

2250 / 2625 / 3000S CADMAN TRAVELLER



OPERATOR'S and PARTS MANUAL 2001 EDITION

Cadman
POWER EQUIPMENT
Limited

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SAFETY PRECAUTIONS

“SAFETY IS JUST A WORD UNTIL PUT INTO PRACTICE”



This symbol, the **safety-alert symbol**, indicates a hazard and conforms to ANSI / ASAE S350. When you come across the safety-alert symbol in this manual, make certain you fully understand and abide by the given instructions.

As the owner and / or operator it is ultimately **your** responsibility to insure personal safety and to operate this machine in a safe manner. Your good judgment and the following precautions will help you to avoid costly accidents and minimize personal risk.

- **DO NOT** move or operate this machine until you have **read and understand** the instructions in this manual.
- **NEVER** allow untrained persons to operate this machine.
- **DO NOT** attempt to service this machine while it is in operation.
- **MAKE CERTAIN** all mechanical and hydraulic tension has been released before attempting to service the machine.
- **CHECK** all nuts and bolts regularly for tightness.
- **PERFORM REQUIRED MAINTENANCE** as prescribed or as necessary to keep this machine in safe operating condition.
- **KEEP ALL SPECTATORS** at a safe distance.
- **STAY CLEAR** of high pressure supply lines, especially when first pressurizing the system.
- **DO NOT** remove or alter any of the shielding from this machine.
- **BE CERTAIN** that the machine is securely anchored (using the stabilizer legs) before unspooling the hose.
- **KEEP WELL CLEAR** of all moving parts.
- **NEVER** tow this machine at speeds greater than **10 MPH / 15 KPH** and be certain the tow vehicle has adequate braking capacity to maintain safe control at all times.

GENERAL PRECAUTIONS



Keep the chassis of the machine on firm and level ground. A **Cadman Traveller** has a high center of gravity. It is essential that it be operated from a stable position to prevent roll over.



Regular inspection of your pipe couplings, tubing and gaskets should be part of your regular set-up routine. Any defective parts should be replaced or taken out of service.



Pressurizing your **Cadman Traveller** must be done slowly and cautiously to purge all the air from the system before bringing the system up to full operating pressure. (see “**Field Set Up And Operation**” #16 on pg. 13 for further explanation)

SAFETY DECALS

The safety decals on this machine are intended to warn the operator of potentially hazardous areas. These decals must be properly maintained. This includes;

- keeping all safety decals legible
- replacing any decal that becomes illegible
- replacing any decal that is missing
- if applicable, include the current safety decal specified by **Cadman Power Equipment Ltd.** on any component installed during repair

Contact **Cadman Power Equipment Limited** to obtain replacement safety decals. When replacing safety decals reinstall them onto their proper locations.

SAFETY SHIELDS

⚠ WARNING

Operation of a *Cadman Traveller* without the shielding in place could result in serious personal injury or death!

The shielding installed on your **Cadman Traveller** is designed to help guard against accidental entanglement in the moving parts of the machine. These shields must be removed **ONLY** for the purpose of repair or periodic maintenance as described in the “**Required Maintenance**” section of this manual. The shielding **MUST** be immediately re-installed **BEFORE** putting the machine back in service.

STABILIZER LEGS

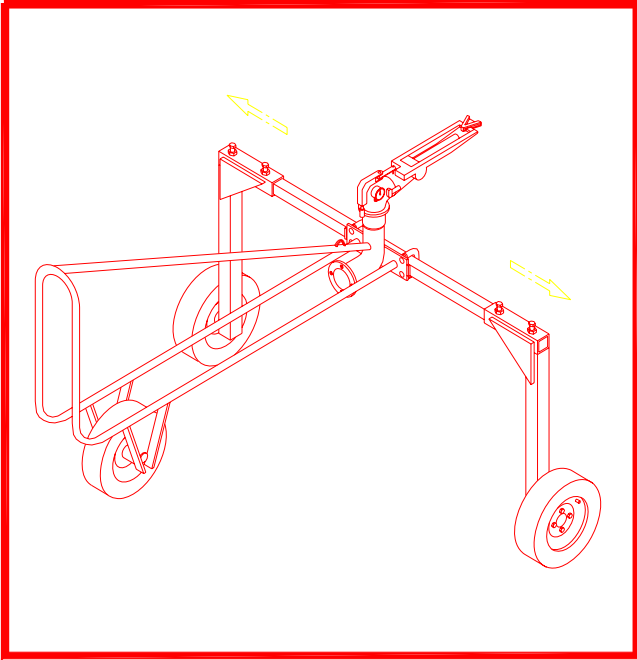
All **Cadman Travellers** are equipped with **two (2)** stabilizer legs. The stabilizer legs **MUST** be lowered each time the machine is used, **no matter how little hose is pulled out!**

⚠ WARNING

Failure to properly use the stabilizer legs may result in unwanted frame movement or machine upset with the potential to cause serious injury or

GUN CART

The gun cart assembly of the **Cadman Traveller** has adjustable rear track widths. The gun cart should be adjusted to the widest track width that row spacing will allow. This will provide greater stability for the gun cart.



2625 GUN CART SHOWN

⚠ CAUTION

If the gun is set so that it rotates forward of the rear wheels of the cart (toward the reel), stop the retrieve cycle **NO LESS** than **10 FEET** out from the machine in order to prevent gun damage caused by the gun hitting the cart lift assembly.

APPLICATORS AND ACCESSORIES

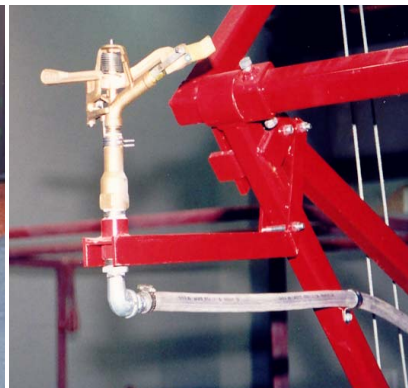
There are a variety of applicators available to be used with your **Cadman Traveller**. Ask a **Cadman Power Equipment Limited** representative about your options.



Cadman Power Pak



Caprari Water



Sprinkler Kit

Many accessories are also available for use with a **Cadman Traveller** (i.e. **Cadman Power Pak**) Refer to their respective manuals before using any piece of equipment with your **Cadman Traveller**.

REQUIRED MAINTENANCE

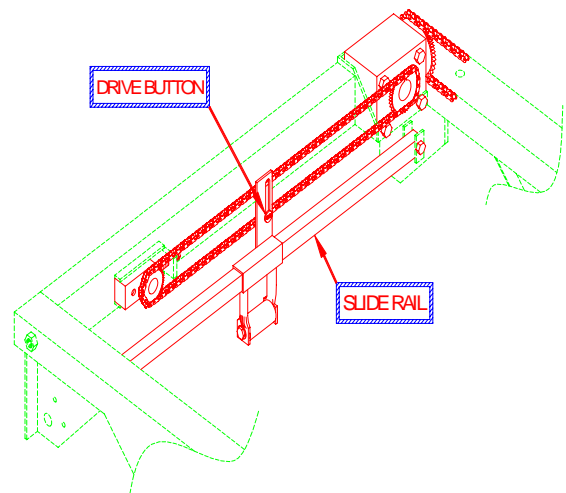
Prevention of mechanical failure is the goal of any good maintenance schedule. Severe service uses such as liquid manure application, municipal and industrial uses, custom slurry applications, etc. require timely, trouble free operation of your equipment. The secret to preventing unwanted down time is to adhere to a maintenance schedule suited to the way you use the equipment. Your maintenance schedule should include the following minimum requirements;

EACH USE

- 1 Check to be sure **BOTH** shut off switches and the safety shut off switch are working. Repair or replace a defective switch **BEFORE** operating the machine. (see top of pg.14)
- 2 Check to be sure the compensator safety switch is properly adjusted and working. The engine must shut down before the shut off bar contacts the frame. (see top of pg. 14)

DAILY

- 1 Check the engine oil level and air filter condition.
- 2 Check to be sure that the indexer drive button and connecting link are in good condition. In-sure that the slide rails are well greased. (see illustration)
- 3 Check the alignment and tension of the main drive chain. Adjust as necessary.



AFTER THE FIRST 25 HOURS

- 1 Change the oil in the Honda engine. Refer to the Honda engine manual for detailed maintenance instructions.
- 2 Change the oil in the transmission gearbox. See “**LUBRICANTS**” section for oil type and fill level.

EVERY 50 HOURS OF USE

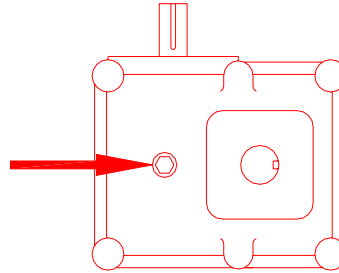
- Check **ALL** wheel bolts (using a lug wrench) to insure tightness.

EVERY 100 HOURS OF USE

- 1 Change the engine oil. Consult the Honda engine manual for further information on oil requirements and change intervals as well as other required engine maintenance.
- 2 Lubricate the following;
 - Turntable bearing ring
 - Main drive chain idler arm pivot
 - Indexer slide rails
 - Drive pulley lead screw
 - Indexer idler block
- 3 Lubricate all chains.
- 4 Check the oil level in the transmission gearbox. Replenish as necessary.

- 5 Check for oil level in the indexer gearbox.
- 6 Check the tire pressure and maintain from **36-40 PSI**.

MAKE CERTAIN THAT THE GEARBOX IS ORIENTED AS SHOWN WHEN CHECKING THE OIL LEVEL



FILL THE GEARBOX TO THE INSIDE LIP OF THE OIL LEVEL HOLE

EVERY 250 HOURS OF USE

Disassemble, clean, inspect and re-pack the gun cart wheel bearings. Replace any defective components as required.

BEFORE STORING

- 1 Drain the hose. This is easily done by pulling out all but one (1) coil of hose along a level path. Remove the drain plug from the gun cart. Use the Honda engine or a tractor PTO shaft to wind in the hose.

⚠ CAUTION

DO NOT leave the machine unattended during the hose draining process. Without fluid pressure present, the hose may flatten slightly causing it to lay improperly on the drum. It may be necessary to manually adjust the hose position on the hose drum during the draining process.

- 2 Disassemble and clean the variable speed pulley mounted on the engine. Remove the “moving face” of the pulley. Clean the bronze bushing and shaft of gum and belt dust and lubricate with a thin coat of light oil.
- 3 Disassemble, clean, inspect and re-pack the main chassis wheel bearings.
- 4 Lubricate all chains.
- 5 Prepare the Honda engine for storage. See the storage instructions provided in the Honda engine manual.

BEFORE START UP (After long term storage)

- 1 Review this manual to refresh your memory regarding the proper operation of this machine.
- 2 Fill the fuel system with fresh fuel.
- 3 Change the oil in both the transmission gearbox and the indexer gearbox.
- 4 Check and adjust the tire pressure to **36 - 40 PSI**.

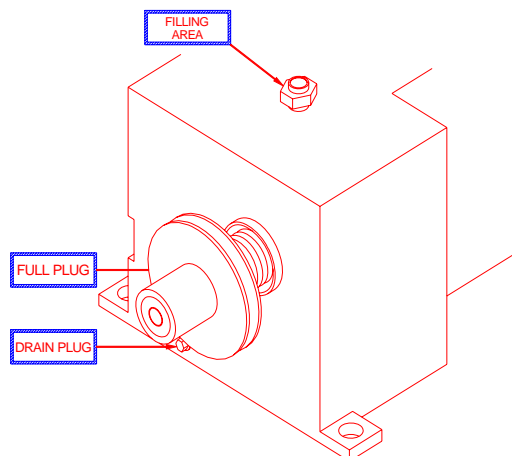
LUBRICANTS

Grease: Any good grade of multi-purpose, waterproof grease is acceptable.

Engine Oil: Consult the Honda owners’ manual for oil recommendations.

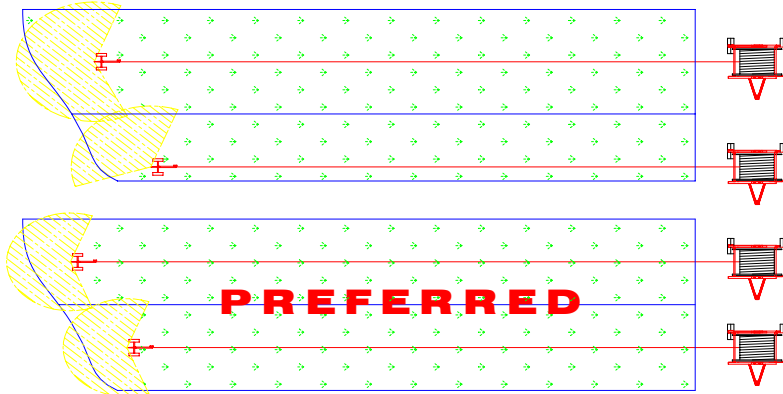
Transmission Gearbox: SAE 80W or 90W gear oil. (see illustration)

Indexer Gearbox: Mobile SHC 634 Synthetic Gear Lubricant



FIELD PREPARATION AND OPERATING TIPS

- 1 If your field width is greater than can be irrigated in one (1) pull but narrower than two (2) pulls, divide the field into two (2) equal width pulls instead of one (1) full width pull and one half width pull. (see illustration below)



There are two (2) reasons for this.

- Even division of the field allows maximum versatility to combat rising winds from any direction.
- The gun cart will track straight and be less affected by gun thrust.

During quarter circle operation (from the edge of a field), gun thrust tends to steer the gun cart in the direction in which water is being thrown. This occurs when the gun is nearly perpendicular to the hose lane. If conditions dictate that a quarter circle pass is unavoidable, prepare the travel lane by preparing a shallow trench for the hose and the cart wheels to follow. Adding extra weight to the rear of the gun cart is also beneficial. If these preparations are not possible or prove inadequate, reduce the size of the gun nozzle to reduce the amount of thrust. Remember to adjust the retrieve rate to maintain your desired application rate.

During normal full pattern operation, (the gun operates to both sides of the cart) gun thrust will correct this steering action automatically. The side to side movement of the cart should be no more than the width of the cart's rear wheels.

- 2 If you typically hill your row crops and plan to leave open travel lanes, hill and cultivate your travel lanes as well. The absence of grass and weeds will dramatically reduce the amount of towing effort and traction required to pull out the hose. The hills will also help guide the hose and cart through the field.
- 3 Crops such as sod, alfalfa, potatoes and peas provide a great deal of resistance to pulling the hose. If you irrigate such a crop, consider uncoupling the feeder hose at the mainline valve and pulling out the hose slightly slower. This expels a good deal of the water from the P.E. hose, reducing the amount of towing effort required.

▲ CAUTION

Several hundred gallons of water can be expelled. Exercise good judgement to prevent excessive muddying of the area near the chassis of the machine.

- 4 a curved pull is necessary, **pull a minimum of 200 feet of hose** straight out from the machine chassis before beginning a long gradual curve.
- 5 Provide for ample head land (lane way) space to allow the machine chassis to be pivoted and setup.
- 6 Where field conditions permit, always attempt to pull the hose either up or down sloping terrain instead of operating on a side hill. If a side hill condition is unavoidable, provide a hilled trench as a guide for the hose and add extra weight to the gun cart to prevent upset.

WHEN APPLYING LIQUID MANURE . . .

Environmental concerns seem to be driving legislative agendas in many agricultural areas across the continent. Current and pending laws in many agricultural regions of North America are changing the ways in which the agricultural community is expected to manage their liquid animal waste products.

The changes in legislation typically target two main issues; run-off prevention during and after application and soil nutrient loading.

Run off seems to be the largest concern with nutrient application. Run off may result from several different factors, most of which are controllable. These factors include; exceeding the soil intake rate; nutrient application on steep grades; high application amounts; leaking mainline fittings and seals; sudden rainfall during or immediately after application; ground frost; etc. Constant watch must be kept and immediate action taken when necessary to prevent run off from occurring.

Soil nutrient loading depends on many variables. Some of these variables (but certainly not all) are soil type, type of crop being grown in the irrigated area, application timing, nutrient value of the material being applied (nutrient value should be assessed at the time of application as it can change throughout the year), etc.

Soil type will determine the intake rate at which liquid may be applied. Cultivation of the field just prior to application can improve the intake rate of some soils.

Great potential benefit lies in using the nutritional value of the product being applied to replace some or all of the traditional chemical fertilizer used. Application timing and amount are important considerations. Soil analysis taken prior to planting and during the growth periods of the crop will help determine if there is room for further application amounts to be added prior to crop maturity. A total management plan should include provisions to end the crop season without surplus nutrients left as residual. These excess nutrients typically end up in the ground water supply. Local colleges, universities and agricultural extension services are usually a good source of information. They can usually help you determine an application program that prevents soil nutrient overload due to excess application.

Cadman Power Equipment Limited cannot possibly provide up-to-date recommendations with regard to the legal obligations you must deal with in your particular area. However, as a manufacturer of equipment used in nutrient application (liquid manure, milk house run-off, etc.), we feel it necessary to make you aware that the municipal, regional and state governing bodies in your area may have recently enacted new legislation or revised existing legislation with regard to nutrient handling practices and procedures.

It is your responsibility to make yourself aware of and abide by the current legislation in your area. Please take the time to contact your local agricultural representative to obtain the latest information regarding legal nutrient application and handling.

FIELD SET UP AND OPERATION

BEFORE operating your new **CADMAN TRAVELLER**, inspect the machine for any damage or parts which may have come loose during shipping. **REPORT ANY DAMAGE TO YOUR DEALER IMMEDIATELY !**

▲ CAUTION

Before moving a traveller at any time, be sure that the drive system is fully engaged, the engine fuel valve is in the OFF position and the transport brake is fully applied.

1. Tow the machine to the field. Park the traveller on the head land (lane way) at right angles to the rows to be irrigated.

NOTE : For the first use of a new machine or a machine which has been drained prior to storage, start in an area which will allow you to pull out the full length of hose (**EXCEPT** for one full coil). This will allow you to be sure that the hose is properly laid on the base layer and properly indexed.

If you are unable to pull out all of the hose in the area you are working, pull out enough hose to reach the base layer. This will allow you to see if the coils of hose in the base layer are stacked tightly together. If the hose is found to be improperly indexed (the hose tries to climb up on itself or gaps exist between the coils of hose), do the following:

- Set the hose drum so that the hose connection is at the six o'clock position (closest to the ground).
- Fully apply the brake to prevent further rotation of the hose drum.
- Manually move the coils of hose so that they are tightly stacked together all across the base layer of hose.

