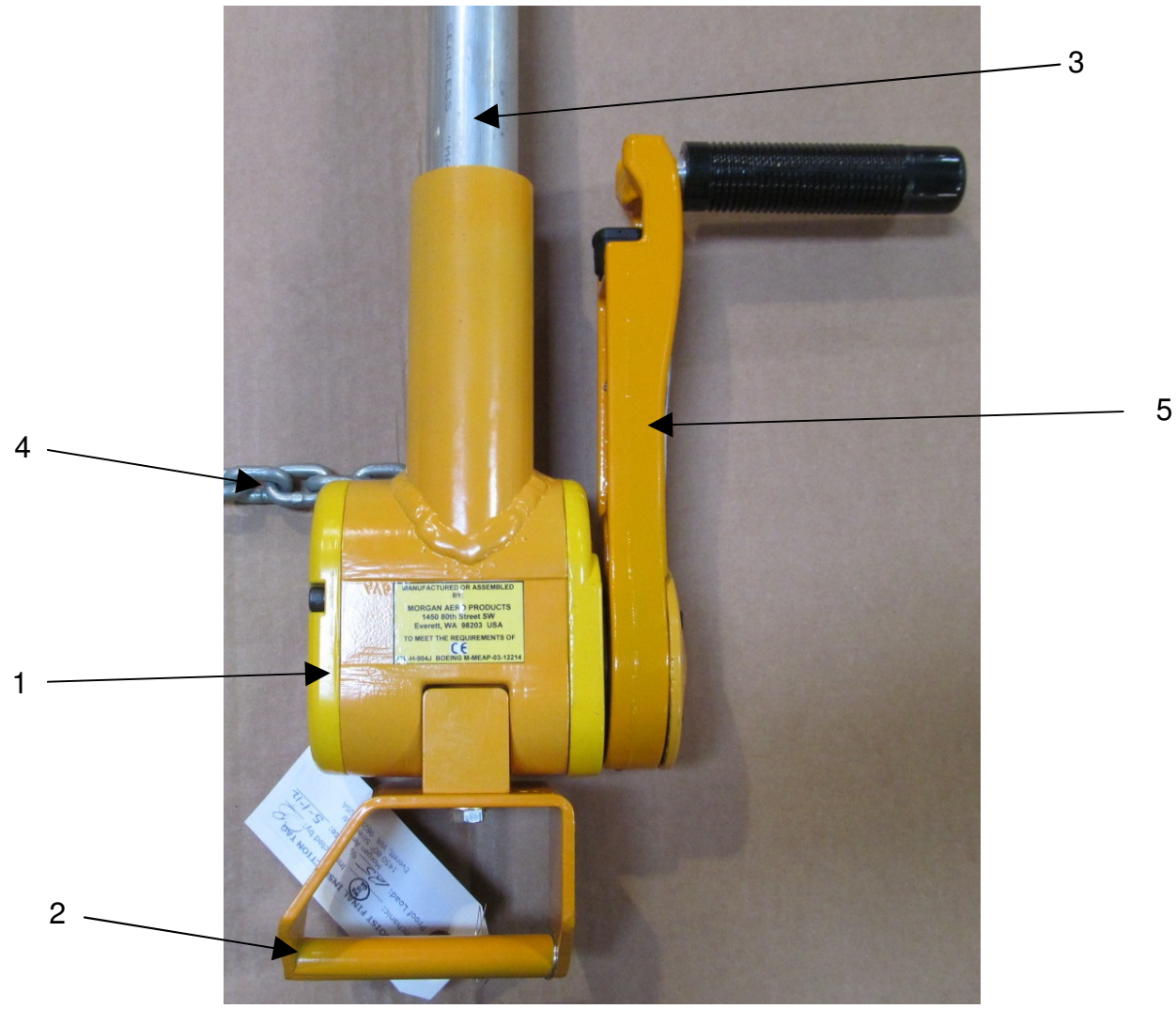
MASTER PARTS SHEET

MORGAN AP6108 FISHPOLE HOIST

02/01/13

