



Mini Rail Train Model RT1



Operation and Maintenance Manual

Reorder Part: NES51-01
Last Revision: Rev. A
AUGUST 2012

Read and fully understand the precautions contained in this manual before operating or servicing this machine. Refer to Section 1 for important safety information.

Component Troubleshooting can now be found on the colored pages behind each tab.

This manual is a guide for the operation and routine maintenance of a NORDCO Equipment Services Machine. It covers product technical information, basic operating and maintenance procedures, and safety information and is provided for use by the qualified personnel who will supervise, operate or service the equipment described herein.

Measurements in this manual are given in both metric and customary U.S. unit equivalents.

Personnel responsible for the operation and maintenance of this equipment should thoroughly study the manual before commencing operation or maintenance procedures.



This manual should be considered a permanent part of your machine and should remain with the machine at all times.

Additional copies of this manual are available either as a part (Operation Manual only) or a whole (operation and parts manual), at a nominal cost, through our Part Sales Department. Additional service information, parts, and application information is available through these Nordco product support resources:

We ask that if you have any comments or suggestions about this manual, let us hear from you. We are here to be of service to you, our customers. Direct your comments and inquiries to:



Customer Service
107 North US Highway 45
Arcola, IL 61910
217-268-4823

HAZARDOUS MATERIAL DATA

In an effort to provide information necessary for your employee safety training program and to meet the requirements of OSHA Hazard Communication Standard 1910.1200, we have OSHA Form 20 Safety Data Sheets available that cover the material contained in this machine.

If you are interested in receiving this information, please refer to the Name, model, and Serial Number of your machine when calling or writing, and direct your inquiries to:



Customer Service
107 North US Highway 45
Arcola, IL 61910
217-268-4823

SAFETY

Please read and comply with all of the safety precautions in this manual BEFORE operating this machine.

GENERAL

DO NOT use this machine for machine operations other than for which it was intended.

NORDCO EQUIPMENT SERVICES is not responsible for any modifications made without authorization or written approval. Replace all NORDCO EQUIPMENT SERVICES and OEM parts with genuine NORDCO EQUIPMENT SERVICES or OEM parts. Use of non-OEM parts could compromise the safety of your machine.

FRA regulations require that a copy of this Operation Manual be kept on the machine at all times. Additional copies of the Operation Manual only can be ordered from NORDCO EQUIPMENT SERVICES Parts Sales at 1-800-647-1724.

FOLLOW SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual. Learn how to operate the machine and how to use controls properly. Do not let anyone operate this machine without instruction. Failure to understand the contents of this manual could result in serious personal injury or death.

SAFETY ALERT SYMBOLS!

These are the safety-alert symbols. These symbols means pay attention! Your safety is at risk!



DANGER is used to indicate a definite hazardous situation which, if not avoided, **WILL** result in severe bodily harm or even death.



WARNING indicates a potentially hazardous situation which, if not avoided, **COULD** result in severe bodily harm or even death.



CAUTION indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury.



Formerly CAUTION without the safety “!” means that failure to follow the alert may result in machine damage.



SAFETY means that the following points are instructions for safely operating the machine or the specific component of the machine.

GENERAL SAFETY TIPS

Only trained and authorized personnel should be allowed to operate this machine. In addition, all personnel at the worksite (gang) should be aware of the safety concerns and their individual responsibilities **prior to working this machine.**

SAFETY

1. Wear safety glasses or goggles.
2. Wear good-fitting pants and shirt, no baggy or loose clothing.
3. Wear a hard hat.
4. Wear leather gloves to protect your hands from vibration or metal particles.
5. Use safety-toed work boots.

SAFETY PRIOR TO WORKING

All personnel at the worksite (gang) should be aware of the safety concerns and their individual responsibilities **prior to working this machine:**

SAFETY

- Review the operating instructions if you are unsure of anything.
- Use the “pre-operational checklist” to check the machine for obvious faults. Repair or replace as necessary **PRIOR** to operating the machine.
- This equipment is **NOT** designed to be climbed onto or ridden on.
- Know the weather forecast and plan your work speeds accordingly. Rain has an effect on the speed of the rollers on this machine.
- Inspect safety decals and replace when they become unreadable or are damaged. (See “Safety Decals” at the end of this Safety section).

SAFETY WHILE OPERATING

SAFETY

1. If personnel or bystanders are near the machine during operation, give a warning signal using the air horn. If they fail to respond to this warning, stop operation immediately.
2. Halt work if visibility is poor. Strong rains, fog, and extremely dusty conditions can affect visibility in your work area. Wait for the weather to improve before continuing work.

SAFETY WHILE PARKED

NEVER stop and park this equipment on an incline unless the wheels have been chocked.

SAFETY DURING MAINTENANCE

The following guidelines are suggested when performing maintenance:

SAFETY

1. Always chock the wheels
2. Alert others in the area that service or maintenance is being performed on this machine.
3. There are welding cautions on this machine. Pay attention to them **PRIOR** to welding.
4. Kits supplied by **NORDCO EQUIPMENT SERVICES** have welding instructions included. Welding of any components **NOT** of **NORDCO EQUIPMENT SERVICES's** manufacture or failure to follow these instructions may affect the stability of this machine.