Check the position of the hose guide in relation to the hose. If the hose does not travel straight through the hose guide and lay snugly against the drum elbow, do the following (see following page):

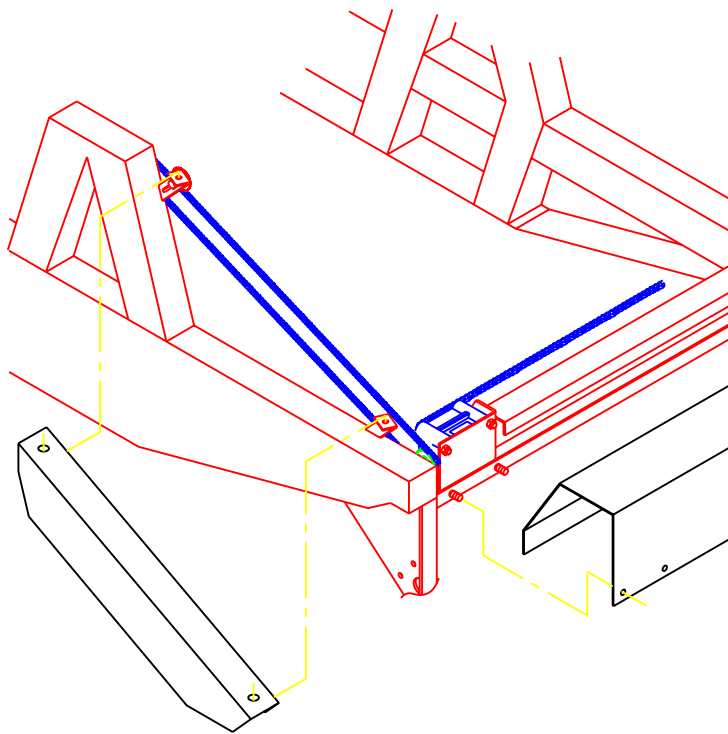
- Remove the indexer shield.
- Remove the # 40 chain which runs from the hose drum axle to the indexer gearbox.
- Manually adjust the hose guide position so that the hose travels in a straight line through the hose guide and lays snugly against the drum elbow.
- Re-install the # 40 chain from the hose drum axle to the indexer gearbox.
- Re-install the indexer shield.

▲ CAUTION

Low pressure operation can cause indexing problems. The hose indexing system of your Cadman traveller is set up to properly index the polyethylene hose onto the hose drum under most operating conditions. However, when operating at very low inlet pressures (110 PSI or less), the PE hose can flatten slightly causing the indexing system to appear to be either out of adjustment or not functioning properly. This is probably not the case in this circumstance.

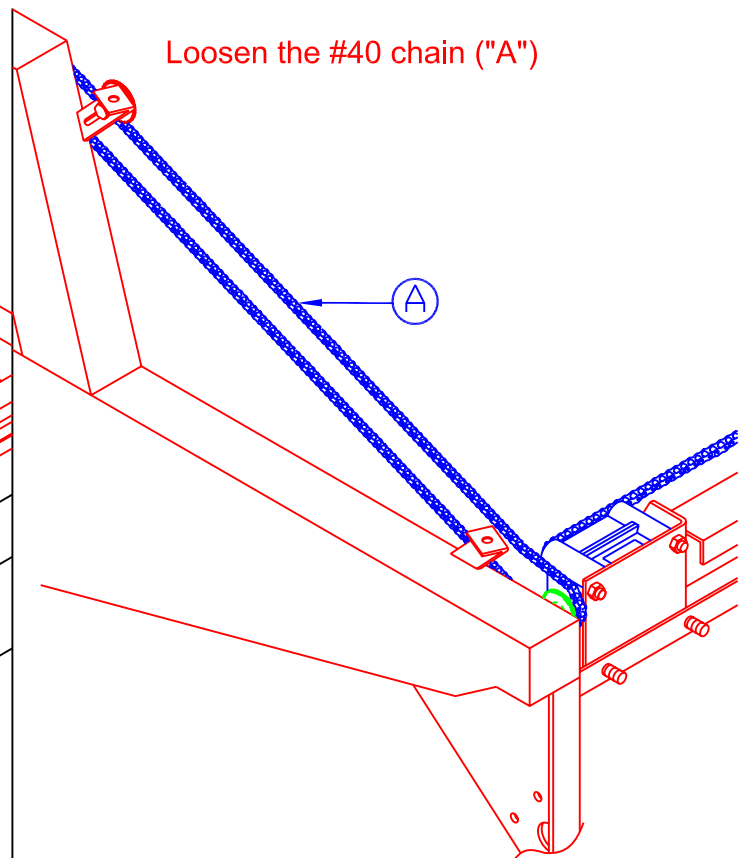
It is advisable to increase the inlet pressure at the machine to at least 110 PSI to help prevent further hose indexing problems related to low inlet pressures.

Remove the idler and indexer shields
NOTE: 2250 models do not have an idler shield



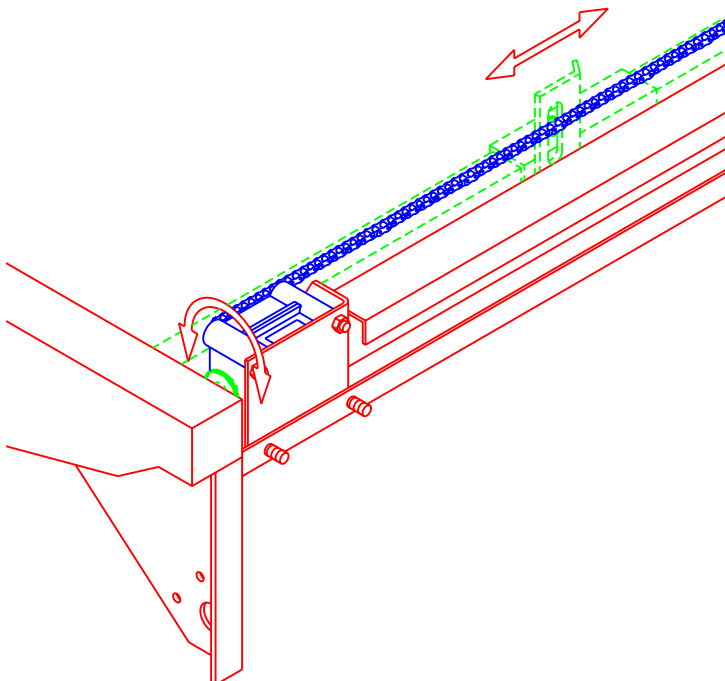
Using a 1/2" wrench remove the bolts (2) from the idler shield and remove it. Remove the lock nuts (2) and the bolts (2) which secure the indexer shield and remove it.

Loosen the #40 chain ("A")

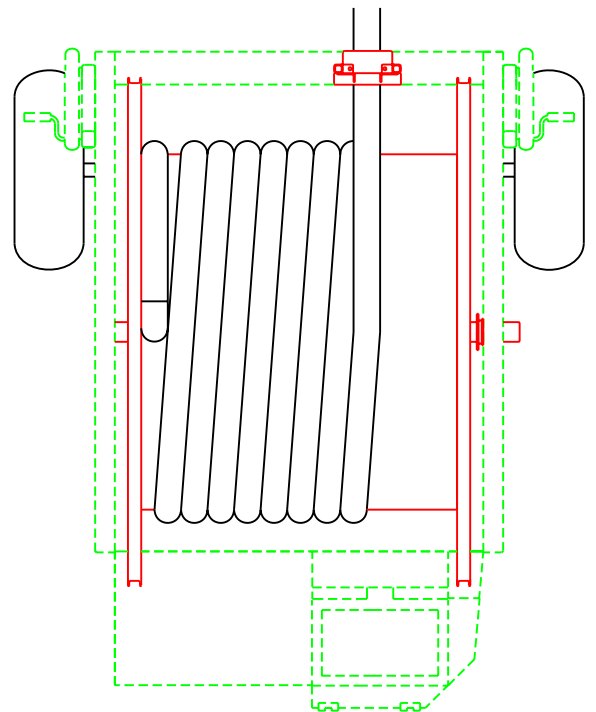


Using a 3/4" wrench loosen the bolt on the idler sprocket. Remove the chain from the idler sprocket then from the indexer gear box sprocket.

Manually adjust the hose guide position



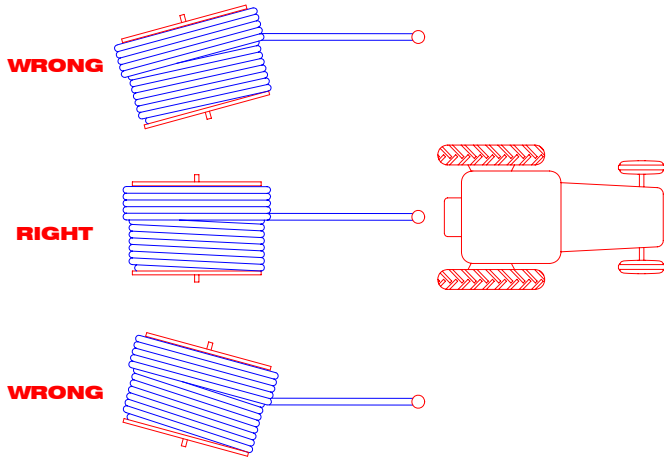
Adjust the position of the hose guide by rotating the sprocket.



The hose should travel in a straight line through the hose guide and lay snugly against the drum elbow.

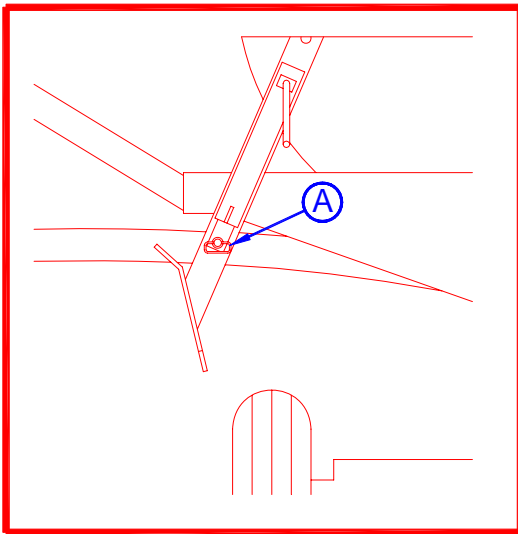
Assembly: When reinstalling the chain hold pressure on the idler gear by pushing with a 3/4" wrench on the inside nut. Make sure all the slack from the lower portion of the chain is taken up. Tighten the idler gear bolt while holding pressure. **Properly reinstall all safety shields!**

- 2 Adjust the tongue jack for a level frame position during operation.
- 3 Release the turntable lock and rotate the upper frame to the desired operating position and re-engage the turntable lock.

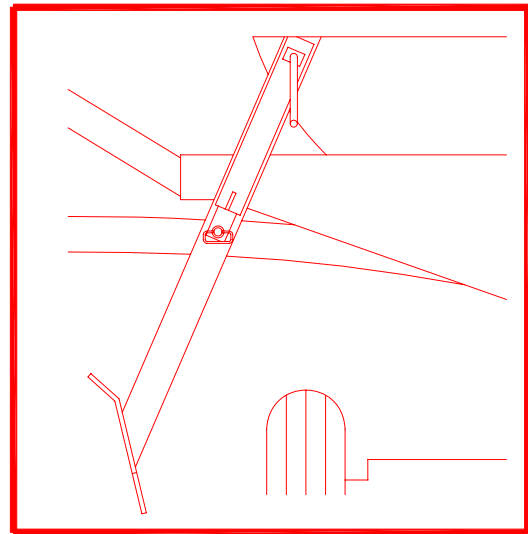


⚠ CAUTION

The upper frame position **MUST** allow the hose to be pulled out straight from the machine. Adjust the upperframe position if necessary to insure proper unreeling of the hose.



Lower **BOTH** stabilizer legs. Remove the leg pin "A" (see illustration above) allowing the drop leg to extend.



Replace the pin in one of the available holes so that when the jack is extended, the drop leg and extension leg will be of approximately equal length. This will balance the side loading of the jack and help to prevent damage caused from over-extending one of the inner jack legs. Repeat these steps for the other jack.

⚠ CAUTION

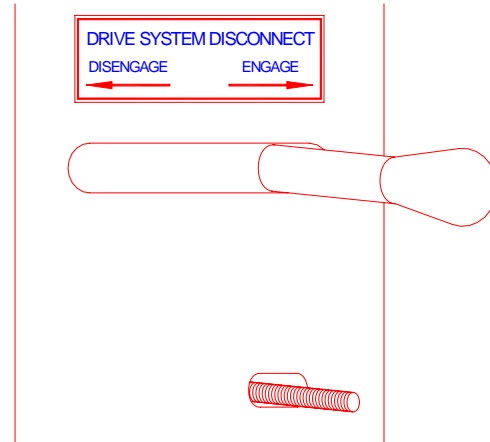
Never operate the machine with only one (1) stabilizer leg extended

NOTE: 2250 model Cadman Travellers are equipped with flip down stabilizer legs. Both legs must be used at all times.

⚠ WARNING

If a rear pull is needed, provisions **MUST** be made to leave the tractor attached to the tongue of the machine. The tractor must be left in gear and the parking brake engaged. This provides extra anchoring in addition to the stabilizer legs during the retrieve cycle.

- 5 Shift the transmission lever to the disengage position (arrow).

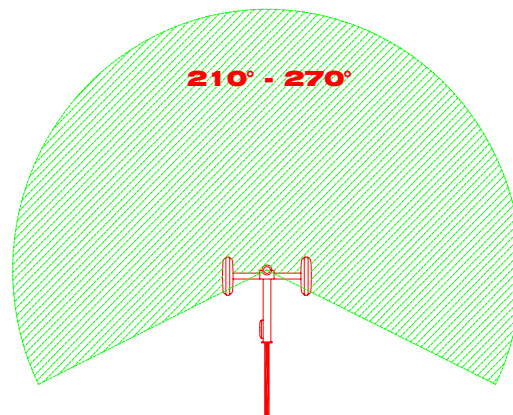


- 6 Adjust the brake handle position so that a slight amount of brake tension is applied. This tension should be enough to control the hose drum and prevent loosening of the hose on the drum when the tractor stops pulling the hose.
- 7 Set the track width of the gun cart as wide as possible. Lower the cart to the ground by operating the hand winch on the side of the machine. Disconnect the lift chain from the cart.
- 8 Move the tractor from the front of the machine, position it behind the gun cart and attach the gun cart tow chain to the tractor drawbar.

⚠ CAUTION

DO NOT exceed 3 MPH while pulling out the hose
DO NOT stop suddenly at the end of your travel lane. Slow gradually when nearing the end of the pull.
ALWAYS leave at least a 3/4 wrap of hose on the drum.

- 9 Pull the desired amount of hose. (see illustration on pg. 11)
- 10 At this time, set the part circle stops on the gun. The gun should be set behind the cart so that the travel path remains dry until the cart passes. (see illustration)



NOTE: Several nozzle sizes are supplied with the sprinkler gun. The “best” nozzle choice for your application may take some experimentation to determine. Typically, two nozzle sizes will perform well for each model. See the chart below for nozzles to try.

	MODEL	NOZZLE SIZE	
11 Check the nozzle that the nozzle	2250	0.77”, 0.81” or 0.86”	size and check cone is secure.
	2625	0.81”, 0.86”, 0.89” or 0.93”	
	3000S	1.18” or 1.26”	

12 Remove the tractor from the gun cart and clear the area of operation.

13 Connect the feeder hose to the inlet on the traveller and lock it in place. Attach the other end to the mainline or mainline valve.

▲ **WARNING**

Never leave the hand crank on the driveshaft. REMOVE IT IMMEDIATELY after use.

14 If the hose is loose on the drum, use the hand crank to rotate the drum to tighten the hose. Insure that the hose coils are stacked tightly together.

15 Adjust the brake handle to the full “**ON**” position after insuring that the hose is tight.

16 GRADUAL pressurization of the system may now begin. Keep the pressure low (under 50 PSI) until **ALL** the air is purged from the system and a steady stream is flowing from the gun nozzle. **AFTER** all the air is purged from the system, pressure may be slowly raised to a maximum of **150 PSI** at the inlet of the machine.

NOTE: Ideally, operating pressures at the inlet will be between 120 PSI and 150 PSI. This will allow gun pressures ranging from approximately 50 PSI to 110 PSI (depending on nozzle size, hose size and length). Assuming proper nozzle selection has been made

▲ **CAUTION**

Operation of the machine with the inlet pressure below 110 PSI will allow the hose to flatten slightly as it is rewound during the retrieve cycle. This flattening may cause the hose to lay improperly on the hose drum or make it impossible for all the hose to be rewound. In either case, the hose must be pulled out to correct the problem. If you are unable to provide a minimum of 110 PSI to the inlet of the machine contact your dealer for help in improving your system design.

based on the pressure and flow volume available, proper droplet sizing and proper gun action, an even and uniform watering pattern will result.

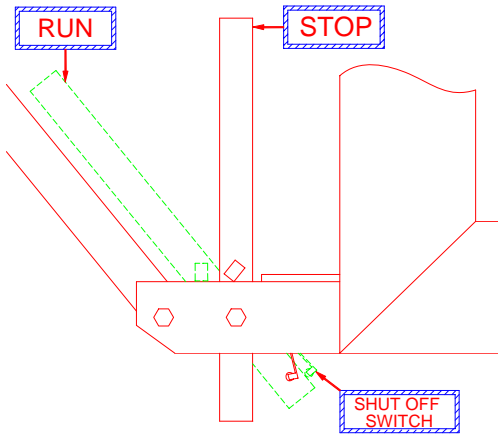
17 Check the mainline and inlet elbow connections.

START UP OF THE RETRIEVE CYCLE

1 Check the engine oil and fuel levels.

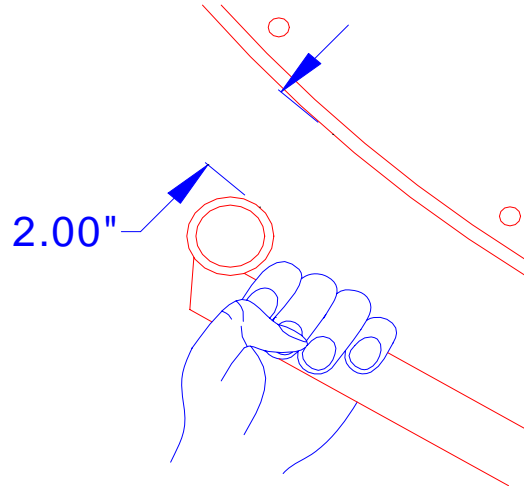
2 Open the fuel valve on the engine, move the **ON / OFF** switch to the “**ON**” position and start the engine.

NOTE: If after several attempts, the engine fails to start, check the shut off bar at the opposite end of the machine to insure that **BOTH** shut off switches are depressed. The engine **WILL NOT START** if either switch is released.