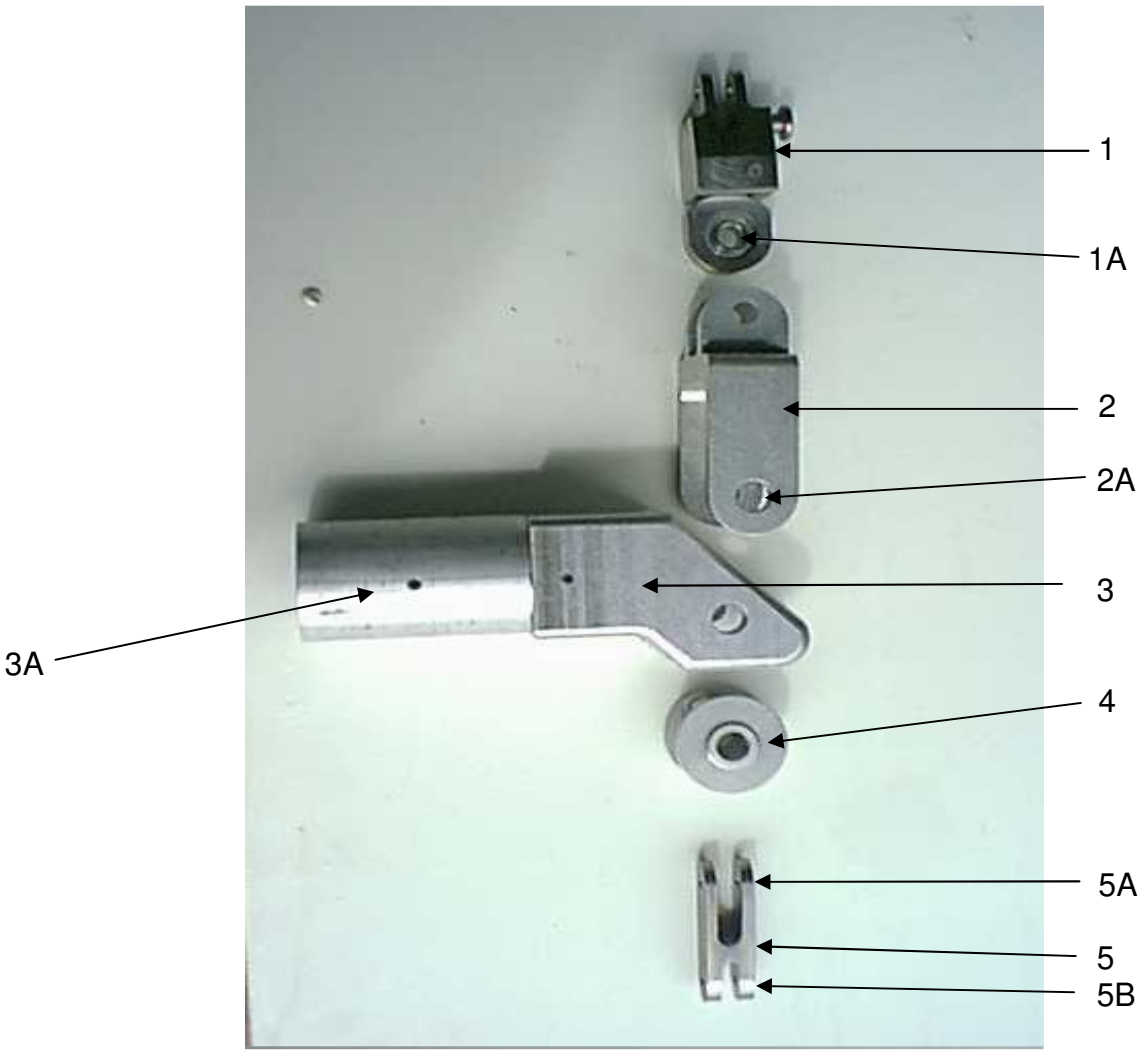
This revision when received supercedes all other parts sheet