MACHINE SAFETY ALERTS



DANGER ALERTS

Improper use of this equipment for any type of operation can cause serious injury or death.
Serious injury or death can result from reaching into working components while machine is running.
Do not ride on tow bar between the machine and the towing vehicle. Falling from a moving vehicle may cause serious injury or death.

MACHINE SAFETY ALERTS



WARNING ALERTS

Failure to engage all lockup devices before propelling at travel speed can result in injury to personnel and/or extensive damage to the machine.
Remove hoses/fittings only when system is not pressurized. High pressure leaks can cause personal injury.
Always turn off machine when performing maintenance, making adjustments, or whenever unintended movement of machine could occur; unless directed otherwise. Failure to comply could result in personal injury and/or damage to the machine.

LOCKOUT AND/OR TAGOUT REQUIREMENTS

The following list suggests lockout procedures to use on all components of the machine that require lockout due to the storage of various forms of energy. It is your company's responsibility to **Lockout/Tagout Procedures** based on this list, train you in their proper and safe use, and to periodically inspect your work area to verify that you are complying with the procedures. **Lockout/Tagout Procedures must be followed!**

NORDCO EQUIPMENT SERVICES has provided the means to lockout this machine. NORDCO EQUIPMENT SERVICES cannot be held responsible for injury caused by failure to comply with your company's **Lockout/Tagout Procedures**. See next page for suggested lockout/tagout procedure list.

LOCKOUT-TAGOUT PROCEDURES

The following procedures are designed to lead the operator through the steps required to shut the machine down and prepare it for performing mechanical maintenance work. These procedures are intended to release potentially dangerous stored energy forms and make the machine safe to begin repairs.

SAFETY PROCEDURES LOCKOUT/TAGOUT

1. Apply brakes by disconnecting the glad hands between the mother machine and the Hold Down Cart. Note: This releases air pressure that normally releases the brakes. By relieving this pressure, a high energy spring applies all four brakes.
2. Chock wheels to prevent accidental rolling of equipment on grade.

GENERAL

This manual contains operation and maintenance information for the Mini Rail Train Model RT1, manufactured by NORDCO EQUIPMENT SERVICES (NES), Arcola, IL. Information regarding operation and maintenance of OEM parts not of NORDCO manufacture can be found at the back of this manual, behind the tab marked **Component Data**.

Become familiar with all safety instructions, controls and instruments before operating this machine. Follow all instructions carefully.

ABOUT THIS MANUAL

This manual has been broken down into sections which have been separated by index tabs:

Mechanical has individual parts breakdown drawings and lists for each assembly

Pneumatic includes adjustment instructions and troubleshooting for the air (pneumatic) system; and all piping and function drawings for a standard machine and optional equipment

Component Data includes parts breakdowns and service instructions for components installed on the machine that are not of NORDCO's manufacture. This section has been expanded upon and is also broken down into tabbed sections.

SPECIFICATIONS❖

GENERAL

Model	RT1
Gross Weight	
Lead Anchor Cart.....	1380 lbs (626 kg)
Cart with Brakes	1343 lbs (609 kg)
Cart without Brakes	1210 lbs (549 kg)
Maximum Load Capacity per Cart	15,000 lbs (6803.9 kg)
Length	4 feet (1.22 meters)
Width.....	6 feet 10 Inches (2.08 meters)
Wheel Base	3 feet (0.9 m)
Travel Speed (Maximum)	10 mph (37 km/h)
Rated Draw Bar Pull (on rail)	15,000 lbs (6803 kg)