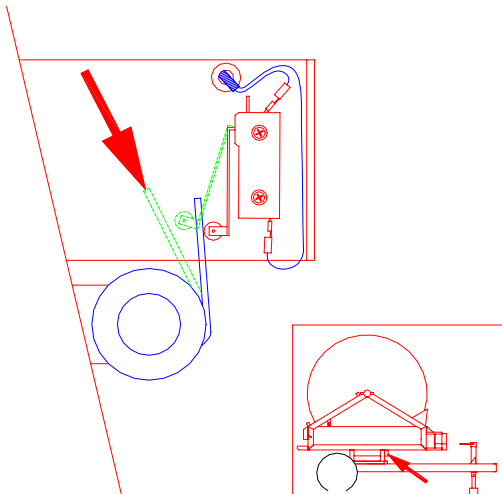


- To check the shut off switches, lift the shut off bar to a vertical position, while manually holding one (1) of the two (2) switches in the depressed position. The engine should shut off as the opposite switch releases. Re-start the engine and repeat the test for the opposite switch.

- Pull the compensator frame away from the hose drum. As the frame clears the outer edge of the drum, the engine should shut off.

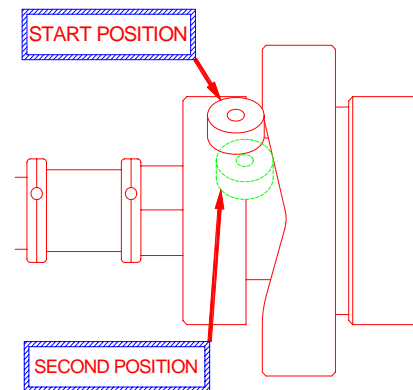


- If the engine does not shut off at this point, adjust the elevator bolt (arrow) so that the engine will.

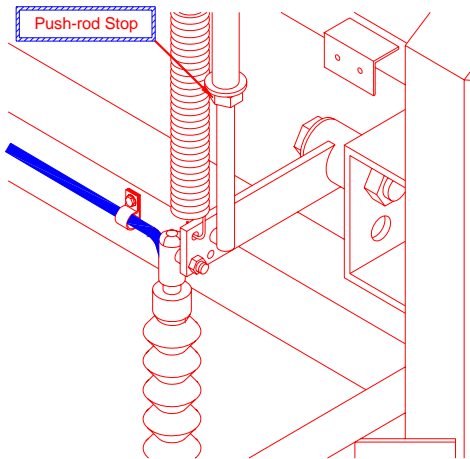
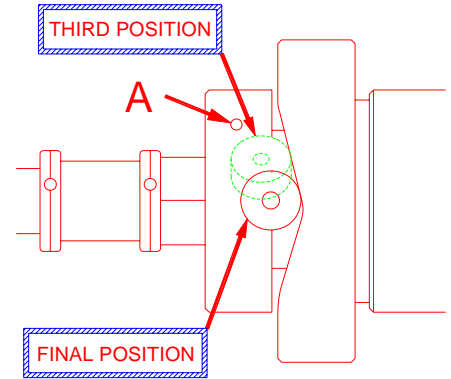


4 Check the adjustment of the compensator system when the machine is first put into service and periodically during normal use to insure accuracy. The following outlines the set-up routine and operation of the compensator system.

- When the engine is first started after pulling out the hose, the pulley cam should rotate, positioning it for the start of the retrieve cycle. The cam rollers should now be near the top of the ramp (see illustration)



During the hose retrieve cycle, the compensator frame rests against the hose on the drum. As each layer of hose is rewound, the compensator frame moves outward with the hose. This movement causes the pulley cam to rotate a measured amount, allowing the pulley to open slightly. This changes the diameter of the pulley. The change in pulley diameter changes the overall drive ratio which keeps the hose retrieve rate constant (compensating for the increase in net drum diameter). This process repeats for each layer of hose.



As the hose is un-spooled to prepare for the next irrigation cycle, the compensator frame will follow the hose level. At this time, the compensator control cable, the cable drive arm, and the pulley cam do not move (the engine pulley cannot close against the drive belt). As soon as the engine is started, the reset spring will cause the pulley cam to return to its "START" position (at the top of the cam ramp). If the cam does not reposition properly it can be adjusted. This is accomplished by changing the length of the push-rod.

5 Select a retrieve rate to achieve the desired application rate. (see example on pg. 16)

- Determine the precipitation amount you require in inches.
- In the gun performance chart, pg. 16, **find the gallons per minute** you are pumping by crossing your nozzle size with the pressure you have **at the gun**.
- From the "**TIME REQUIRED TO WATER ONE (1) ACRE**" chart (chart #4, pg. 17), find the time required to cover one (1) acre by crossing your **GPM** (from the previous step) with your desired application amount.
- In the "**HOSE RETRIEVE RATE**" chart (chart #5, pg. 17), find the required hose retrieve rate by crossing the "**TIME REQUIRED**" (from the previous step) with the lane spacing you are using.

6 **With the engine running** adjust the pulley control knob until the speedometer reads the required retrieve rate (from step #5)

⚠ CAUTION

DO NOT adjust the pulley control knob unless the engine is running. Permanent damage to the pulley may result.

The control knob should maintain its position when released. If the control knob position changes on its own, an increase in drag on the control stem may be gained by tightening the drag adjustment screw (arrow "A", top illustration).

NOTE: The speedometer reads actual hose speed **ONLY** on the base (1st) layer of hose.

If the retrieve rate is set or checked on the second, third, or fourth layer, the desired retrieve rate must be set to the “corrected value” for the layer being loaded. This is easily done by referring to the chart attached to the machine next to the speedometer. This “corrected value” is read directly from the speedometer.

(eg.): The desired retrieve rate is 30 inches per minute. The hose is on the second layer when the speed is set. On the SPEED CONVERSION CHART, find 30 inches per minute in the line labeled BASE LAYER. Read the corrected speed value on the 2ND LAYER line in the 30 inches per minute column.

Set the speed so the speedometer reads this corrected value (27).

The actual hose speed will be 30 inches per minute

If you are unsure of your retrieve rate for any reason, manually check the retrieve rate by measuring the hose movement over a three (3) minute period and average this measurement (divide by 3).

7. Shift the transmission lever to engage the drive system.
8. Fully release the brake.
9. Make a thorough visual inspection of the of the machine’s function to insure proper operation.

EXAMPLE OF RETRIEVE RATE SELECTION

Determine the retrieve rate required to apply a 0.75” application to a field 200 feet in width.

A 2625 model traveller is fitted with a Nelson SR-100 gun. The gun has a **0.89”** ring nozzle operating at **90 PSI**.

- From the Nelson gun chart, find the **GPM** you are pumping under the nozzle size you have in the gun. The shaded block under the 0.89” ring nozzle column tells you that the gun is flowing **173 GPM**.
- From chart #4, determine how long it should take to cover one (1) acre, in minutes, by crossing the **GPM** (from above) by the required application of **0.75”**. The shaded block tells you that it should take **120 minutes** to cover one (1) acre.
- From chart #5, determine the retrieve rate you need to obtain the desired application of **0.75”** by crossing the time required to cover one acre (**120 minutes**) by the lane spacing (**200 feet**). The shaded block tells you to set the hose retrieve rate at **21 inches per minute** as a starting point.
- The gun should be set up so that the 200 foot width is covered plus sufficient overlap (beyond the edge of the crop) to provide adequate watering at the edge of the field.

NOTE: Keep in mind that the charts are to be used as a guide only. Always check the actual application amount with rain gauges to confirm that the application amount is correct.

NELSON 100 SERIES BIG GUN® 24° TRAJECTORY

NOZZLE	0.71" RING		0.77" RING		0.81" RING		0.86" RING		0.89" RING		0.93" RING		0.96" RING	
	GPM	DIA.	GPM	DIA.	GPM	DIA.	GPM	DIA.	GPM	DIA.	GPM	DIA.	GPM	DIA.
40	66	208	78	212	91	215	103	224	118	235	134	238	152	242
50	74	220	88	225	100	230	115	240	129	250	150	255	167	260
60	81	235	96	240	110	245	125	260	141	270	164	275	183	280
70	88	245	104	250	118	260	135	275	152	290	177	295	198	300
80	94	255	111	265	127	275	145	285	163	300	189	305	211	315
90	99	265	117	275	134	285	154	295	173	310	201	315	224	325
100	105	270	124	280	142	295	162	305	182	320	212	325	236	335
110	110	275	130	290	149	305	170	315	191	325	222	335	248	345

NOZZLE	0.6" TAPER		0.65" TAPER		0.70" TAPER		0.75" TAPER		0.80" TAPER		0.85" TAPER		0.90" TAPER	
	GPM	DIA.	GPM	DIA.	GPM	DIA.	GPM	DIA.	GPM	DIA.	GPM	DIA.	GPM	DIA.
40	66	213	78	222	91	230	103	240	118	250	134	256	152	262
50	74	225	87	235	100	245	115	256	130	265	150	273	165	280
60	81	240	96	250	110	260	126	270	143	280	164	288	182	295
70	88	250	103	263	120	275	136	283	155	295	177	302	197	310
80	94	260	110	273	128	285	146	295	165	305	189	314	210	325
90	100	270	117	283	135	295	155	306	175	315	201	326	223	335
100	106	280	123	293	143	305	163	316	185	325	212	336	235	345
110	111	290	129	303	150	315	171	324	195	335	222	344	247	355

The diameter of throw is approximately 3% less for the 21° trajectory angle and 6% less for the 18° trajectory angle.

The NELSON BIG GUN® performance data has been obtained under ideal test conditions and may be affected by wind, poor hydraulic entrance conditions or other factors. Nelson Irrigation Corporation makes no representation regarding droplet condition, uniformity or application rate.

CHART #4

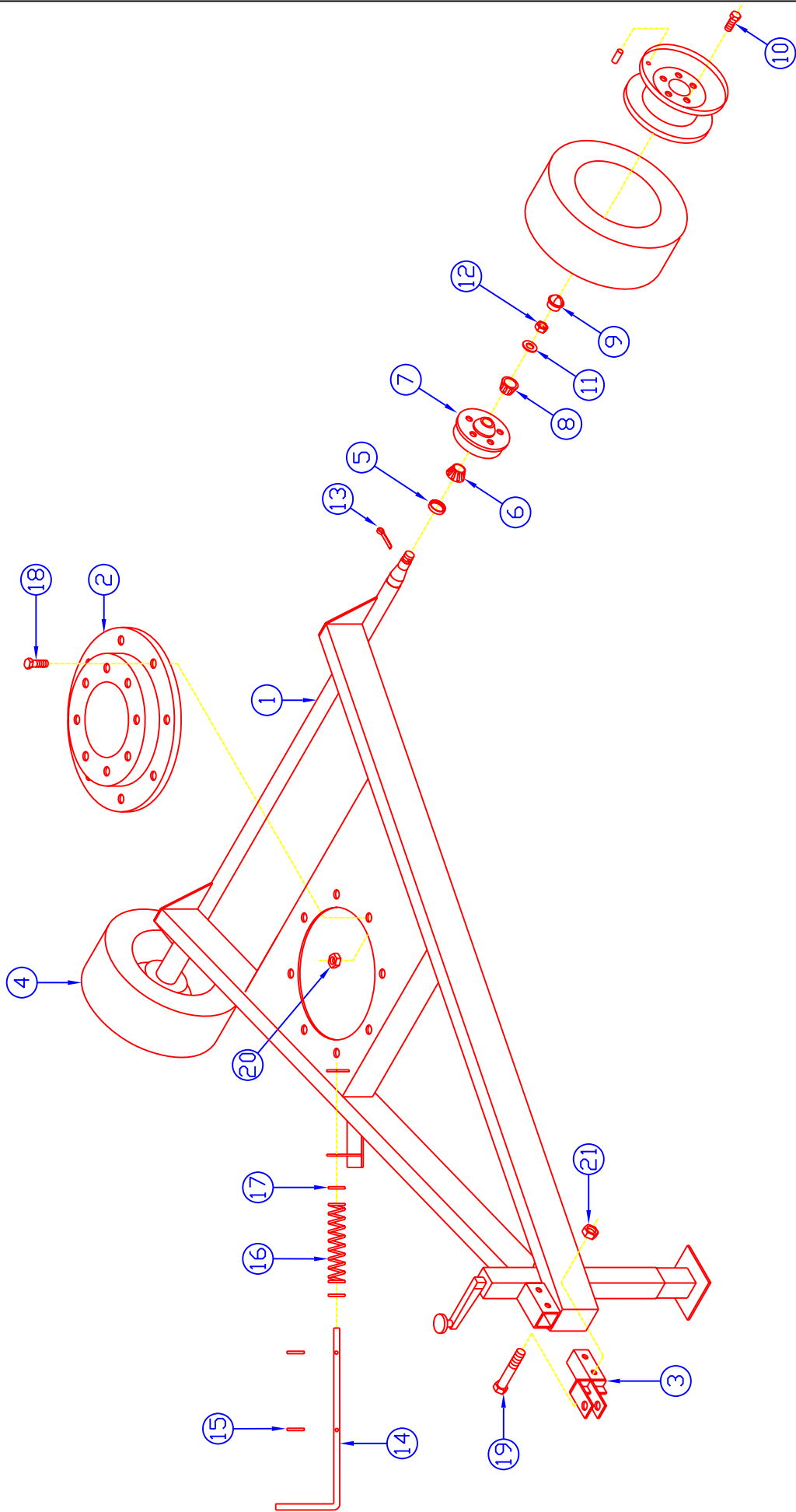
MINUTES REQUIRED TO WATER ONE (1) ACRE									
GPM	PRECIPITATION RATE (ACRE INCHES)								
	0.10"	0.20"	0.30"	0.40"	0.50"	0.75"	1.00"	1.25"	1.50"
80	34	68	102	136	170	255	339	424	509
90	30	60	91	121	151	226	302	377	453
100	27	54	81	109	136	204	272	339	407
110	25	49	74	99	123	185	247	309	370
120	23	45	68	91	113	170	226	283	339
130	21	42	63	84	104	157	209	261	313
140	19	39	58	78	97	145	194	242	291
150	18	36	54	72	91	136	181	226	272
160	17	34	51	68	85	127	170	212	255
170	16	32	48	64	80	120	160	200	240
180	15	30	45	60	75	113	151	189	226
190	14	29	43	57	71	107	143	179	214
200	14	27	41	54	68	102	136	170	204

CHART #5

RETRIEVE RATE (INCHES PER MINUTE)									
MIN. / ACRE	LANE SPACING (FEET)								
	100	125	150	175	200	225	250	275	300
20	***	***	174	149	131	116	105	95	87
25	***	167	139	119	105	93	84	76	70
30	174	139	116	100	87	77	70	63	58
35	149	119	100	85	75	66	60	54	50
40	131	105	87	75	65	58	52	48	44
45	116	93	77	66	58	52	46	42	39
50	105	84	70	60	52	46	42	38	35
60	87	70	58	50	44	39	35	32	29
70	75	60	50	43	37	33	30	27	25
80	65	52	44	37	33	29	26	24	22
90	58	46	39	33	29	26	23	21	19
100	52	42	35	30	26	23	21	19	17
125	42	33	28	24	21	19	17	15	14
150	35	28	23	20	17	15	14	13	12
175	30	24	20	17	15	13	12	11	10
200	26	21	17	15	13	12	10	10	***
250	21	17	14	12	10	***	***	***	***
300	17	14	12	10	***	***	***	***	***
350	15	12	10	***	***	***	***	***	***
400	13	10	***	***	***	***	***	***	***
500	10	***	***	***	***	***	***	***	***