DRIVE HEAD AND MAST



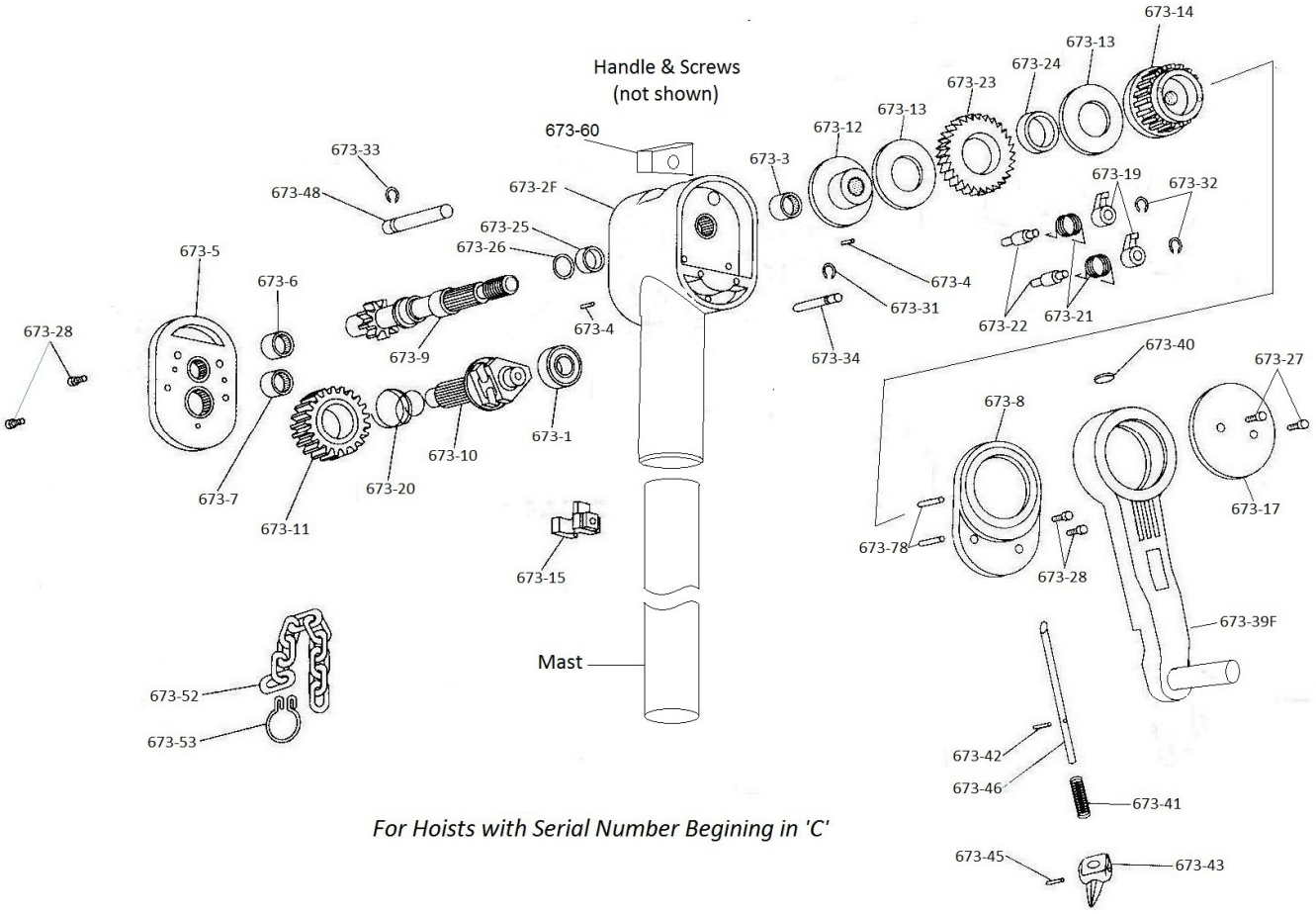
REFERENCE	DESCRIPTION	PART NUMBER	QTY.
1	DRIVE HEAD COMPLETE – Maintenance and parts manual for internal components available from Morgan Aero Products	MA6800	1
2	HANDLE ASSEMBLY, COMPLETE	MA6801	1
3	MAST – Order mast length depending on individual requirement.	MA7047	A/R
4	LOAD CHAIN (Order length based on boom length plus two feet)	MA6137	A/R
5	CRANK HANDLE, COMPLETE	MA6128	1

LIFT HEAD



REFERENCE	DESCRIPTION	PART NUMBER	QTY.
1	Swivel, attach block, with bearing and pin	MA7008	1
1A	Lower Swivel attachment pin (not shown)	MA7008A	1
2	Upper attachment link, includes pin	MA7009	1
2A	Upper attachment link bolt (not shown)	MA7009A	1
3	Mast head, includes pin	MA7010	1
3A	Mast head tube support	MA7010A	1
4	Chain roller	MA7011	1
5	Lower attach block, includes upper and lower pin.	MA7012	1
5A	Lower attach block bolt (not shown)	MA7012A	1
5B	Lower attach block pin with lanyard (not shown)	MA7012B	1