PNEUMATIC SYSTEM – System Pressure Relies on Machine Towing Carts

Brakes.....	13 cfm @120 psi
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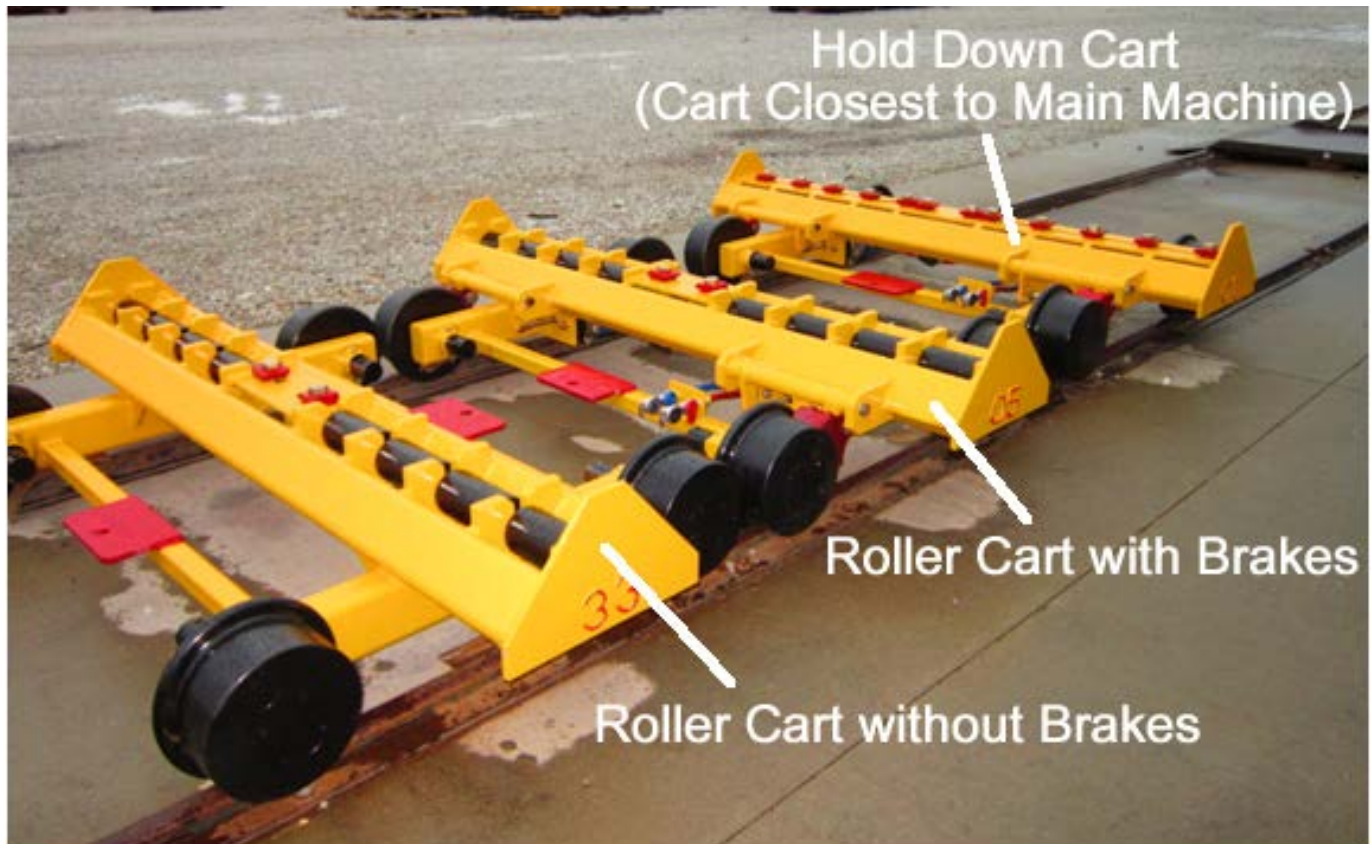
WHEELS AND BRAKES

Wheel Size and Type.....	10" Hardened
Brake Type.....	Pneumatically Applied (Air) on Two Wheels
Style	Four Wheel

* **Approximate weight. Actual weight may vary according to options on your machine. Actual weight of your machine is as stenciled.**

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OPERATION



GENERAL

DO NOT use this equipment for operations other than for which it was intended.

FRA regulations require that a copy of this Operation Manual be kept on the equipment at all times. Additional copies of the Operation Manual only can be ordered from Nordco Parts Sales at 1-800-647-1724.

Carefully read all safety messages in this manual and on the decals located throughout the equipment. Learn how to operate the equipment and how to use controls properly.

ABOUT THIS EQUIPMENT

The rail train is capable of moving a maximum of 8 rails at a time. The carts are design to handle a specific weight. Any size rail up to 136 lbc can be used with the carts. The longer the rail, more roller carts with and without brakes are required.

Carts are numbered consecutively and should be assembled in numerical order behind the host machine that will be supplying pneumatic power to the carts.

The carts are held together for high speed travel to the jobsite using the towbars supplied with each cart.

Once at the jobsite, the towbars are removed and stored and the carts moved to the correct spacing for the length of rail being moved.



Maximum Distance between carts is 40 feet. Anything more than that will cause the load to become unstable.

There are three types of carts:

1. *Hold Down Cart w/Brakes (#01)*
2. *Roller Cart with Brakes*
3. *Roller Cart without Brakes*

These carts are assembled to the host machine in the order shown above.

The longer the rail being transported using these carts, the more brake carts required.

The pneumatic hoses provided with the carts allow the carts to be spaced up to 40 feet apart in the train. It is suggested that the pneumatic hoses be tied off to the spine rail (center rail holding all the carts together) using cable ties.

In the event of the rail carts becoming disconnected from the host machine during travel, the gladhand connections will provide failsafe application of the braking systems on the carts.

Multiple carts throughout the train should have the rail bound to the carts by means of chains and binders. This allows rail to move as needed, but not slip off the train due to a sudden stop or start.

The carts with brakes are hosed in series with the emergency, or parking side setup with free flowing air fittings. So at any giving time, if a cart or carts should become separated, the air will blow down setting brakes on all the carts. Approximately 70psi of air pressure will release the brakes enough for travel. The optimal air pressure to run is 125psi. Air pressure is needed to release the brakes. The service side or pedal side of the brake system is setup with a quick exhaust valve. After applying the brakes to slow the train, air is quickly dumped out of each cart, so movement can occur more rapidly.

Always operate at slow controlled speeds. Never exceed 10 mph travel, with or without rails.

Hold Down Cart with Brakes



HOLD DOWN CART

The hold down cart is always the first cart of the train. This cart is always numbered 01 on the side of the cart.