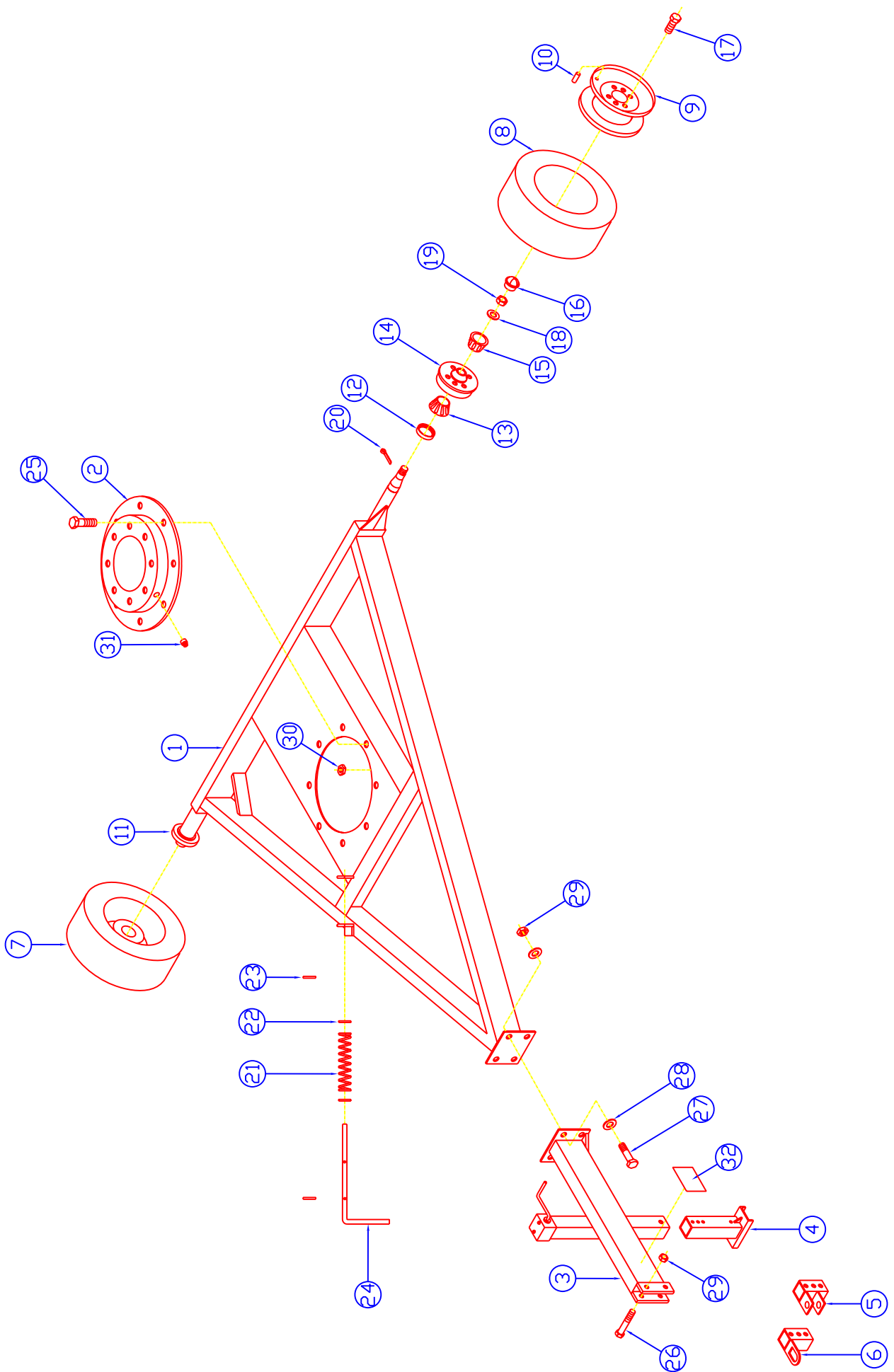
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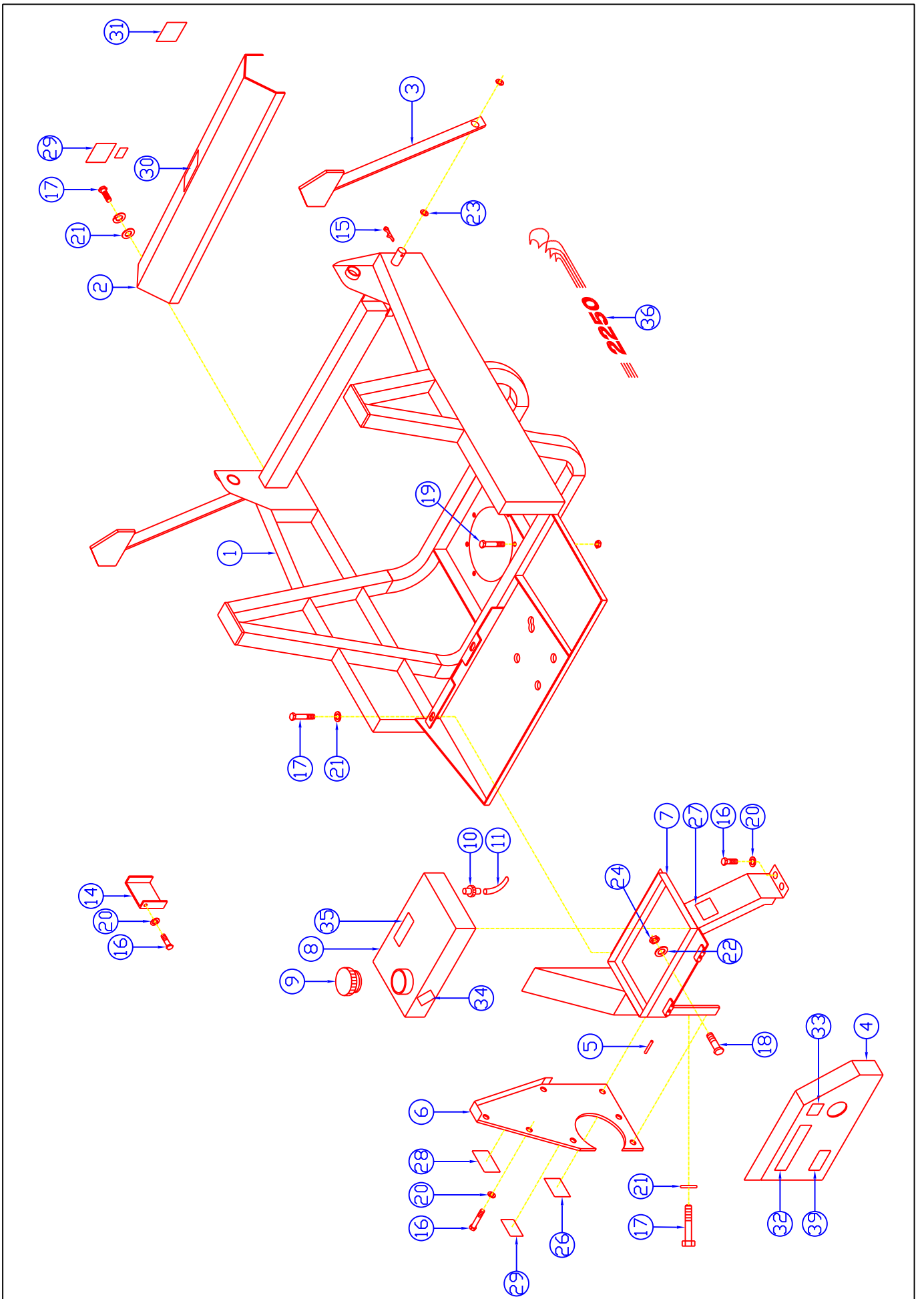
Lower Frame Assembly, 2250

Item	Description	P/N	Qty.	Item	Description	P/N	Qty.
1	Trailer Frame	12-100	1				
2	Turntable Ring	08-643	1				
3	2250 Clevis Hitch	12-115	1				
4	Wheel & Tire Assembly	55-065	1				
	Hub Assy Consisting of;						
5	Grease Seal	55-018	2				
6	Bearing Cone, Inner	55-015	1				
-	Bearing Cup, Inner (Not Shown)	55-019	1				
7	Hub, 5-Bolt (incl. Bearing Cups)	55-020	1				
-	Bearing Cup, Outer (Not Shown)	55-018-A	1				
8	Bearing Cone, Outer	55-021	1				
9	Dust Cap	55-022	1				
10	Wheel Bolt, 1/2 - 20	55-023	1				
		55-007	5				
11	Spindle Washer	55-016	2				
12	Spindle Nut	55-034	2				
13	Cotter Pin, 3/16" x 1 3/4" Lg.	90-PIN-CTO19X175	2				
14	Turntable Lock Pin	07-601	1				
15	Rollpin, 3/16" x 1 1/2" Lg.	90-PIN-RLO18X150	2				
16	Turntable Lock Spring	40-053	1				
17	SAE Flatwasher, 3/4"	90-WSR-SAE075	2				
18	Bolt, 1/2" x 1 1/2" Lg.	90-BLT-05013X150	8				
19	Bolt, 5/8" x 3 3/4" Lg.	90-BLT-06311X375	2				
20	Locknut, 1/2 - 13	90-NUT-LOC050-13	8				
21	Locknut, 5/8 - 11	90-NUT-LOC063-11	2				
	Decal, "Caution - 10 MPH Max...."	40-291	1				



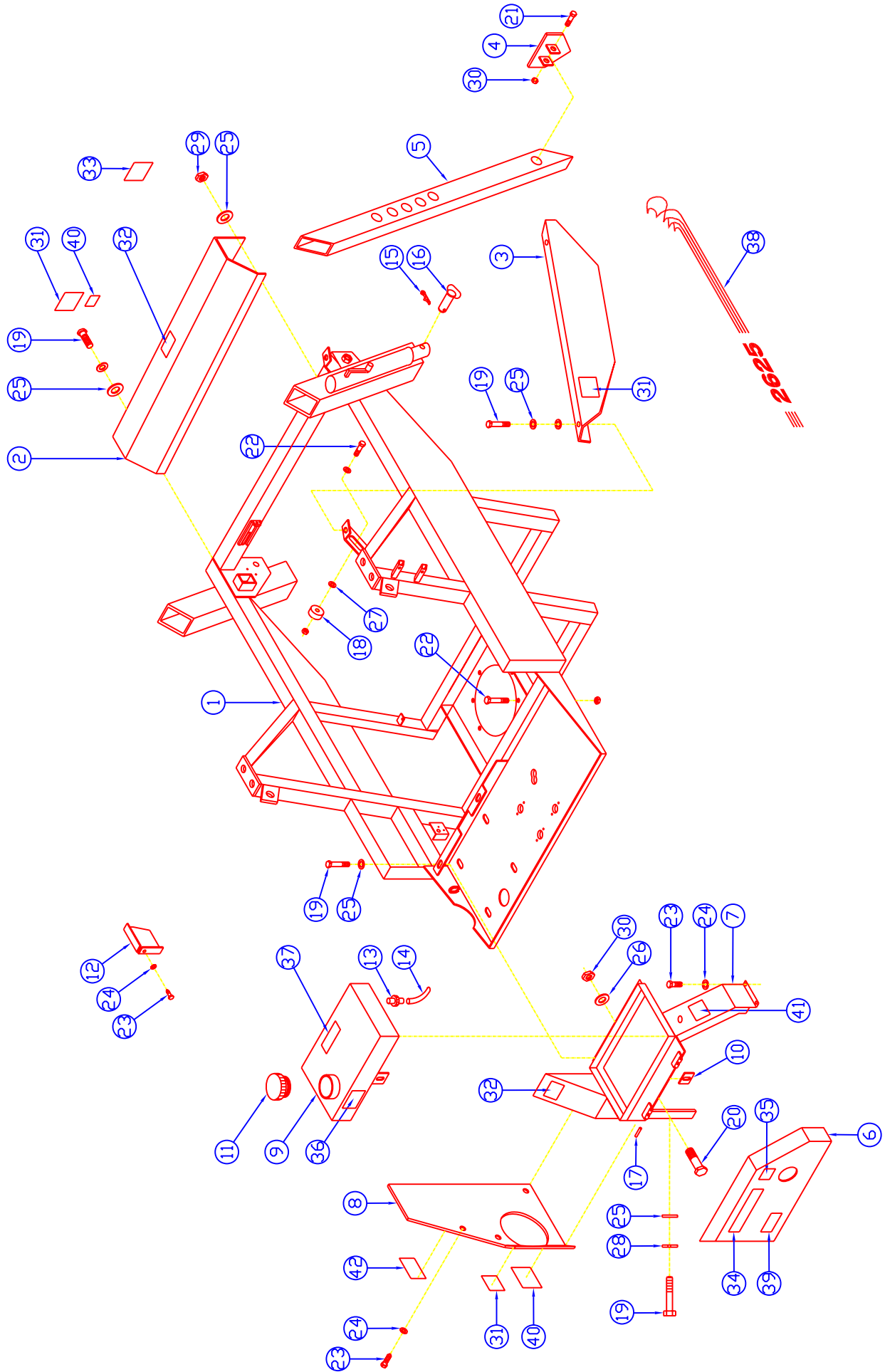
Lower Frame, 2625/3000S

Item	Description	P/N	Qty.	Item	Description	P/N	Qty.
1	Lower Frame	08-100-98	1	28	SAE Flatwasher, 3/4"	90-WSR-SAE075	8
2	Turntable Ring	08-643	1	29	Locknut, 3/4" - 10	90-NUT-LOC075-10	6
3	Tongue	08-200-98	1	30	Locknut, 1/2" - 13	90-NUT-LOC050-13	8
4	Tongue Jack Drop Leg	40-122-A	1	31	Grease fitting, 8mm Straight	-	3
5	Clevis Hitch (std.)	01-111-A	1	32	Decal, "Caution-Max. Speed..."	40-291	1
6	Pintle Hitch	02-662	OPT.				
7	Wheel Ass'y Consisting of;						
8	Tire, 9.5L-15 8PR TBLS	55-059	2				
9	Wheel, 15" x 8" x 6 bolt	55-062	1				
10	Valve Stem	55-061	1				
		55-046	1				
11	Hub Ass'y Consisting of;						
12	Grease Seal	55-026	2				
13	Bearing Cone, Inner	55-033	1				
		55-028	1				
14	Bearing Cup, Inner (Not Shown)	55-027	1				
		55-026-A	1				
15	Hub, 6-Bolt (Inc. Bearing Cups)	55-029	1				
		55-030	1				
16	Bearing Cup, Outer (Not Shown)	55-031	1				
17	Bearing Cone, Outer	55-032	6				
18	Dust Cap						
19	Wheel Bolt, 9/16" - 18						
18	Spindle Washer	55-024	2				
19	Spindle Nut	55-034	2				
20	Cotterpin, 3/16 x 1 3/4" Lg.	90-PIN-CT018X175	2				
21	Turntable Lock Spring	40-053	1				
22	SAE Flatwasher, 3/4"	90-WSR-SAE075	2				
23	Rollpin, 3/16 x 1 1/2" Lg.	90-PIN-RL018X150	2				
24	Turntable Lock Pin	07-601	1				
25	Bolt, 1/2" x 1 1/2 Lg.	90-BLT-05013X150	8				
26	Bolt, 3/4" x 4 1/2" Lg.	90-BLT-07510X450	2				
27	Bolt, 3/4" x 2 3/4 Lg.	90-BLT-07510X275	4				



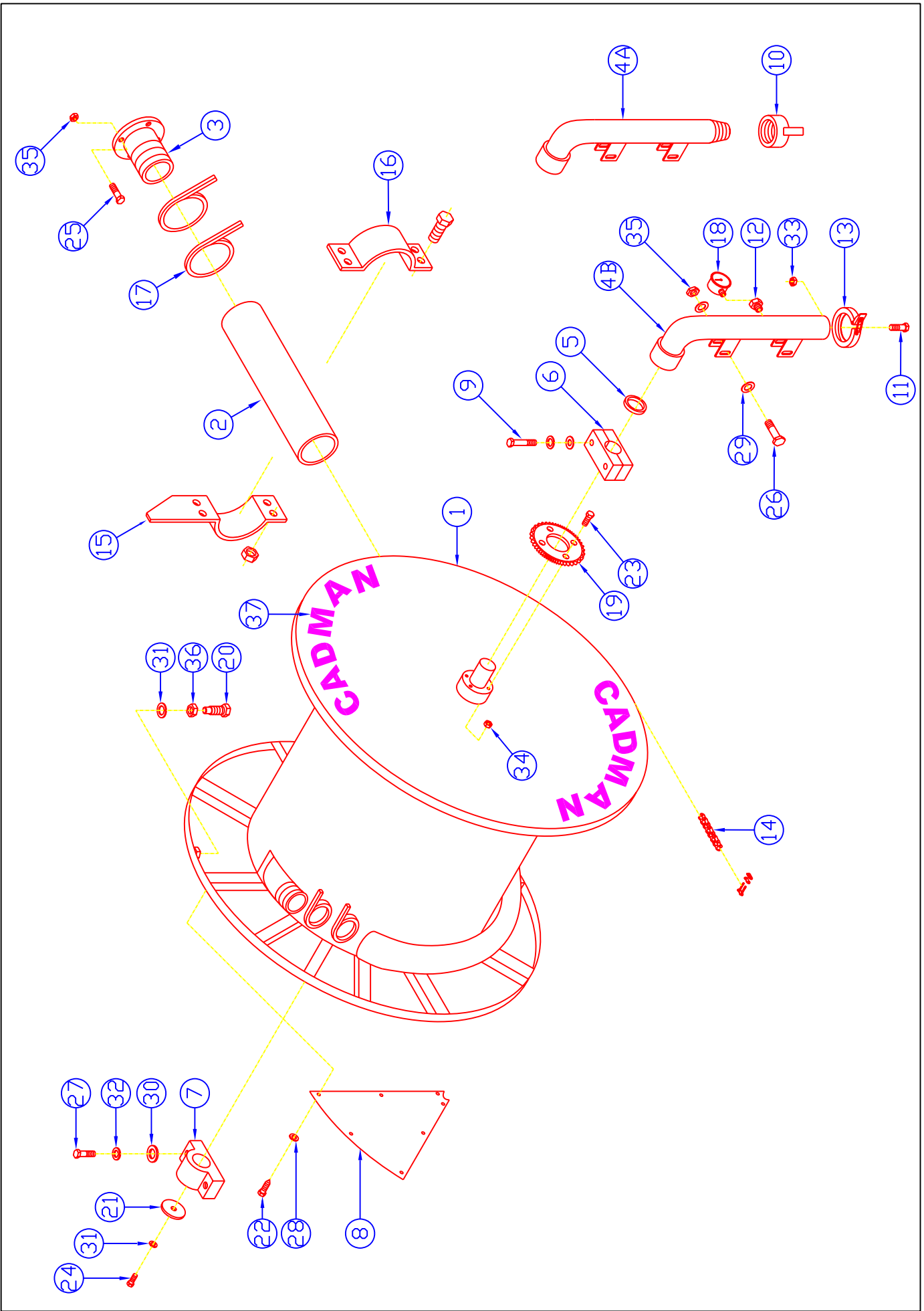
Upper Frame Assembly, 2250

Item	Description	P/N	Qty.	Item	Description	P/N	Qty.
1	Upper Frame	12-400	1	30	Decal, "Danger Rotating Drum"	40-287	2
2	Indexer Shield	12-601	1	31	Decal, "Important-Grease Indexer..."	40-115	1
3	Stabilizer Leg	12-602	2	32	Decal, "Speed Conversion Chart"	40-218	1
4	Drive Access Door	08-709	1	33	Decal, "Speed Control"	40-189	1
5	Brass Hinge Pin, 3/16" x 3" Lg	40-200-C	2	34	Decal, "Gasoline"	40-039	1
6	End Cover	12-603	1	35	Decal, "Brake" w/Horizontal Arrow	40-293	1
7	Fuel Tank Cradle	12-611	1	36	Decal, 2250 Side Panel, Left	40-280-2250	1
8	Fuel Tank, 3 Imp. Gal.	40-175	1	-	Decal, 2250 Side Panel, Right	40-281-2250	1
9	Vented Gas Cap	40-017-A	1	-	Decal "Drive System Disconnect"	40-151 (Not Shown)	1
10	Fuel Tank Strainer	40-HDA-16955ZE1000	1				
-	14mm O-Ring (not shown)	40-HDA-91353671004	1				
11	3/16" Neoprene Fuel Line	40-066	11 in.				
12	Tank Cushion	40-093-18	2				
13	Vibration Isolator	40-095	2				
14	Safety Switch Cover	12-606	1				
-	Rubber Gromet (Not Shown)	40-253	1				
15	Cotter Pin, 3/16" x 2" Lg.	90-PIN-CT019X200	2				
16	Tek screw, 1/4" x 1" Lg.	90-SCR-TEK025X100	11				
17	Bolt, 5/16" x 3/4" Lg.	90-BLT-03118X075	3				
18	Bolt, 3/8" x 1 1/2" Lg.	90-BLT-03816X150	1				
19	Bolt, 1/2" x 1 1/2" Lg.	90-BLT-05013X150	6				
20	Flatwasher, 1/4" Nylon	90-WSR-FLT025NYLON	1				
21	SAE Flatwasher, 5/16"	90-WSR-SAE031	6				
22	Flatwasher, 3/8"	90-WSR-FLT038	1				
23	SAE Flatwasher, 1"	90-WSR-SAE100	4				
24	Locknut, 3/8"-16	90-NUT-LOC038-16	1				
25	Decal, "Warning!-Moving Parts Hazard"	40-290	1				
26	Decal, "Grease Point"	40-041	2				
27	Decal, "Danger! - Hot Exhaust"	40-286	1				
28	Decal, "Warning! - Pinch Point"	40-289	2				
29	Decal, "Do Not Operate w/o Guards"	40-051	1				