DRIVE HEAD PARTS



For Hoists with Serial Number Begining in 'C'

Ref. No.	Description of Part	Part Number	Qty
673-1	Lift wheel bearing	MA6102	1
673-2F	Frame (includes 673-3 & (4) 673-4)	Factory Only	1
673-3	Frame end pinion bearing	MA6139	1
673-4	Frame Pin	MA6141	4
673-5	Gear cover (includes 673-6 & 673-7	MA6100	1
673-6	Gear end pinion bearing	MA6103	1
673-7	Lift wheel bearing	MA6104	1
673-8	Brake cover w/seal	MA6105	1
673-9	Pinion	MA6106	1
673-10	Lift wheel	MA6107	1
673-11	Lift wheel gear	MA6108	1
673-12	Friction hub	MA6109	1
673-13	Friction disc	MA6110	2
673-14	Ratchet hub	MA6111	1
673-15	Chain guide (stripper)	MA6112	1
673-17	Lever cover	MA6113	1

Ref. No.	Description of Part	Part Number	Qty
673-19	Pawl	MA6114	2
673-20	Spring	MA6115	1
673-21	Pawl spring	MA6116	2
673-22	Pawl shaft	MA6117	2
673-23	Ratchet	MA6118	4
673-24	Ratchet bushing	MA6119	1
673-25	Pinion Bushing	MA6120	1
673-26	Pinion Washer	MA6121	1
673-27	Cover screw	MA6122	2
673-28	Cover screw	MA6123	6
673-31	Stripper pin snap ring	MA6124	1
673-32	Pawl snap ring	MA6125	1
673-33	Snap ring	MA6126	1
673-34	Stripper pin	MA6127	1
673-39F	Crank assembly (includes 673-40, -41, -42, -43, -44, -45 & -46)	MA6128	1
673-40	Expansion plug	MA6130	2
673-41	Lever plunger spring	MA6131	1
673-42	Lever plunger spring pin	MA6132	1
673-43	Trigger	MA6133	1
673-45	Trigger pin	MA6134	1
673-46	Lever plunger	MA6135	1
673-48	Handle bolt	MA6136	1
673-52	Load chain (order per foot of lift required plus 7 ft.)	MA6137	A/R
673-53	End ring	MA6138	1
673-60	Handle Adapter	MA6142	1
Not Shown	Handle & Screws (Per set, handle & 2 screws)	MA6801	1
Mast	Order per foot of lift required	MA7047	A/R

When ordering parts, always give Model and serial number of the hoist.

WARRANTY

A. Seller warrants that its products and parts, when shipped, and its work (including installation, construction and start-up), when performed, will meet applicable specifications, will be of good quality and will be free from defects in material and workmanship. All claims for defective products or parts under this warranty must be made in writing immediately upon discovery and , in any event, within one (1) year from shipment of the applicable item unless Seller specifically assumes installation, construction or start-up responsibility. All claims for defective products or parts when Seller specifically assumes installation, construction or start-up responsibility, and all claims for defective work must be made in writing immediately upon discovery and , in any event, within one (1) year from completion of the applicable work by Seller, provided; however, all claims for defective products and parts must be made in writing no later than eighteen (18) months after shipment. Defective items must be held for Seller's inspection and returned to the original f.o.b. point upon request. THE FOREGOING IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES WHATSOEVER, EXPRESS, IMPLIED AND STATUTORY, INCLUDING , WITHOUT LIMITATIONS, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS.

B. Upon Buyer's submission of a claim as provided above and its substantiation, Seller shall at its option either (I) repair or replace its product, part or work at either the original f.o.b. point of delivery or at Seller's authorized service station nearest Buyer or (ii) refund an equitable portion of the purchase price.

C. This warranty is contingent upon Buyer's proper maintenance, use and care of Seller's products, and does not extend to fair wear and tear. Seller reserves the right to void warranty in event of Buyer's use of inappropriate materials in the course of repair or maintenance, or if Seller's products have been dismantled prior to submission to Seller for warranty inspection.

D. The foregoing is Seller's only obligation and Buyer's exclusive remedy for breach of warranty, and is Buyer's exclusive remedy hereunder by way of breach of contract, tort, strict liability or other wise. In no event shall Buyer be entitled to or Seller liable for incidental or consequential damages. Any action for breach of this agreement must be commenced within one (1) year after the cause of action has accrued.