The hold down cart has no rollers and is used to hold the rails in place during travel. The rails are

clamped to the cart using the rail clips shown.

Roller Cart with Brakes



CART WITH BRAKES

The roller cart with brakes contain 8 rollers and a center spine for holding the carts together. This cart has a braking system that is connected to the Hold Down cart through a series of red and blue hoses connected to Glad Hands. These carts ALWAYS follow the Hold Down Cart.

Roller Cart without Brakes

The roller cart without brakes is identical to the roller cart with brakes with the exception that it has no braking capability. These are the last carts in the train.

DETERMINING AMOUNT OF CARTS NEEDED


It also requires that you know the amount of carts you will need, and the distance between the carts that is allowable. **Refer to the Charts on the following pages for cart requirements and for capacity requirements.** The first chart is used to determine the spacing of the cart based on Rail Size and the amount of rails being transported. The second chart tells you how many carts you will need based

Note: The amount of carts with brakes (including the Hold Down Cart) should match the amount of carts without brakes. If you need 20 carts for the length of the rail, you will need the Hold Down Cart with Brakes, 9 Roller Carts with Brakes, and 10 Roller Carts without Brakes).

		40 Foot Spacing of Carts - Number of Rails Being Moved							Weight
		Shown Includes Spine Rail							
Rail Size	40 Ft Section Weight	1	2	3	4	5	6	7	8
90	1197	2394	3591	4788	5985	7182	8379	9576	10773
100	1330	2660	3990	5320	6650	7980	9310	10640	11970
115	1530	3059	4589	6118	7648	9177	10707	12236	13766
132	1756	3511	5267	7022	8778	10534	12289	14045	15800
136	1809	3618	5426	7235	9044	10853	12662	14470	16279
140	1862	3724	5586	7448	9310	11172	13034	14896	16758
152	2022	4043	6065	8086	10108	12130	14151	16173	18194
155	2062	4123	6185	8246	10308	12369	14431	16492	18554

		35 Foot Spacing of Carts - Number of Rails Being Moved							Weight
		Shown Includes Spine Rail							
Rail Size	35 Ft Section Weight	1	2	3	4	5	6	7	8
90	1050	2100	3150	4200	5250	6300	7350	8400	9450
100	1167	2333	3500	4667	5833	7000	8167	9333	10500
115	1342	2683	4025	5367	6708	8050	9392	10733	12075
132	1540	3080	4620	6160	7700	9240	10780	12320	13860
136	1587	3173	4760	6347	7933	9520	11107	12693	14280
140	1633	3267	4900	6533	8167	9800	11433	13067	14700
152	1773	3547	5320	7093	8867	10640	12413	14187	15960
155	1808	3617	5425	7233	9042	10850	12658	14467	16275

		30 Foot Spacing of Carts - Number of Rails Being Moved							Weight
		Shown Includes Spine Rail							
Rail Size	30 Foot section Weight	1	2	3	4	5	6	7	8
90	900	1800	2700	3600	4500	5400	6300	7200	8100
100	1000	2000	3000	4000	5000	6000	7000	8000	9000
115	1150	2300	3450	4600	5750	6900	8050	9200	10350
132	1320	2640	3960	5280	6600	7920	9240	10560	11880
136	1360	2720	4080	5440	6800	8160	9520	10880	12240
140	1400	2800	4200	5600	7000	8400	9800	11200	12600
152	1520	3040	4560	6080	7600	9120	10640	12160	13680
155	1550	3100	4650	6200	7750	9300	10850	12400	13950

 Indicates that at the rail size, you will be exceeding the weight limitation of the cart.

Number of carts required

Spacing*	Rail Length (Feet)	Carts
30	1900	63
35	1900	54
40	1900	48
30	1850	62
35	1850	53
40	1850	46
30	1800	60
35	1800	51
40	1800	45
30	1750	58
35	1750	50
40	1750	44
30	1700	57
35	1700	49
40	1700	43
30	1650	55
35	1650	47
40	1650	41
30	1600	53
35	1600	46
40	1600	40
30	1550	52
35	1550	44
40	1550	39
30	1500	50
35	1500	43
40	1500	38
30	1450	48
35	1450	41
40	1450	36
30	1400	47
35	1400	40
40	1400	35
30	1350	45
35	1350	39
40	1350	34
30	1300	43
35	1300	37
40	1300	33

Spacing*	Rail Length (Feet)	Carts
30	1250	42
35	1250	36
40	1250	31
30	1200	40
35	1200	34
40	1200	30
30	1150	38
35	1150	33
40	1150	29
30	1100	37
35	1100	31
40	1100	28
30	1050	35
35	1050	30
40	1050	26
30	1000	33
35	1000	29
40	1000	25
30	950	32
35	950	27
40	950	24
30	900	30
35	900	26
40	900	23
30	850	28
35	850	24
40	850	21
30	800	27
35	800	23
40	800	20
30	750	25
35	750	21
40	750	19
30	700	23
35	700	20
40	700	18
30	650	22
35	650	19
40	650	16