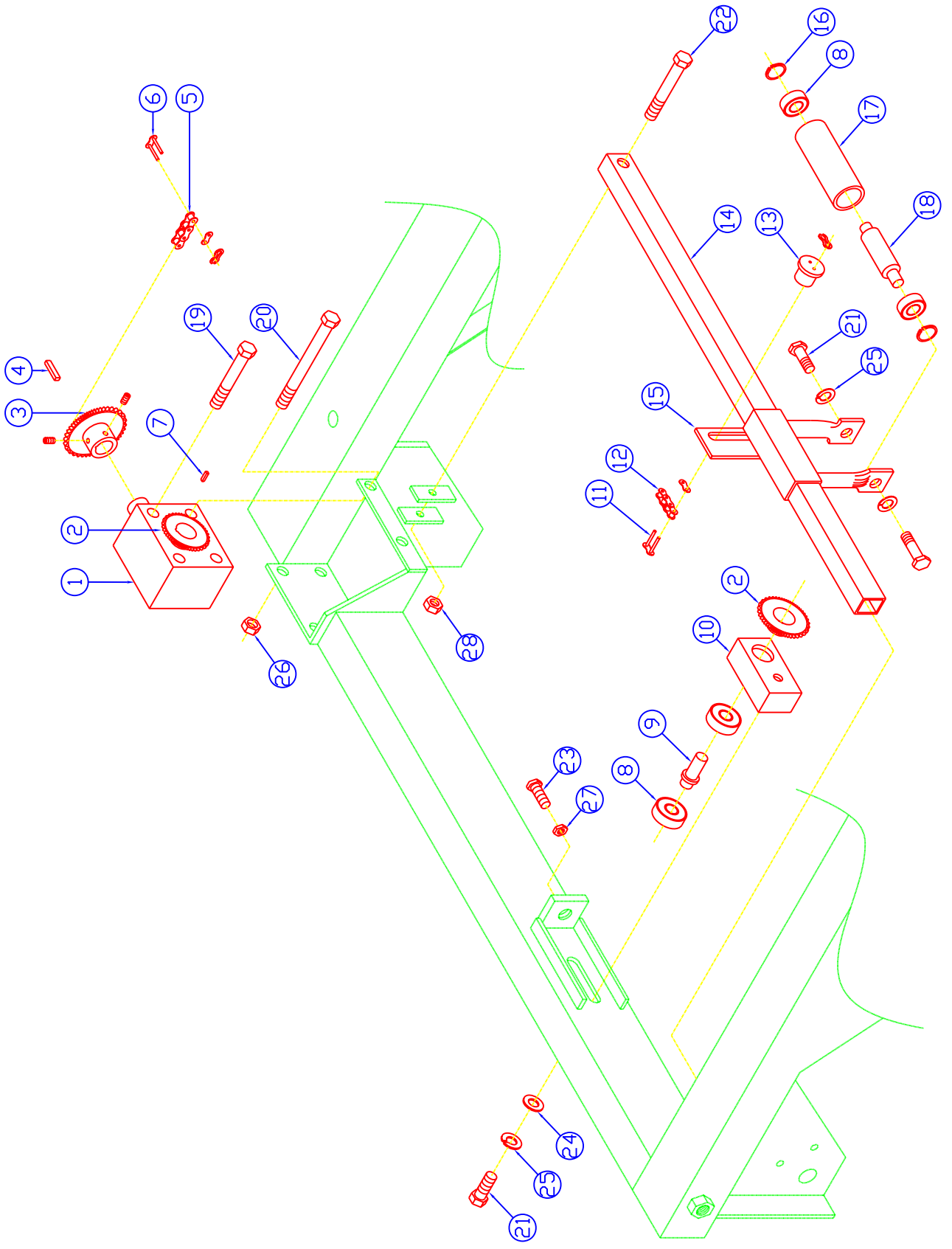
Upper Frame, 2625/3000S

Item	Description	P/N	Qty.	Item	Description	P/N	Qty.
1	Upper Frame	08-400-98	1	31	Decal, " Do Not Operate w/o Guards"	40-051	3
2	Indexer Shield	08-705-C	1	32	Decal, "Danger-Rotating Drum"	40-287	2
3	Idler Shield	08-702-B	1	33	Decal, " Important-Grease Indexer---"	40-115	1
4	Jack Foot	08-618	2	34	Speed Conversion Chart	40-218	1
5	Jack Leg	08-617-B	2	35	Decal, "Speed Control"	40-189	1
6	Drive Access Door	07-677-A	1	36	Decal, "Gasoline"	40-039	1
7	Fuel Tank Cradle	08-743	1	37	Decal, "Brake w/ Horizontal Arrow"	40-293	1
8	End Cover	08-744-A	1	38	Decal, 2625 Side Panel, Left (Shown)	40-281-2625	1
9	Fuel Tank, 3 Imp. Gal.	40-175	1	-	Decal, 2625 Side Panel, Right	40-280-2625	1
10	Vibration Isolator	40-095	1	-	Decal, 3000S Side Panel, Left	40-281-3000S	1
11	Gas Cap, Vented	40-017-A	1	-	Decal, 3000S Side Panel, Right	40-280-3000S	1
12	Safety Switch Cover	08-715-C	1	39	Decal, "Warning-Moving Part Hazard"	40-290	2
13	Fuel Tank Strainer	40-HDA-16955ZE1000	1	40	Decal, "Grease Point"	40-041	2
14	Neoprene Fuel Line, 3/16"	40-066	11 in.	41	Decal, "Danger-Hot Exhaust"	40-286	1
15	Hair Pin Clip	90-PIN-HP016X331	2	42	Decal, "Pinch Point"	40-289	2
16	Hitch Pin, 3/4" x 6" Lg.	90-PIN-HRC075X600	2	43	Decal, "Drive System Disconnect"	40-151	1
17	Brass Hinge Pin, 3/16" x 3" Lg	40-200-C	2			(Not Shown)	
18	Idler Wheel, Rub Block	08-653	1				
19	Bolt, 5/16" x 3/4" Lg.	90-BLT-03118X075	7				
20	Bolt, 3/8" x 1 1/2 " Lg.	90-BLT-03816X150	1				
21	Bolt, 3/8" x 2 1/2" Lg.	90-BLT-03816X250	2				
22	Bolt, 1/2" x 1 1/2" Lg.	90-BLT-05013X150	7				
23	Tek Screw, 1/4" x 1" Lg.	90-SCR-TEK025X100	9				
24	Flatwasher, 1/4" Nylon	90-WSR-FLT025NYLON	9				
25	Flatwasher, 5/16"	90-WSR-FLT031	9				
26	Flatwasher, 3/8"	90-WSR-FLT038	1				
27	Flatwasher, 1/2"	90-WSR-FLT050	2				
28	Lockwasher, 5/16"	90-WSR-LOC031	1				
29	Locknut, 5/16"-18	90-NUT-LOC031-18	2				
30	Locknut, 3/8"-16	90-NUT-LOC038-16	3				



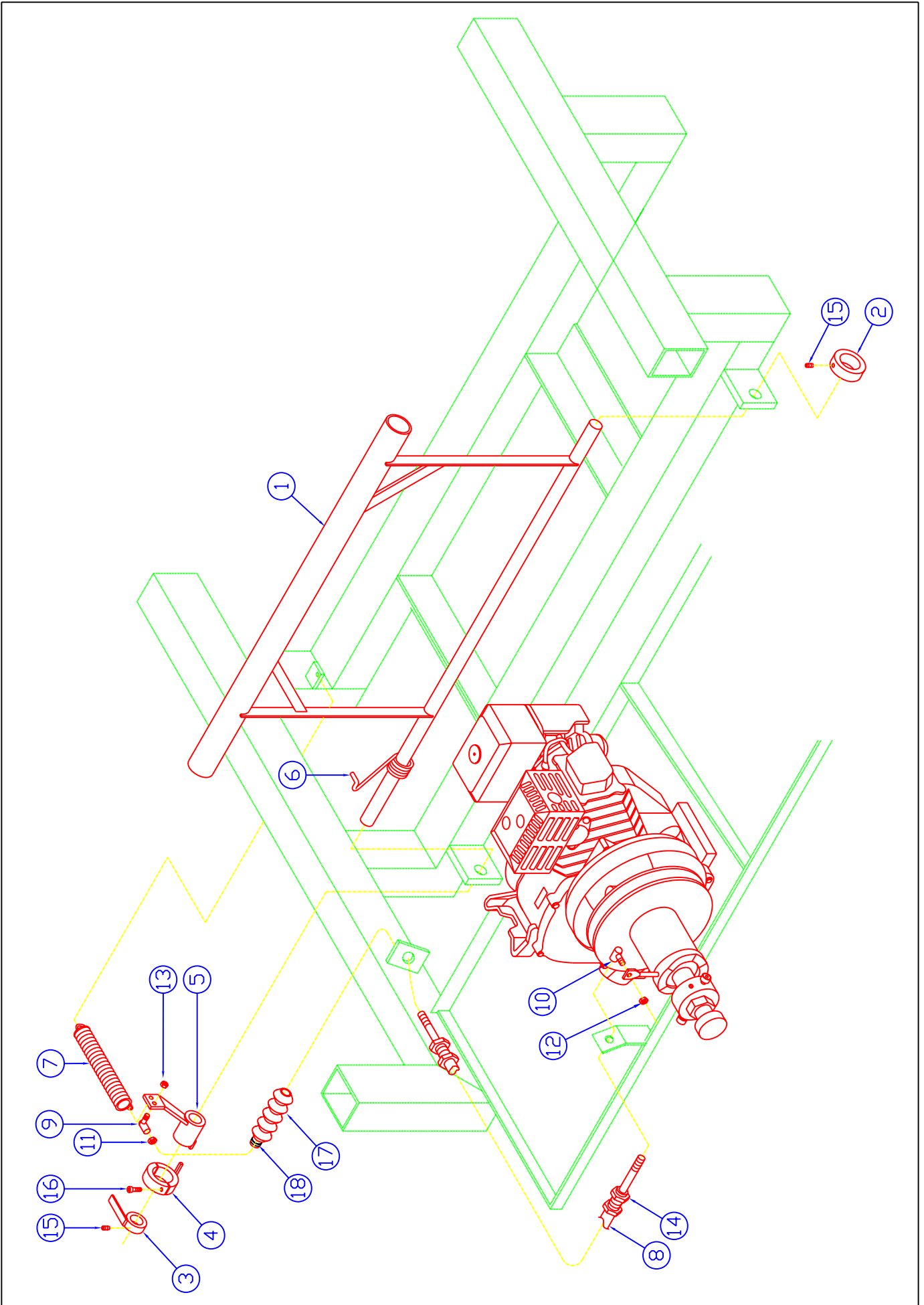
Hose Drum Assembly

Item	Description	P/N	Qty.	Item	Description	P/N	Qty.
1	Drum	2250	1	1	Drum	08-500	1
2	P.E. Hose, 2 1/4" I.D. x 700 ft.	12-500	1	2	P.E. Hose, 2 5/8" I.D. x 900 ft. (2625)	50-051-900	AR
3	Hose End	50-053-700	1	-	P.E. Hose, 3" I.D. x 600 ft. (3000S)	50-001-600	AR
4A	Inlet Elbow	12-615	1	3	Hose End (2625)	08-642	1
5	2 1/2" Inlet Seal	12-614-A	1	-	Hose End (3000S)	08-655	1
6	2 1/2" Drum Axle Bearing	40-305	1	4B	Inlet Elbow	08-626	1
7	1 1/4" Pillow Block Bearing	15-090	1	5	3" Inlet Seal	40-274	1
8	Removeable Skin	40-304	1	6	3" Drum Axle Bearing	15-088-A	1
9	Bolt, 5/8" x 4 1/2" Lg.	12-507	1	7	1 5/8" Pillow Block Bearing	40-008	1
10	Camlock, 2 1/2" Part "A"	90-BLT-06311X450	2	8	Removeable Skin	08-509	1
14	#80 Rivited Roller Chain	IR-CAM-250/A	1	9	Bolt, 5/8" x 4 3/4" Lg.	90-BLT-06311X475	2
15	Shut Off Flag	10-CHN-80-1RIV	226 P.	11	Bolt, 1/4" x 2" Lg.	90-BLT-02520X200	1
16	Flag Clamp	12-616	1	12	3/4 - 1/4 Galv. Reducing Bushing	40-NPT-RB075X025G	1
17	4" S.S. Band-it Clamp	12-617	1	13	4" Ringlock Fitting Clamp	IR-FCL-4	1
18	Pressure Gauge, 0 - 160 PSI, Wet	50-055	4	14	#80 Rivited Roller Chain	10-CHN-80-1RIV	250 P.
19	Sprocket, 40A40	45-017	1	15	Shut Off Flag	02-681-A	1
20	Drive Lug	10-085	12	16	Flag Clamp	02-681-B	1
21	Retainer Plate	15-040-A	1	28	Nylon Flatwasher, 1/4"	90-WSR-FLT025NYLON	7
22	#80 Connecting Link	01-314-B	1	29	SAE Flatwasher, 1/2"	90-WSR-SAE050	4
23	Tek Screw, 1/4" x 1" Lg.	10-LNK-80CONN	1	30	SAE Flatwasher, 5/8"	90-WSR-SAE063	4
24	Bolt, 3/8" X 1" Lg.	90-SCR-TEK025X100	7	31	Lockwasher, 1/2"	90-WSR-LOC050	13
25	Bolt, 1/2" x 1 1/4" Lg.	90-BLT-03816X100	4	32	Lockwasher, 5/8"	90-WSR-LOC063	4
26	Bolt, 1/2" x 1 1/2" Lg.	90-BLT-05013X125	1	33	Locknut, 1/4"-20	90-NUT-LOC025-20	1
27	Bolt, 1/2" x 2 3/4" Lg.	90-BLT-05013X150	4	34	Locknut, 3/8"-16	90-NUT-LOC038-16	4
		90-BLT-05013X275	1	35	Locknut, 1/2"-13	90-NUT-LOC050-13	6
		90-BLT-06311X175	2	36	Jam Nut, 1/2"-13	90-NUT-JAM050-13	12
			2	37	Decal, "CADMAN"	40-310	4
			2		Decal, "Max Pressure..."	40-049	1
					#80 Offset Link	10-LNK-80OFFSET	1



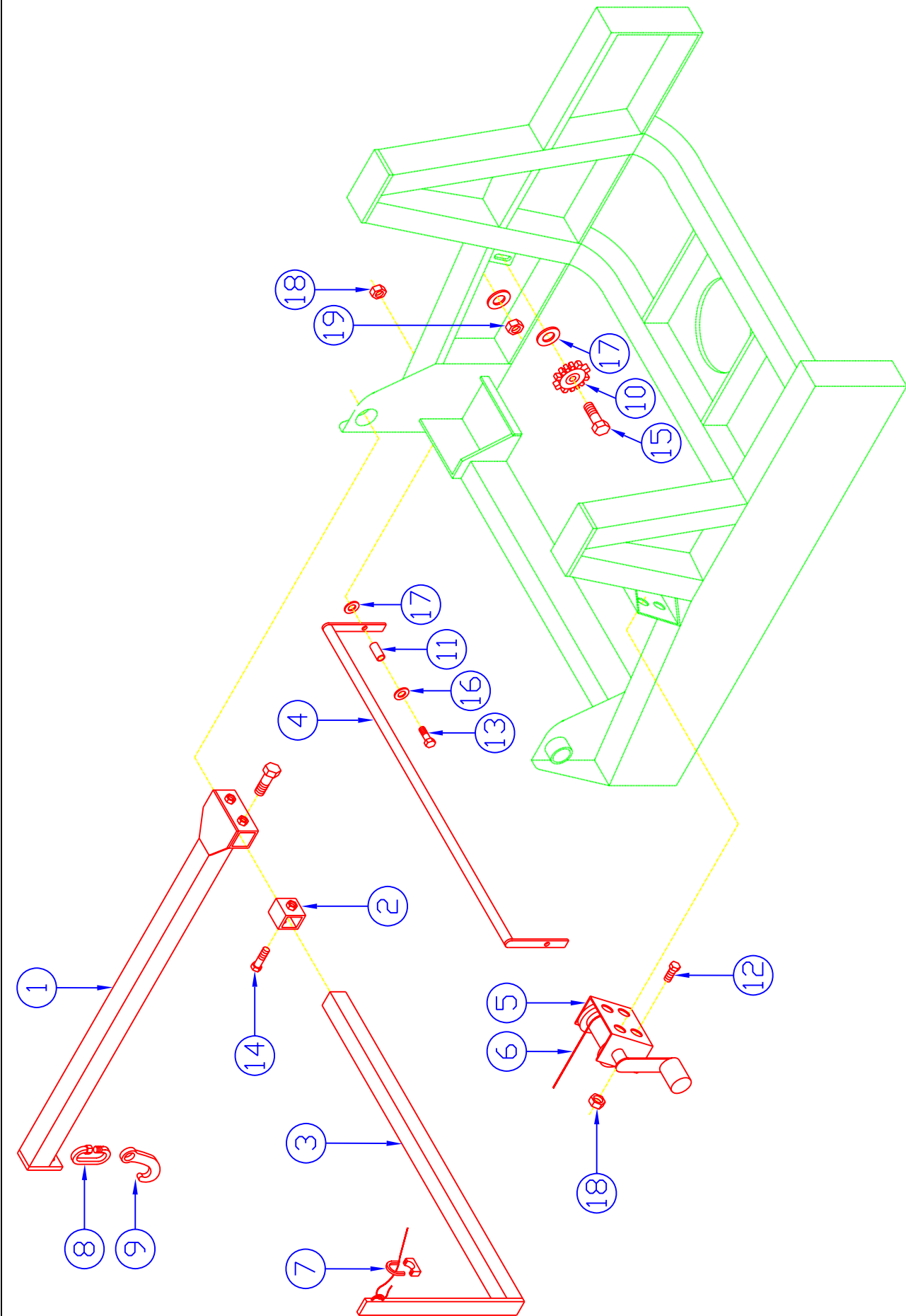
Hose Indexing

Item	Description	P/N	Qty.	Item	Description	P/N	Qty.
1	Indexer Gearbox	40-269	1	24	SAE Flatwasher, 1/2"	90-WSR-SAE050	1
2	Sprocket, 50B10 x 5/8" (2250 only)	10-SPT-50B10X063	2	25	Lockwasher, 1/2"	90-WSR-LOC050	3
-	Sprocket, 50B11 x 5/8" (2625/3000S)	10-SPT-50B11X063	2	26	Hex Nut, 5/16" - 18	90-NUT-HEX031-18	2
3	Sprocket, 40B18 x 5/8" (2250 only)	10-SPT-40B18X063	1	27	Jam Nut, 1/2" - 13	90-NUT-JAM050-13	1
-	Sprocket, 40B17 x 5/8" (2625 only)	10-SPT-40B17X063	1	28	Locknut, 1/2" x 13	90-NUT-LOC050-13	1
-	Sprocket, 40B15 x 5/8" (3000S only)	10-SPT-40B15X063	1				
4	Key, 3/16" Square	90-KEY-SQ019	1 1/4"				
5	#40 Rivited Roller Chain	10-CHN-40-IRIV	250 P.				
6	#40 Connecting Link	10-LNK-40CONN	1				
7	Square Key, 3/16"	90-KEY-SQ019	1 in.				
8	6203 Bearing	15-018-C	2				
9	Idler Shaft	15-087	1				
10	Indexer Idler Block	15-086	1				
11	#50-2 Connecting Link	10-LNK-50-2CONN	1				
12	#50 Rivited Roller Chain (2250)	10-CHN-50-1RIV	155 P.				
-	#50 Rivited Roller Chain (2625/3000S)	10-CHN-501RIV	179 P.				
13	Indexer Drive Button	15-085	1				
14	Guide Support Bar (2250)	12-605	1				
-	Guide Support Bar (2625/3000S)	08-640-A	1				
15	Hose Guide (2250)	12-635	1				
-	Hose Guide (2625/3000S)	08-635	1				
-	4" Guide Roller Assy Consisting of:						
16	Snap Ring	15-018-D	1				
8	6203 Bearing	15-018-C	2				
17	4" Roller Body	15-018-G	1				
18	4" Roller Shaft	15-018-F	1				
19	Bolt, 5/16" x 3 3/4 Lg.	90-BLT-03118X375	2				
20	Bolt, 5/16" x 4 1/2 Lg.	90-BLT-03118X450	2				
21	Bolt, 1/2" x 1" Lg.	90-BLT-05013X100	3				
22	Bolt, 1/2" x 3" Lg.	90-BLT-05013X300	1				
23	Bolt, 1/2" x 2" Full Thread	90-BLT-FT05013X200	1				



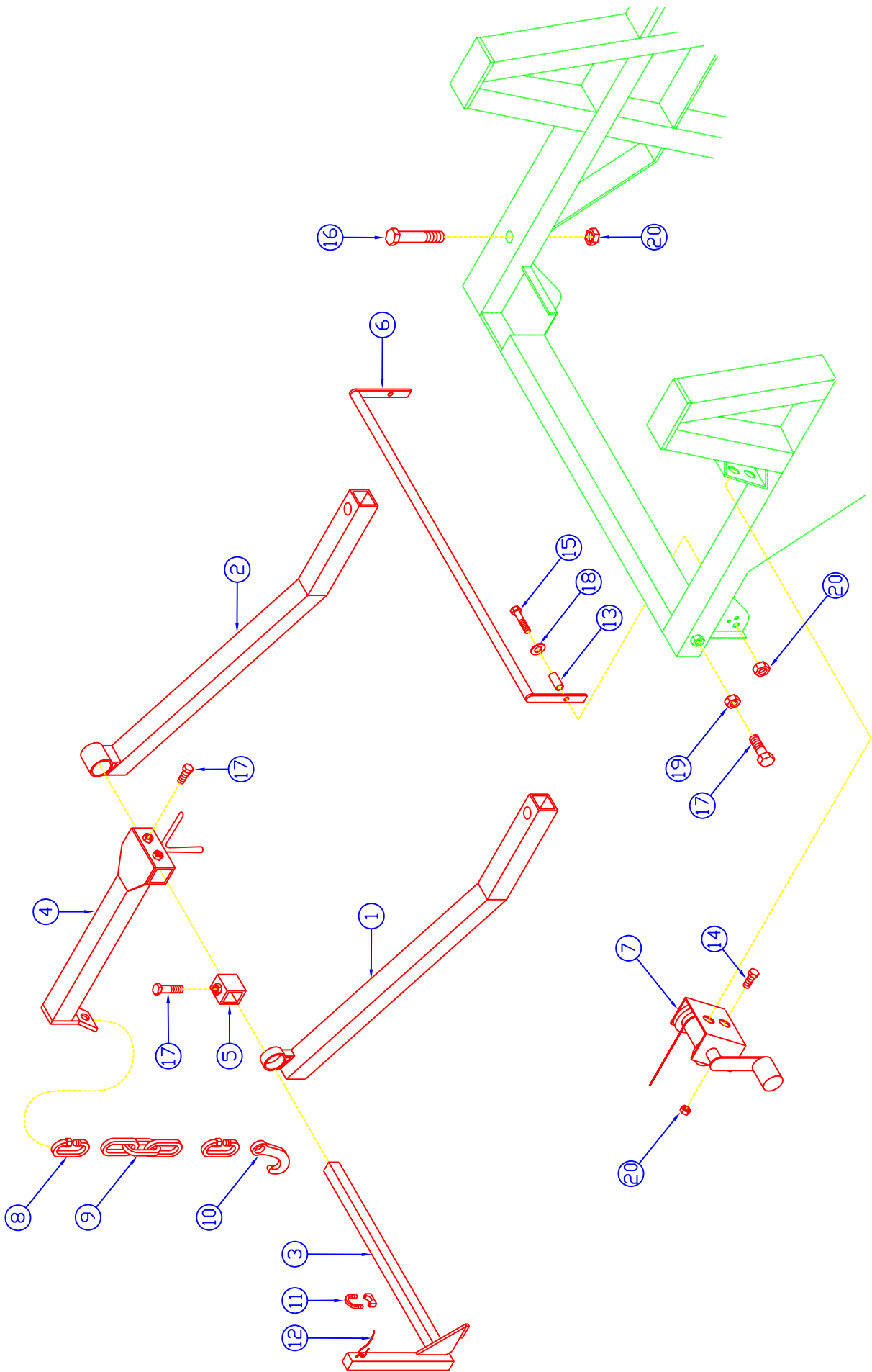
Compensator System

Item	Description	P/N	Qty.	Item	Description	P/N	Qty.
1	Compensator Frame (2250 only)	12-610	1				
-	Compensator Frame (2625/3000S)	08-631	1				
2	1" Set Collar	40-144	1				
3	Switch Lever	08-648	1				
4	Arm Drive	07-633-A	1				
5	Cable Drive Arm	07-632	1				
6	Torsion Spring	40-279	1				
7	Extension Spring	40-228	1				
8	Cable, 60.50" Lg. (2250 Only)	40-303	1				
-	Cable, 66.5" Lg. (2625/3000S)	40-272	1				
9	Throttle Ball Joint, 1/4"-28	40-226	1				
10	Throttle Ball Joint, #10-32	40-225	1				
11	Jam Nut, 1/4"-28	90-NUT-JAM025-28	1				
12	Locknut, #10-32	90-NUT-LOC010-32	1				
13	Locknut, 1/4"-28	90-NUT-LOC025-28	1				
14	Jam Nut, 1/2"-20	90-NUT-JAM050-20	4				
15	Set Screw, 5/16"-24 x 1/4"	90-SCR-STO03124X025	2				
16	SHCS, 1/4"-28 x 3/4"	90-SCR-SH02528X075	2				
17	Cable Bellows	40-302	1				
18	Cable Tie, 4" Black	40-391	1				



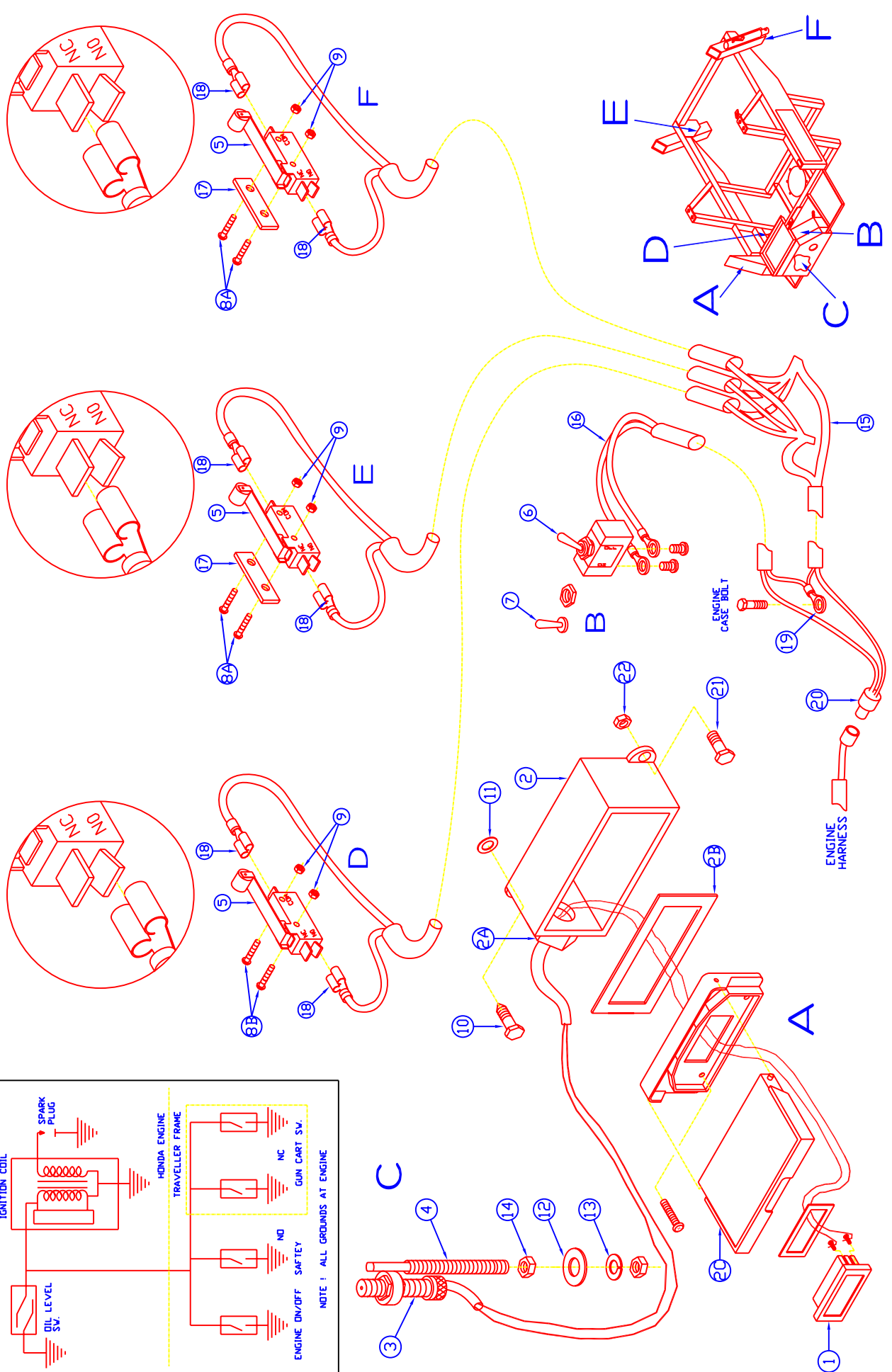
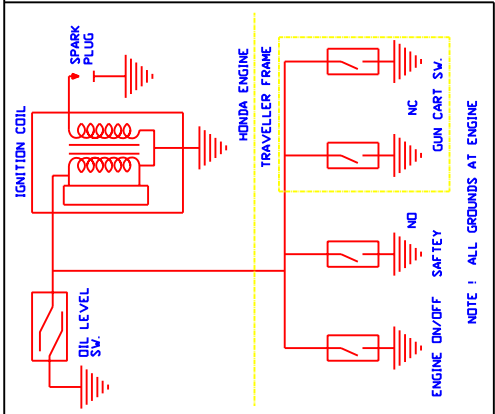
Cart Lift Assembly, 2250

Item	Description	P/N	Qty.	Item	Description	P/N	Qty.
1	Lift Arm	12-612	1				
2	Upper Boom Retainer	11-454	1				
3	Boom	12-613	1				
4	Stop Bar	12-607	1				
5	600 # Winch	40-299	1				
6	3/16" Aircraft Cable	40-058	10 ft.				
7	Cable Clamp	40-060	2				
8	3/8" Rapid Link	40-063	1				
9	3/4 Ton Safety Hook	40-062	1				
10	Idle Sprocket, 40A18 x 1/2"	10-SPT-40-18IDLER	2				
11	Spacer, 3/8" I.D. x 1 1/2" Lg.	40-108	2				
12	Bolt, 3/8" x 1 1/4" Lg.	90-BLT-03816X125	2				
13	Bolt, 3/8" x 2" Lg.	90-BLT-03816X200	2				
14	Bolt, 1/2" x 1" Lg.	90-BLT-05013X100	4				
15	Bolt, 1/2" x 2 1/2" Lg.	90-BLT-05013X250	2				
16	Flatwasher, 3/8"	90-WSR-FLT038	2				
17	SAE Flatwasher, 1/2"	90-WSR-SAE050	2				
18	Locknut, 3/8" - 16	90-NUT-LOC038-16	6				
19	Locknut, 1/2" - 13	90-NUT-LOC050-13	1				



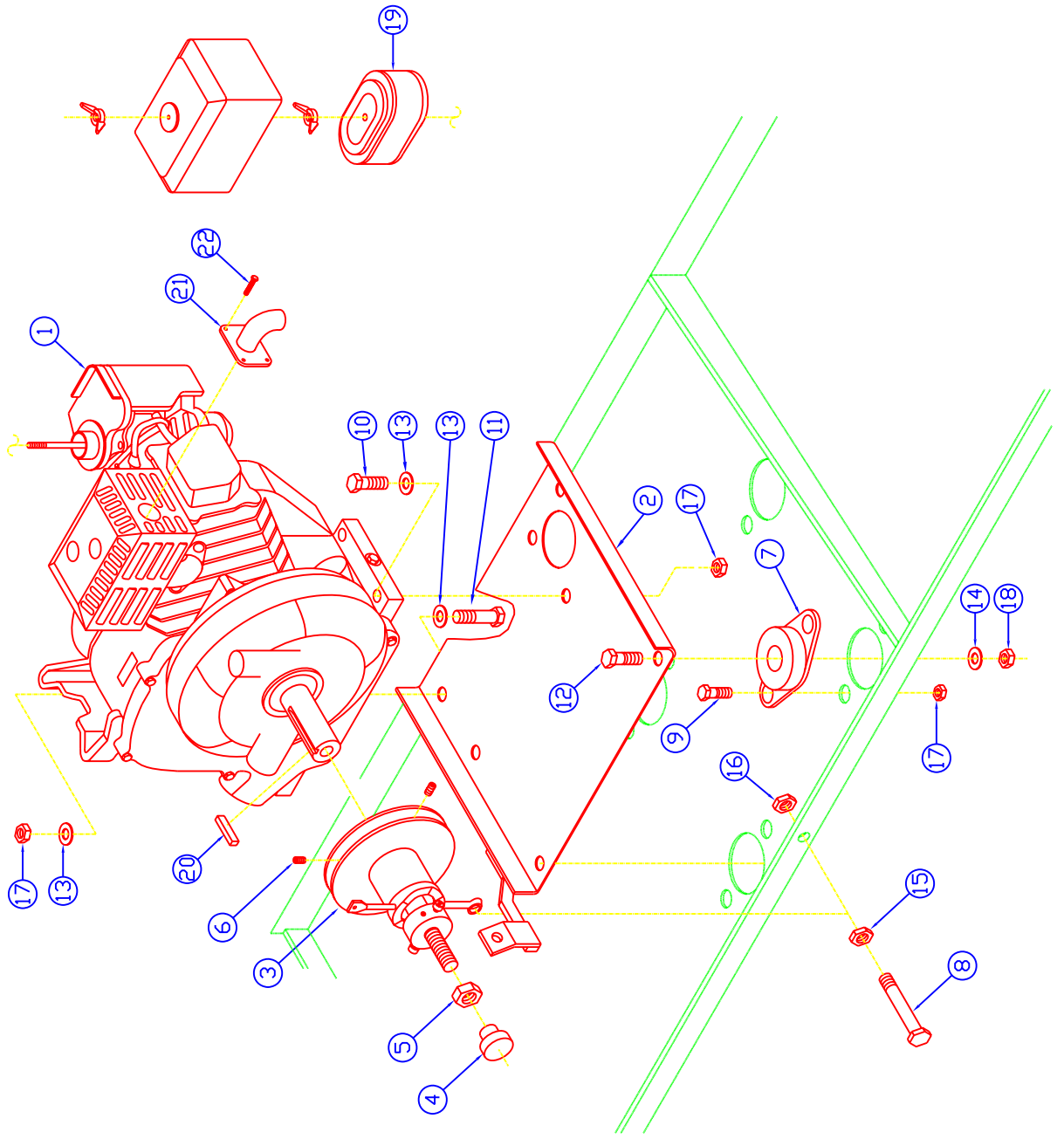
Cart Lift Assembly, 2625/3000s

Item	Description	P/N	Qty.	Item	Description	P/N	Qty.
1	Boom Arm, Right	08-611-A	1				
2	Boom Arm, Left	08-600-A	1				
3	Boom	08-605	1				
4	Lift Arm	08-614-A	1				
5	Upper Boom Retainer	11-454	1				
6	Stop Bar	08-628	1				
7	Winch	40-024-A	1				
8	Rapid Link, 3/8"	40-063	2				
9	Galv. Chain, 3/8"	40-064	5 links				
10	3/4 Ton Safety Hook	40-062	1				
11	Cable Clamp, 1/8"	40-061	1				
12	Aircraft Cable, 3/16"	40-058	10 ft.				
13	Spacer, 3/8" x 1 1/2" Lg.	40-108	2				
14	Bolt, 3/8" x 1 1/4" Lg.	90-BLT-03816X125	2				
15	Bolt, 3/8" x 2 1/4" Lg.	90-BLT-03816X225	2				
16	Bolt, 3/8" x 3 1/2" Lg.	90-BLT-03816X350	2				
17	Bolt, 1/2" x 1" Lg.	90-BLT-05013X100	5				
18	Flatwasher, 3/8"	90-WSR-FLT038	2				
19	Jam Nut, 1/2"-13	90-NUT-JAM050-13	2				
20	Locknut, 3/8"-16	90-NUT-LOC038-16	6				