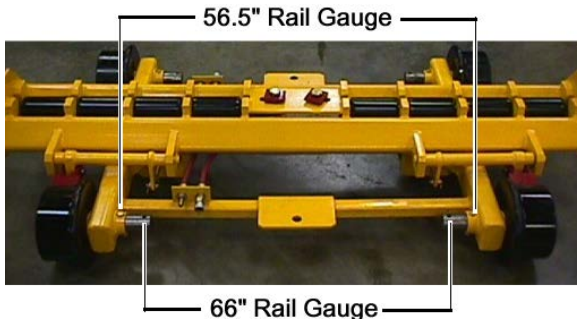
Cart Spacing is Determined by the Rail Size Shown on Next Page

SETUP

Before the carts can be put on the rail, the correct rail gauge has to be selected, and the wheel axles adjusted accordingly:

RAIL GAUGE ADJUSTMENT

The Rail Train Cart can be adjusted to work on two different rail gauges: 56.5" and 66" inch gauge.



If you can see the hole in the axle shaft from inside the cart frame, this means that the gauge is set at 56.5". To reset to 66" inch, you will need to lift one side of the cart off the rail and remove the bolt assembly holding the axle shaft in place. Slowly slide out the wheel/axle assembly until the inner hole can be seen. Reinsert the bolt assembly, repeat procedure for each axle.

These bolts need to be torqued to:

TRANSPORTING TO SITE:

Place the carts on the rail in the following order:

1. Hold Down Cart with Brakes (#01)
2. Roller Carts with Brakes
3. Roller Carts without Brakes

Install the towbars between the carts and tow to site.

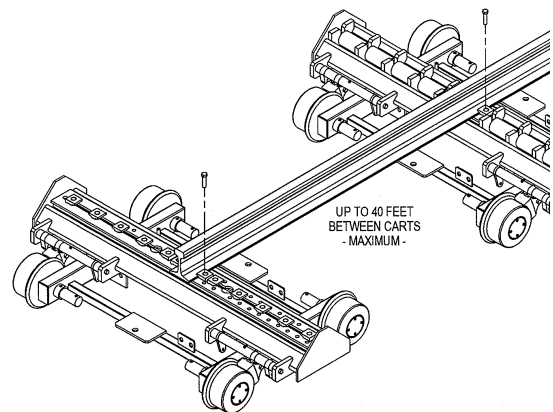
SETTING UP CARTS

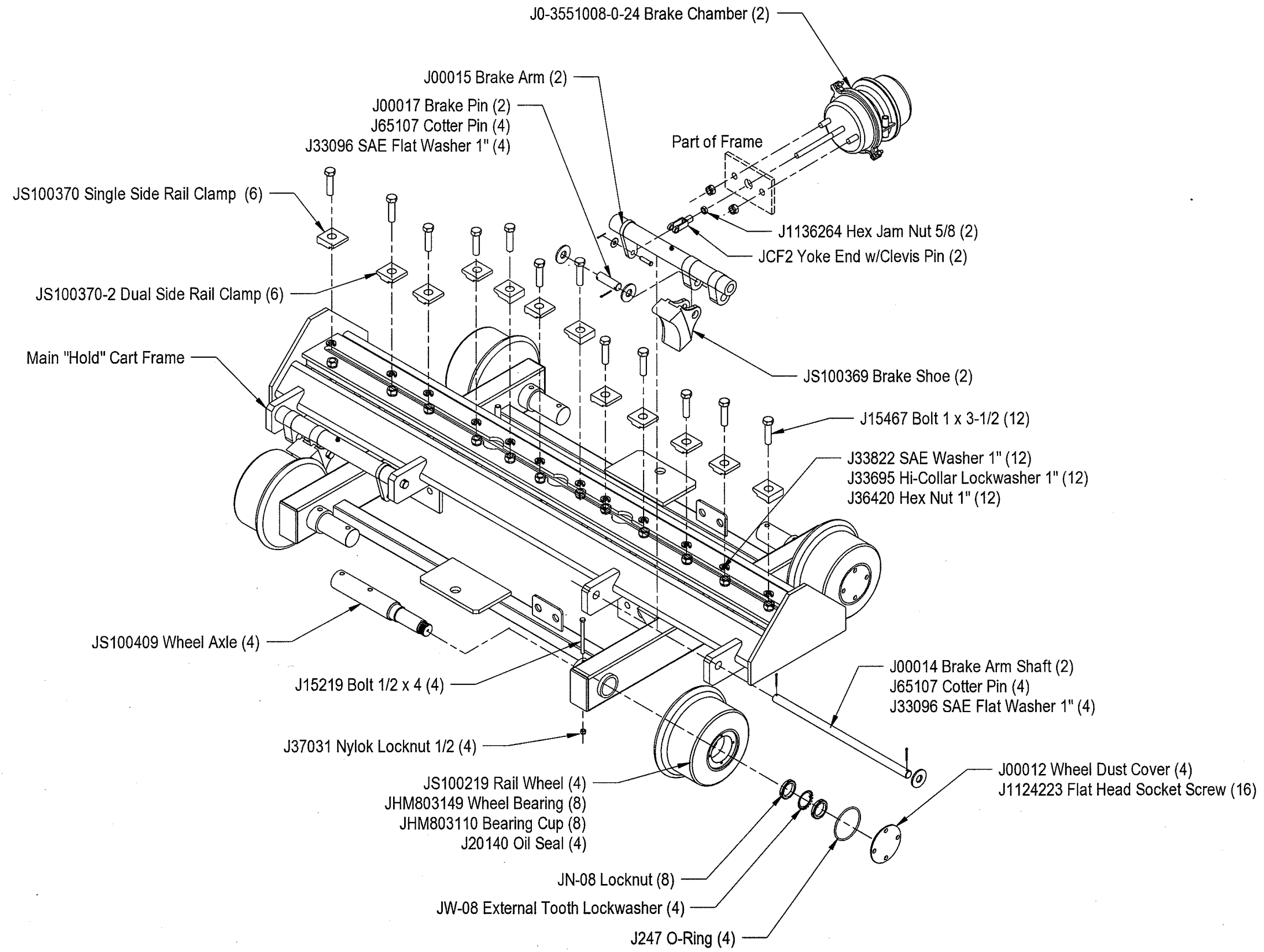
Setting up the carts requires a minimum of two workers, one at the command station on the host machine, the other walking along side the train of carts.