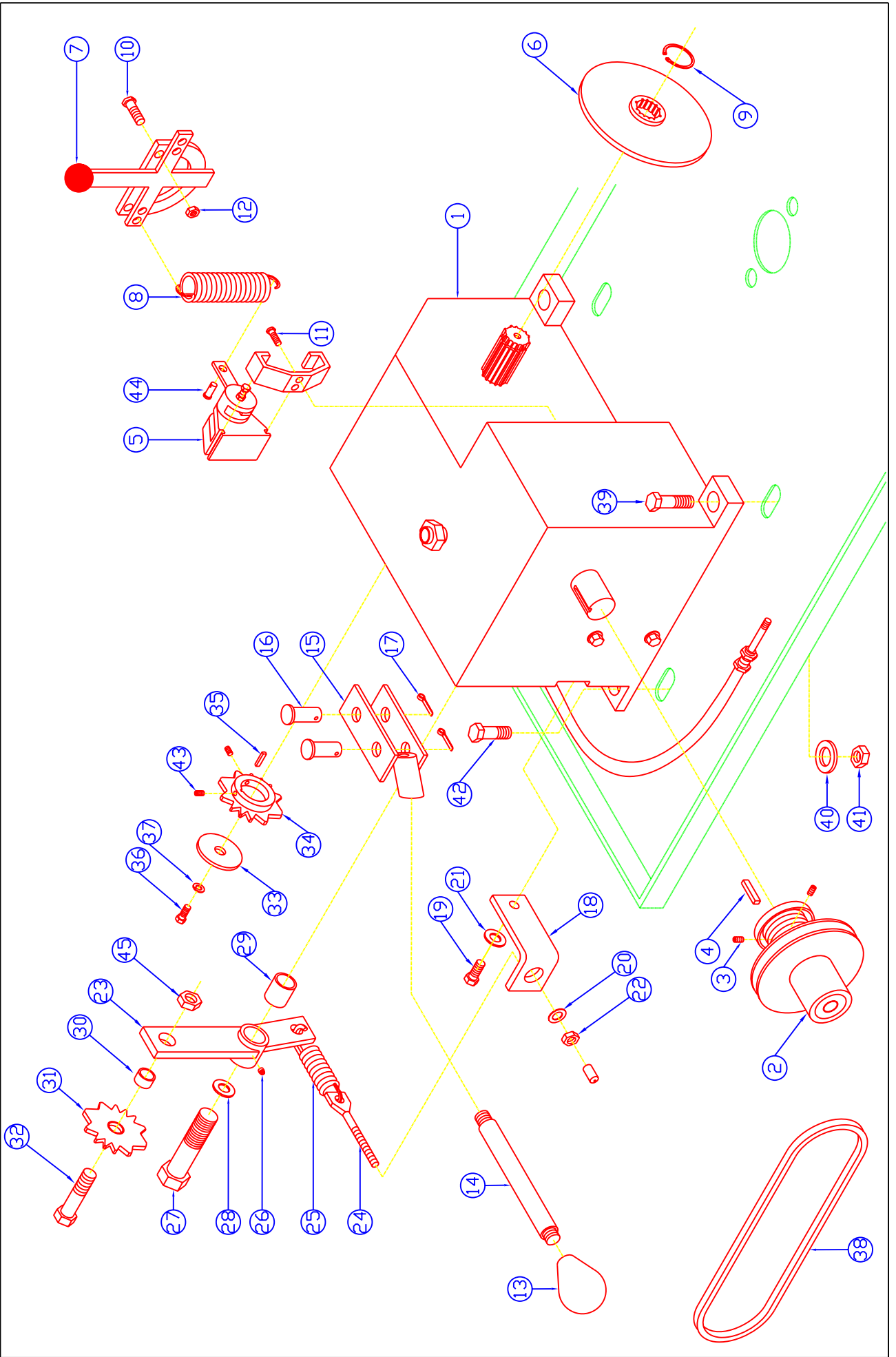
Electrical System

Item	Description	P/N	Qty.	Item Description	P/N	Qty.
1	Speedometer Kit	40-190-RL	1			
2	PVC Box	40-262	1			
2A	Strain Relief Kit, 3/4"	40-263	1			
2B	Gasket	40-264	1			
2C	Box cover w/lid	40-271	1			
3	Magnetic Pickup Ass'y, 5/8" Dia.	40-239-RL	1			
4	Pickup Mount	07-645	1			
5	Shut Off Switch	40-020	3			
6	On/Off Toggle Switch	40-260	1			
7	Toggle Switch Boot	40-261	1			
8A	Machine Screw, #6-32 x 1 3/4" Lg.	90-SCR-RM0632X175	4			
8B	Machine Screw, #6-32 x 1" Lg.	90-SCR-RM0632X100	2			
9	Locknut, #6-32	90-NUT-LOC006-32	6			
10	Tek Screw, 1/4" x 1" Lg.	90-SCR-TEK025X100	2			
11	Nylon Flatwasher, 1/4"	90-WSR-FLT025NYLON	2			
12	SAE Flatwasher, 1/2"	90-WSR-SAE050	1			
13	Lockwasher, 1/2"	90-WSR-LOC050	1			
14	Hexnut, 1/2" - 13	90-NUT-HEX050-13	2			
15	Wire Harness, 2625/3000S	40-276	1			
-	Wire Harness, 2250	40-306	1			
16	On/Off Switch Harness	40-277	1			
17	Switch Spacer Block	04-628	2			
18	Female Spade Connector	40-068	6			
19	Terminal Eye, #10 Blue	40-069	1			
20	Male Bullet Connector, Blue	40-070	1			
21	Bolt, 1/4" x 3/4"Lg.	90-BLT-2520X075	1			
22	Locknut, 1/4"	90-NUT-LOC025-20	1			



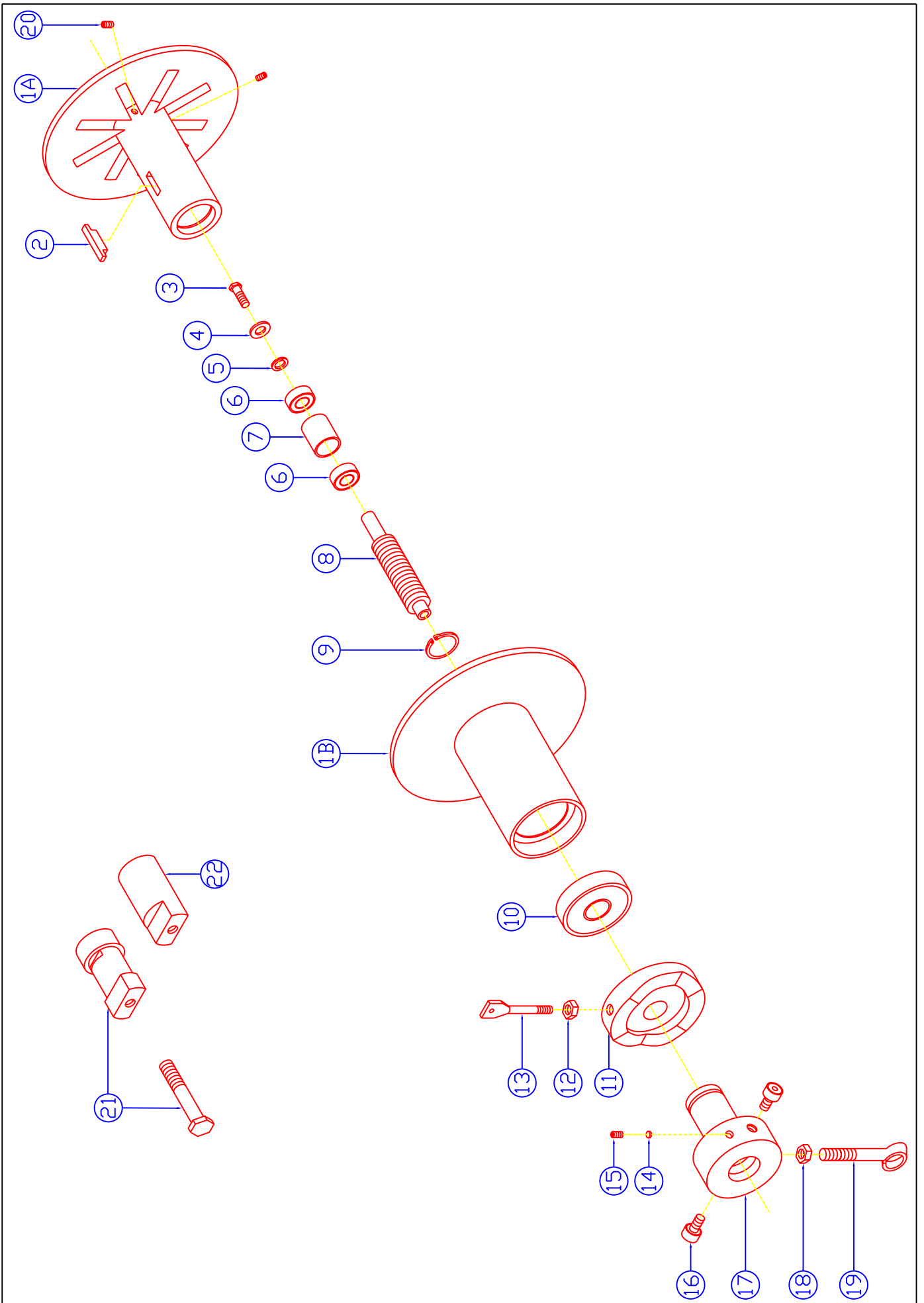
4.0 HP Engine Assembly

Item	Description	P/N	Qty.	Item	Description	P/N	Qty.
1	4.0 HP Honda Engine, GX120K1HX	40-159-A	1				
2	Engine Mount Plate	07-604-C	1				
3	6" Variable Speed Pulley w/Cam	40-223	1				
4	Hand Wheel	40-191-B-407-712	1				
5	5/8-18 Left-Hand Thrd. Jam Nut	90-NUT-JAM063-18LH	1				
6	Set Screw, 5/16"-24 x 1/4" Lg.	90-SCR-ST03124X025	2				
7	Rubber Engine Mount	40-285	4				
8	Bolt, 1/4" x 4" Lg.	90-BLT-0250X400	1				
9	Bolt, 5/16" x 3/4" Lg.	90-BLT-03118X075	8				
10	Bolt, 5/16" x 1 1/2" Lg.	90-BLT-03118X150	3				
11	Bolt, 5/16" x 3" Lg.	90-BLT-03118X300	1				
12	Bolt, 3/8" x 2" Lg.	90-BLT-03816X200	3				
13	SAE Flatwasher, 5/16"	90-WSR-SAE031	5				
14	SAE Flatwasher, 3/8"	90-WSR-SAE050	3				
15	Hex Nut, 1/4"	90-NUT-HEX025-20	1				
16	Locknut, 1/4"	90-NUT-LOC052-20	1				
17	Locknut, 5/16"	90-NUT-LOC031-18	11				
18	Locknut, 3/8"	90-NUT-LOC038-16	3				
19	Air Filter	40-HDA-17210ZEO505	1				
20	Sq. Key, 3/16"x 1 1/4" Lg.	90-KEY-019X125	1				
21	Exhaust Deflector	40-HAD-18340ZE1000	1				
22	Pan Head Screw	90-SCR-PHM4.70X006	2				
	Not Shown: Modifies Honda Engine Harness						
	Heat Shrink Tube, 1/4" x 2 1/2"	40-210	1				
	Female Bullet Connector, Blue	40-247	1				



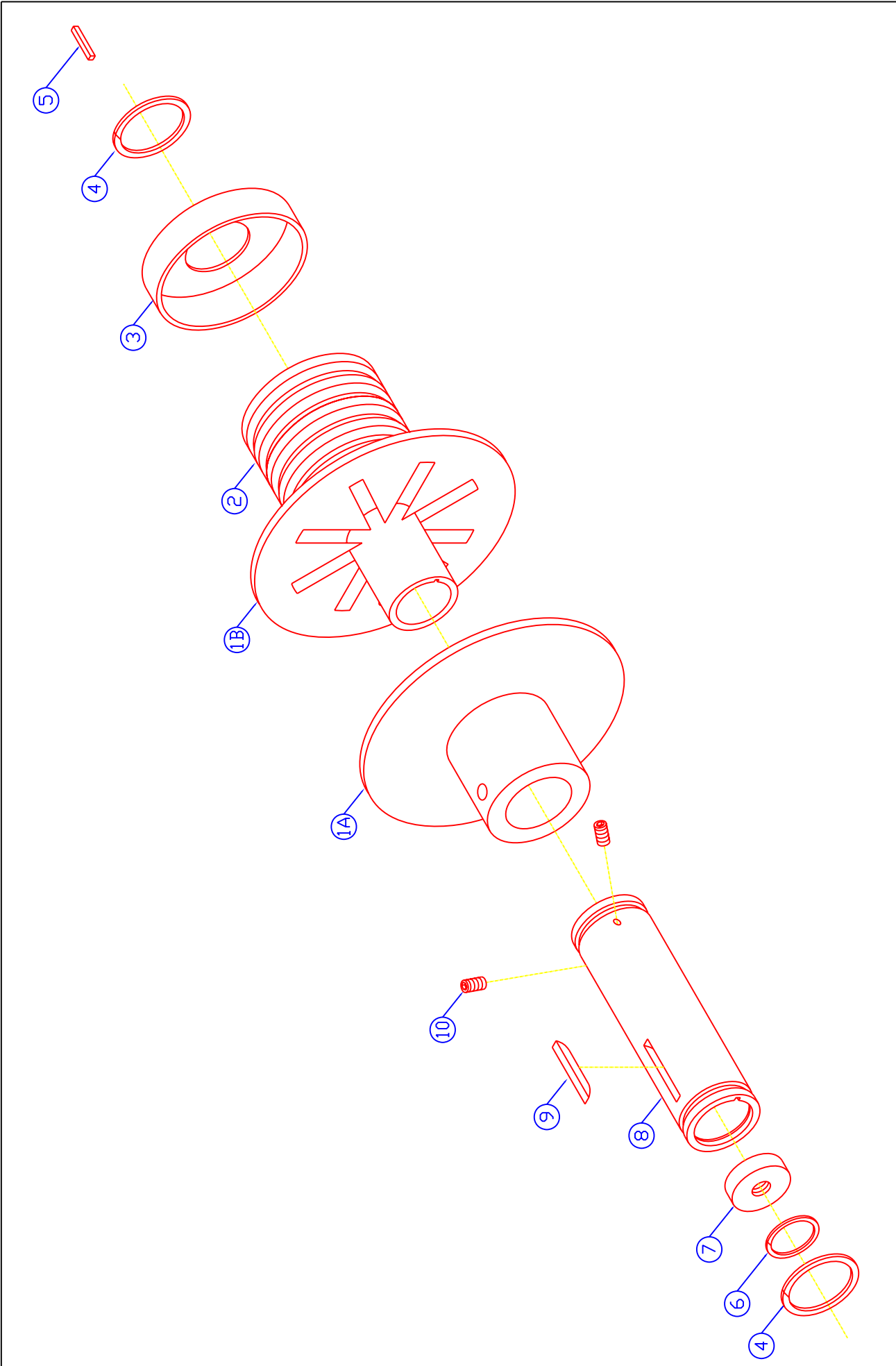
4.0 HP Drive System

Item	Description	P/N	Qty.	Item	Description	P/N	Qty.
1	Right Angle Transmission	40-267	1	30	Spacer, 3/4" x 1/2" Lg.	40-110	1
2	Spring-Loaded Pulley, 6"	40-195	1	31	Idler Sprocket, 80-12 x 3/4"	10-SPT-80-12IDLER	1
3	Set Screw, 5/16"-24 x 5/32" Lg.	90-SCR-ST03124X016	2	32	Bolt, 3/4" x 2 1/4" Lg.	90-BLT-07510X225	1
4	Sq. Key, 3/16" x 2.00" Lg.	90-KEY-019	2 in.	33	Sprocket Retaining Plate	01-314-B	1
5	Brake Caliper w/ Mt.Bracket	40-296	1	34	Sprocket, 80B12 x 1 3/4"	10-SPT-80B12X175	1
6	Brake Disc	40-169-CM017	1	35	Sq. Key, 1/2" x 1 5/8" Lg.	90-KEY-SQ050X163	1
7	Brake Handle	40-270	1	36	Bolt, 1/2"-20 x 1 1/4" Lg.	90-BLT-05020X125	1
8	Ext. Spring	40-229	1	37	Lockwasher, 1/2"	90-WSR-LOC050	1
9	Snap Ring	40-169-106-09	1	38	V-Belt, A-42 (Standard)	40-294	1
10	Bolt, 1/4" x 1/2" Lg.	90-BLT02520X050	2	39	V-Belt, A-41	40-294-A41	1
11	Bolt, 1/4" x 3/4" Lg.	90-BLT-02520X075	2	40	Bolt, 1/2" x 2 1/4" Lg.	90-BLT-05013X225	2
12	Locknut, 1/4"	90-NUT-LOC025-20	2	40	SAE Flatwasher, 1/2"	90-WSR-SAE050	4
13	Shifter Knob	40-182	1	41	Locknut, 1/2"	90-NUT-LOC050-13	4
14	Screw-in Shifter Handle	40-222	1	42	Bolt, 1/2" x 2" Lg.	90-BLT-05013X200	4
15	Shifter Fork	40-221	1	43	Set Screw, 1/4"-28 x 1/4" Lg.	90-SCR-ST02528X025	2
16	Clevis Pin, 3/8"x 1 1/4" Lg.	90-PIN-CL038X125	2	44	Clevis Pin, 1/4" x 3/4" Lg.	90-PIN-CL025X075	1
17	Cotter Pin, 5/32" x 3/4" Lg.	90-PIN-CT016075	2	45	Locknut, 3/4"-10	90-NUT-LOC075-10	1
18	Idler Tension Bracket	08-650	1		Not Shown		
19	Bolt, 3/8" x 3/4" Lg.	90-BLT-03816X075	1		Hand Crank	06-647	1
20	SAE Flatwasher, 1/2"	90-WSR-SAE050	1				
21	Lockwasher, 3/8"	90-WSR-LOC038	1				
22	Locknut, 1/2"	90-NUT-LOC050-13	1				
23	Idler Arm	08-656-A	1				
24	Spring Adjusting Rod	06-635-B	1				
	Vinyl Cap, 1/2" x 1" Lg.	40-230	1				
25	Idler Spring	40-056	1				
26	Grease Fitting, 45 degree	40-001-45	1				
27	Bolt, 5/8" x 3" Lg.	90-BLT-06311X300	1				
28	Flatwasher, 5/8"	90-WSR-FLT063	1				
29	Idler Arm Bushing, 1 1/4" x 2" Lg.	06-656-A	1				



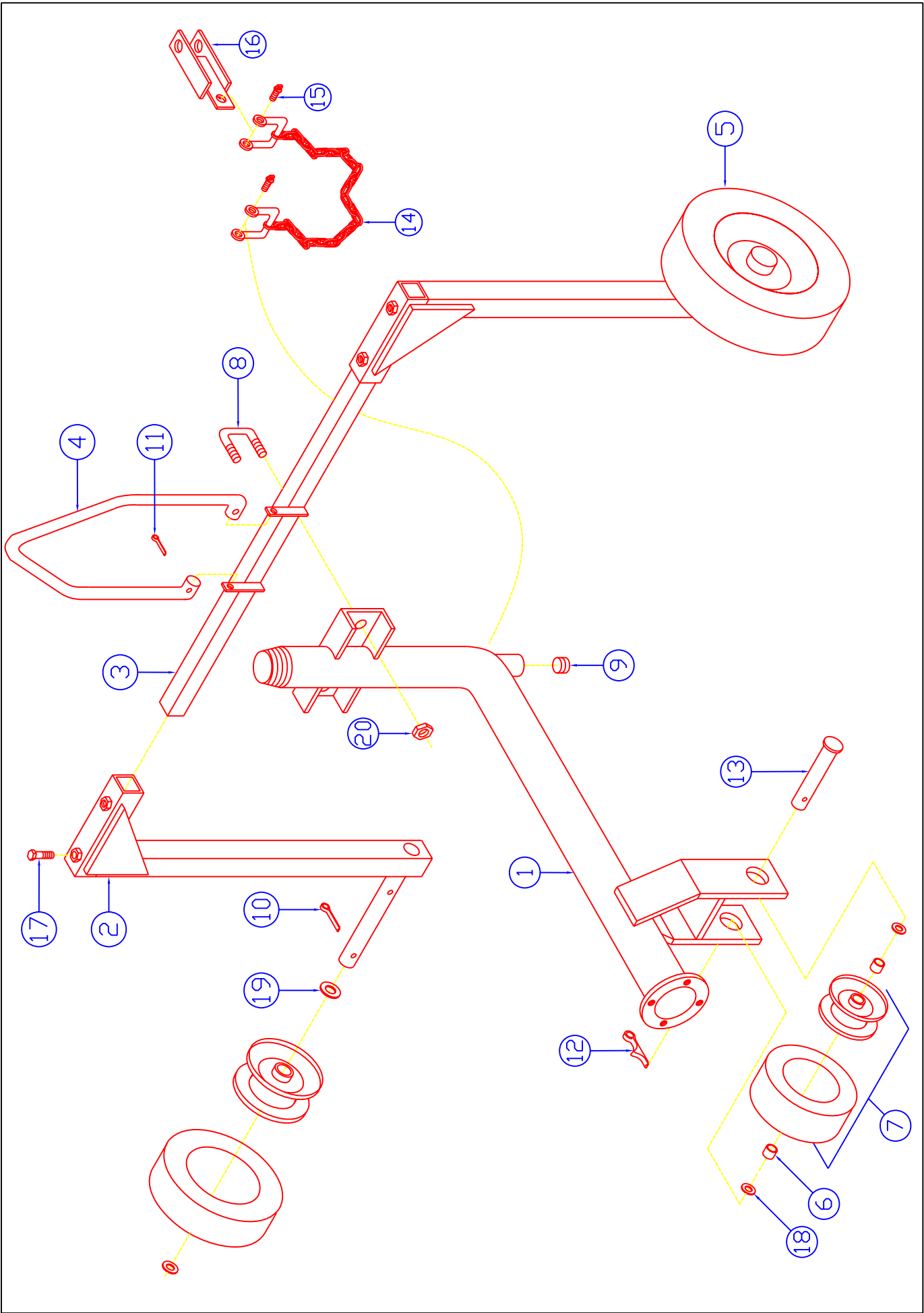
6" V.S. Pulley w/ Cam Kit, P/N 40-315-A

Item	Description	P/N	Qty.	Item Description	P/N	Qty.
1A	Pulley Fixed Face	Not Serviced	-			
1B	Pulley Adjustable Face	Not Serviced	-			
2	Special Key	40-129-2181	1			
3	Bolt, #10-32 x 3/8" Lg.	40-316-207-291	1			
4	Flat Washer	40-316-3386	1			
5	Spring Washer	40-316-206-074	1			
6	Control Stem Bearing	40-316-3386	2			
7	Bearing Spacer	40-316-206-074	1			
8	Control Stem	40-316-207-291	1			
9	Snap Ring	40-316-3334	1			
10	Cam Bearing	40-216-BRG6205	1			
11	Cam	40-243-99	1			
12	Jam Nut, 1/4" - 20	90-NUT-JAM025-20	1			
13	Cable Torque Arm	40-243-2588	1			
14	Nylon Ring	40-129-2454	1			
15	Set Screw, 1/4" -28 x 1/4" Lg.	90-SCR-ST02528X025	1			
16	Cam Roller	40-243-2589	2			
17	Thrust nut, Cam type	40-243-C	1			
18	Jam Nut, 1/4" - 28	90-NUT-JAM025-28	1			
19	Torque Arm	03-600	1			
20	Set Screw, 5/16" - 24 x 1/4" Lg.	90-SCR-ST03124X025	1			
21	Control Stem & Bearing Puller	88-TOL-SSBRGPULLER	OPT.			
22	Pulley Puller	88-TOL-SSPULLEYPUL	OPT.			



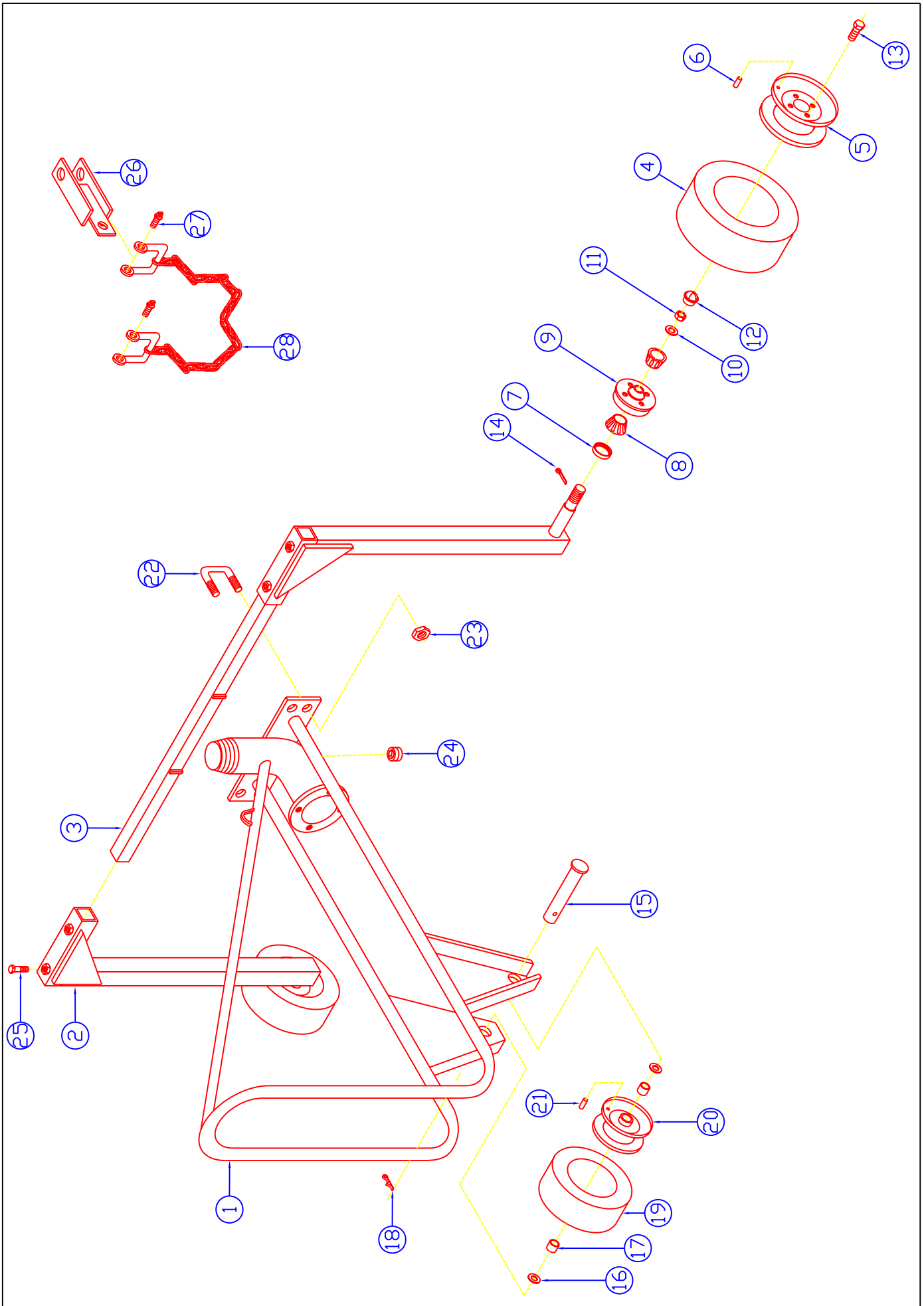
6" V.S. Spring Loaded Pulley, P/N 40-313

Item	Description	P/N	Qty.	Item Description	P/N	Qty.
1A	Fixed Pulley Face	Not Serviced	-			
1B	Adjustable Pulley Face	Not Serviced	-			
2	Spring	40-195-A-632-1	1			
3	Spring Cap	40-195-A-633-1	1			
4	Retaining Ring	40-195-3070	2			
5	Key	40-128-2195	1			
6	Plug Retaining Ring	40-195-2671	1			
7	Plug Adapter	40-195-A-625-052	1			
8	Shaft	Not Serviced	-			
9	Key, 3/16" sq. x 2" Lg.	90-KEY-019	1			
10	Set Screw, 5/16"-24 x 5/32 Lg.	90-SCR-ST03124X016	2			



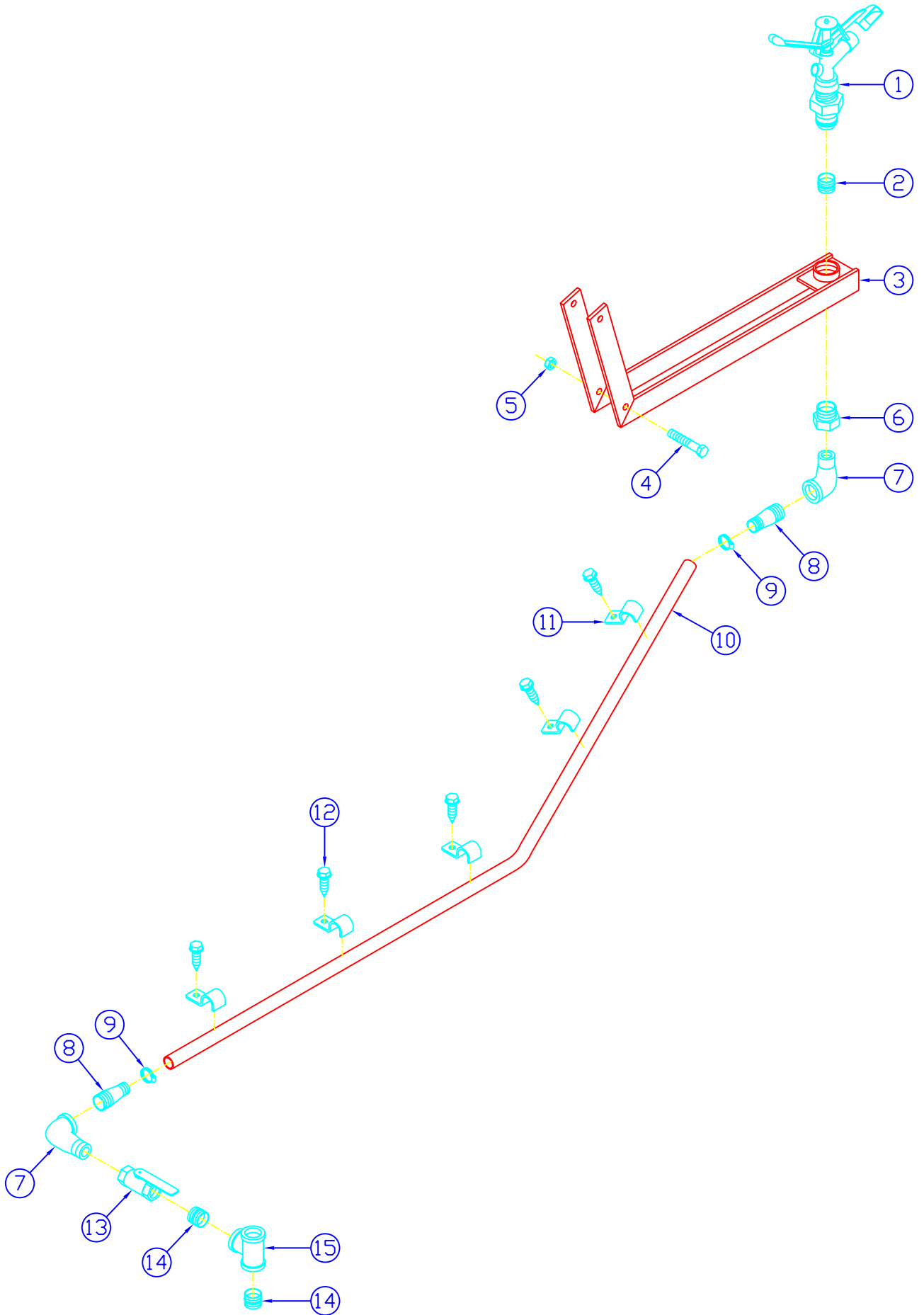
Gun Cart Assembly, 2250

Item	Description	P/N	Qty.	Item	Description	P/N	Qty.
1	Cart Body	12-804-A	1				
2	Cart Leg	12-803-A	2				
3	Cross Tube	12-815	1				
4	Lifting Hoop	12-806-A	1				
5	480-8 Wheel Ass'y w/ 1" Bushing	55-060	2				
6	Set Collar, 3/4"	07-707	1				
7	410-350 x 4" Wheel Ass'y	55-066	1				
8	U-Bolt, 3/8" x 2" wide x 3 1/4" Lg.	90-UBT-03816X325	2				
9	1" Galv. Pipe Plug	40-NPT-PLG100G	1				
10	Cotter Pin, 5/32" x 2" Lg.	90-PIN-CT016X200	4				
11	Cotter Pin, 1/8" x 1" Lg.	40-PIN-CT013X100	2				
12	Cotter Pin, 1/8" x 1 1/2" Lg.	90-PIN-CT013X150	1				
13	Clevis Pin, 3/4" x 5 1/2" Lg.	90-PIN-CL075X550	1				
	Cart Tow Chain Consisting of:	TR-CRT-TOWCHAIN	1				
14	3/8" Galvanized Chain	40-065-72	6 ft.				
15	3/8" Galvanized Shackles (Clevis)	40-064	2				
16	Gun Cart Tow Clevis	02-220	1				
17	Bolt, 1/2" x 1" Lg.	90-BLT-05013X100	4				
18	SAE Flatwasher, 3/4 "	90-WSR-SAE075	2				
19	SAE Flatwasher, 1 "	90-WSR-SAE100	4				
20	Locknut, 3/8"-16	90-NUT-LOC038-16	4				
	Gauge, 0-100 Wet	45-022	1				
	Max speed 3 MPH	40-288	1				



Gun Cart Assembly, 2625/3000S

Item	Description	P/N	Qty.	Item	Description	P/N	Qty.
1	Cart Frame	08-803-B	1		Cart Tow Chain	TR-CRT-TOWCHAIN	1
2	Cart Leg	08-801-B	2	26	Gun Cart Clevis	02-220	1
3	Cross Tube	08-821	1	27	3/8" Galv. Shackle	40-064	2
	480-12 Wheel Ass'y	55-056	2	28	3/8" Galv. Grade 30 Chain	40-065-72	1
4	Tire	-	1				
5	Rim	-	1				
6	Valve Stem	-	1				
7	Grease Seal	55-006	2				
8	Wheel Bearing, Inner & Outer	55-004	4				
9	Wheel Hub, 4 Bolt	55-002-A	2				
10	Spindle Washer	55-016	2				
11	Spindle Nut, Thin	55-008	2				
12	Dust Cap	55-005	2				
13	Wheel Bolt, 1/2"-20	55-007	8				
14	Cotter Pin, 3/16" x 2" Lg.	90-PIN-CT019X200	2				
15	Clevis Pin, 1" x 5 1/2"	40-112	1				
16	SAE Flatwasher, 1"	90-WSR-SAE100	2				
17	Set Collar 1"	40-144	2				
18	Hair Pin Clip	90-PIN-HP016x331	1				
	480-8 Wheel Ass'y w/ 1" Bushings	55-060	1				
19	Tire	-	1				
20	Rim	-	1				
21	Valve Stem	-	1				
22	U-Bolt, 3/8" x 2" wide x 3" Lg.	90-UBT-03816X300	2				
23	Locknut, 3/8"-16	90-NUT-LOC038-16	4				
24	Plug, 1" NPT Galv.	40-NPT-PLG100G	1				
25	Bolt, 1/2" x 1" Lg.	90-BLT-05013X100	4				
	Gauge, 0-100 Wet	45-022	1				



Sprinkler Kit

Item	Description	P/N	Qty.	Item	Description	P/N	Qty.
1	Rainbird, 65PJ TNT Part Circle	SP-RBD-KIT65PJTNT	1				
2	1 NPT Close Nipple Galv.	40-NPT-NPLC100G	1				
3	Sprinkler Mount	06-672	1				
4	Bolt, 3/8" x 3 3/4" Lg.	90-BLT-03816X375	2				
5	Locknut, 3/8"	90-NUT-LOC038-16	2				
6	1" - 3/4" Red. Bushing Galv.	40-NPT-RB100X075G	1				
7	3/4" x 90 Deg Street Elbow Galv.	40-NPT-ELS075X90G	2				
8	3/4" NPT x 3/4" Hose Barb Galv.	40-NPT-BRB075G	2				
9	Gear Clamp, HS-08	50-024	2				
10	3/4" Suction Hose	IR-HOZ-SUC075	15 ft.				
11	Galv. Single Tube Clamp, 1in.	50-058	5				
12	Tek Screw, 1/4" x 1" Lg.	90-SCR-TEK025X100	5				
13	3/4" Ball Valve, F x F	40-NPT-VLV075BLLFF	1				
14	3/4" Close Nipple Galv.	40-NPT-NPLC075G	2				
15	3/4" NPT Galvanized Tee	40-NPT-TEE075G	1				
	Not Shown: (For use on travellers without an existing flange)						
	3/4" NPT weld-in flange	30-210	1				
	Galv. Red. Bushing, 3/4"-1/4" NPT	40-NPT-RB075X025G	1				

USEFUL INFORMATION

LENGTH

1 FOOT	= 12	Inches	1 METER	= 39.37	Inches
	= 0.3048	Meter		= 3.2808	Feet
1 ROD	= 198	Inches	1 MILE	= 5280	Feet
	= 16.5	Feet		= 1760	Yards
	= 5.5	Yards		= 320	Rods
	= 5.03	Meters		= 1609	Meters

AREA

1 SQUARE FOOT	= 144	Square Inches
	= 0.0929	Square Meters
1 SQUARE YARD	= 1296	Square Inches
	= 0.8361	Square Meters
1 SQUARE METER	= 1549.4	Square Inches
	= 10.764	Square Feet
1 ACRE	= 43560	Square Feet
	= 4047	Square Meters
	= 0.4047	Hectare
1 HECTARE	= 107642.62	Square Feet
	= 10000	Square Meters
	= 2.47105	Acres
1 SQUARE MILE	= 640	Acres
	= 259	Hectares

VOLUME

1 GALLON (US)	= 231	Cubic Inches
	= 0.1337	Cubic Feet
	= 8.345	Pounds
	= 3.7854	Liters
1 CUBIC FOOT	= 1728	Cubic Inches
	= 7.48	Gallons (US)
	= 62.4	Pounds
	= 28.32	Liters
1 ACRE INCH	= 27154	Gallons (US)
	= 254	Cubic Meters / Hectare

AREA OF A CIRCLE = Diameter x Diameter x 0.7854

VOLUME OF A CYLINDER (US GAL.) = Diameter (ft.) x Diameter (ft.) x Length (ft.) x 5.8748