Once you have neared the area where the rails will be lifted onto the carts, you can begin removing towbars and separating the carts as follows:

1. Stop the host machine.
2. At the farthest cart in the train, remove

- the towbar and leave cart in place.
3. Signal to the command of the host machine to move remainder of train so that the distance between carts is the distance determined by the size and length of the rail.
4. Stop the host machine.
5. Repeat Steps 2 through 4 as needed until you reach the Roller Carts with Brakes.
6. Remove the towbar and install the two pneumatic hose/glad hand connectors on the cart.
7. Signal to the command of the host machine to move machine to the next location. Bring other end of hoses with you.
8. Stop the host machine.
9. Remove the towbar and connect the hoses from the previous cart to the new cart. Install the new hoses to connect to the next cart.
10. Repeat Steps 7 through 9 for each Roller Cart with brakes until you reach the Hold Down Cart.
11. Stop the host machine.
12. Connect the pneumatic lines between the host machine and the Hold Down Cart.
13. Place a rail the length of that being transported down the centerline of the carts and tighten the spine clamps on each of the carts.
14. Connect all the pneumatic hose glad hands to all the brake carts and to the host machine.
15. If necessary, use cable ties to hold the pneumatic hoses off the ground when shorter cart spacing is needed.





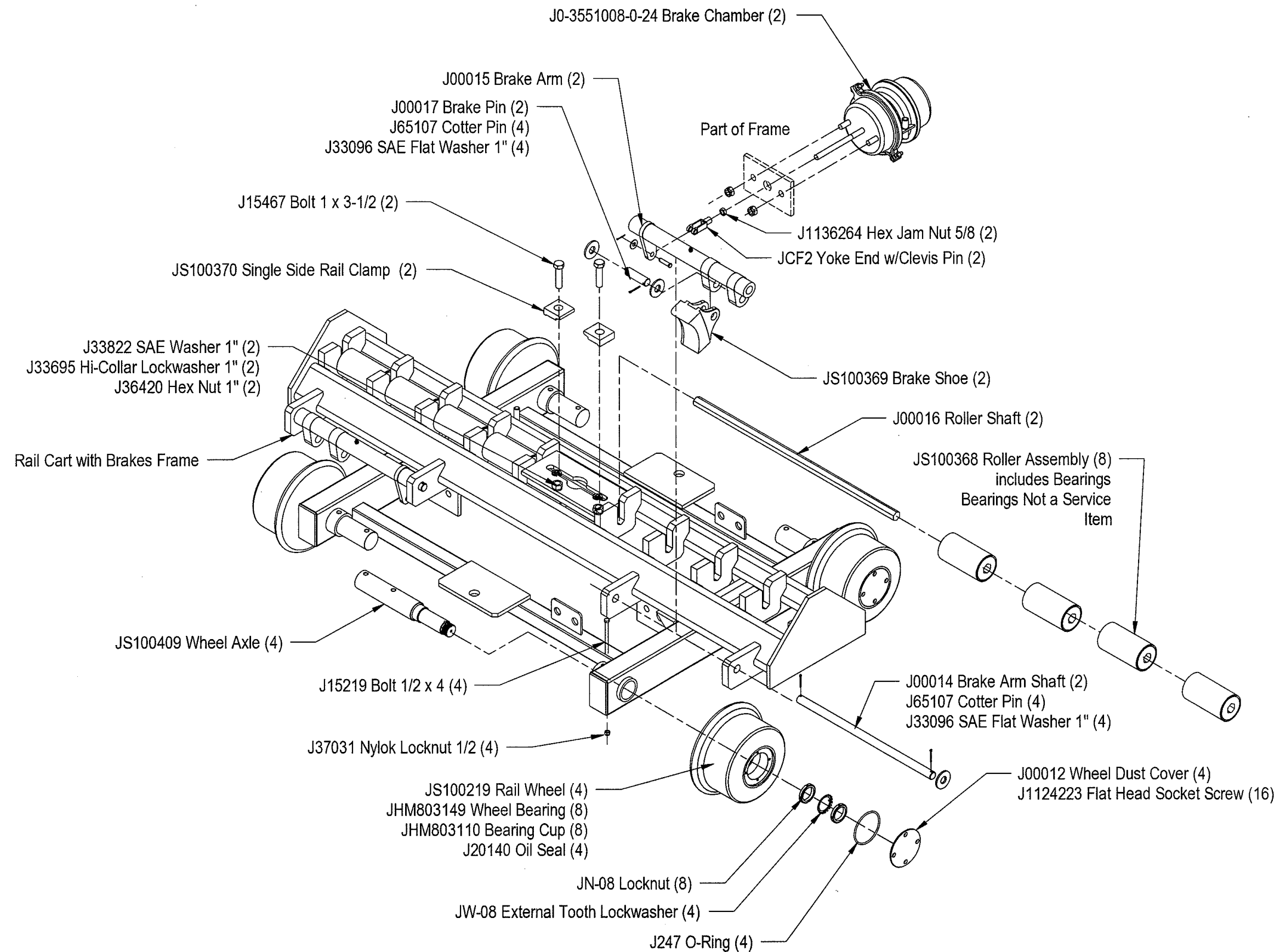
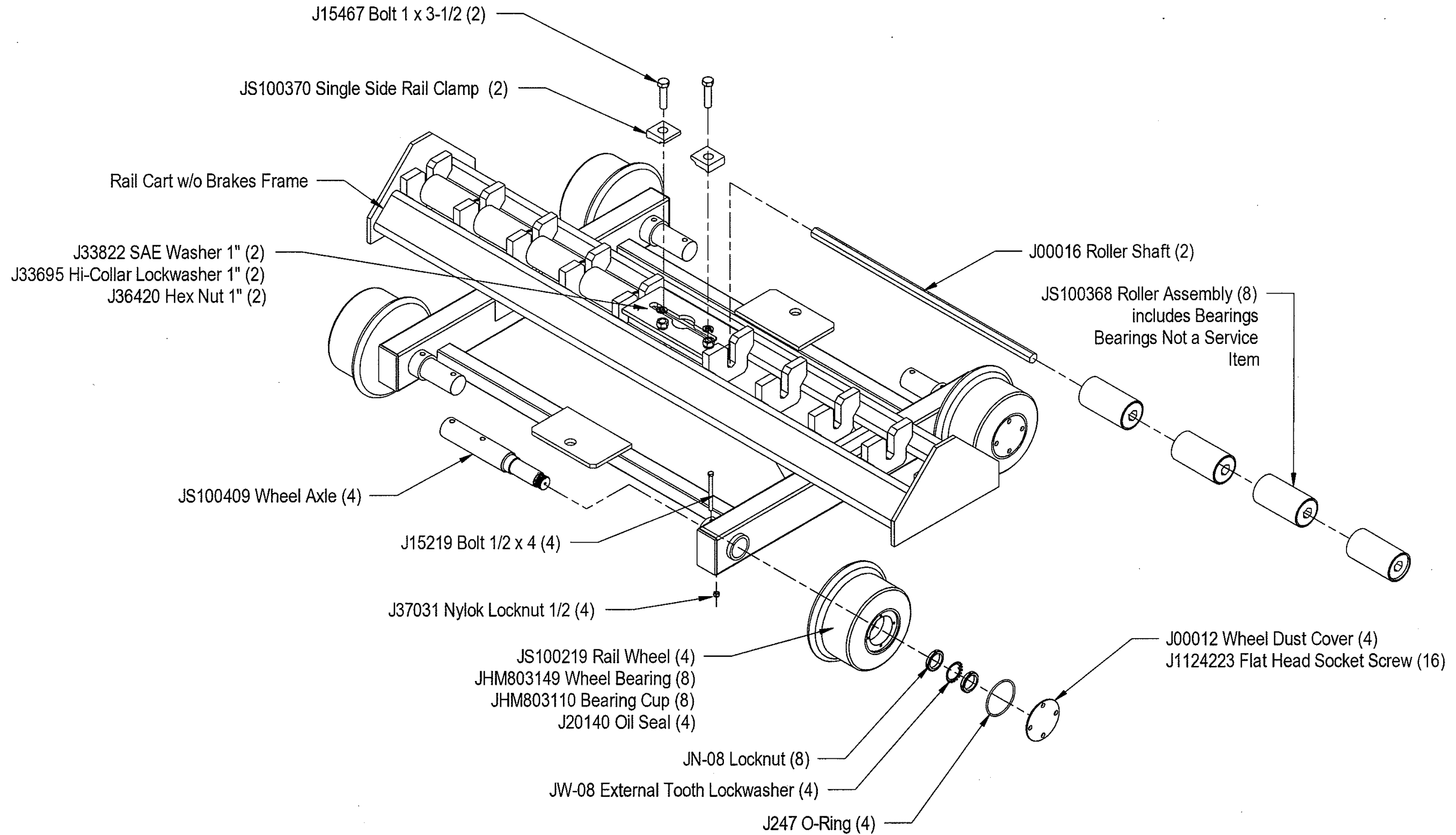


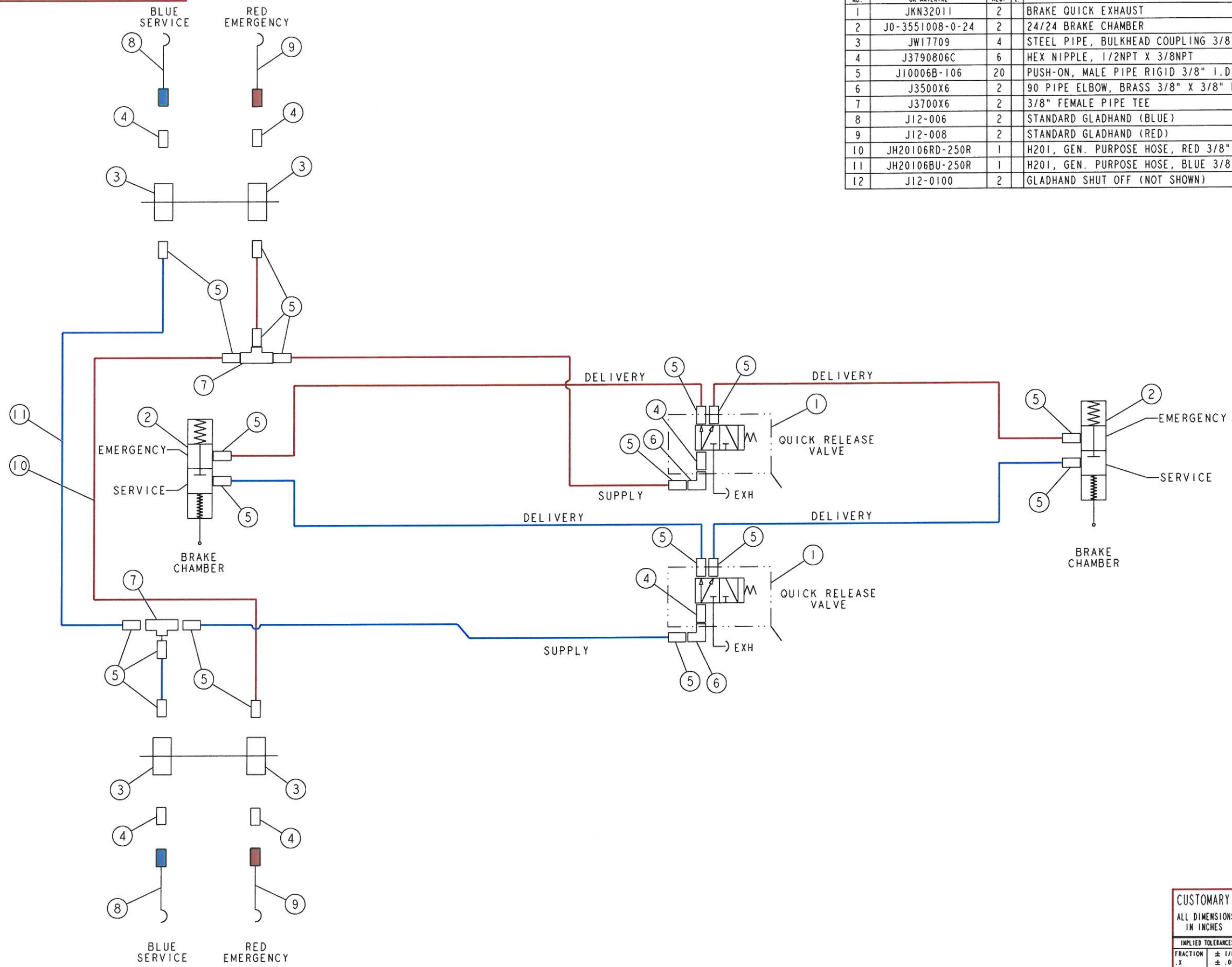
FIGURE 3. RAIL CART WITHOUT BRAKES



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BILL OF MATERIALS

ITEM NO.	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME
1	JKN32011	2	BRAKE QUICK EXHAUST
2	JO-3551008-0-24	2	24/24 BRAKE CHAMBER
3	JW17709	4	STEEL PIPE, BULKHEAD COUPLING 3/8" FEMALE PIPE THREAD
4	J3790806C	6	HEX NIPPLE, 1/2NPT X 3/8NPT
5	J10006B-106	20	PUSH-ON, MALE PIPE RIGID 3/8" I.D. HOSE TO 3/8" PIPE
6	J3500X6	2	90 PIPE ELBOW, BRASS 3/8" X 3/8" FEMALE PIPE
7	J3700X6	2	3/8" FEMALE PIPE TEE
8	J12-006	2	STANDARD GLADHAND (BLUE)
9	J12-008	2	STANDARD GLADHAND (RED)
10	JH20106RD-250R	1	H201, GEN. PURPOSE HOSE, RED 3/8" I.D. X 5/8" O.D., (18 FT APPROX.)
11	JH20106BU-250R	1	H201, GEN. PURPOSE HOSE, BLUE 3/8" I.D. X 5/8" O.D., (18 FT APPROX.)
12	J12-0100	2	GLADHAND SHUT OFF (NOT SHOWN)

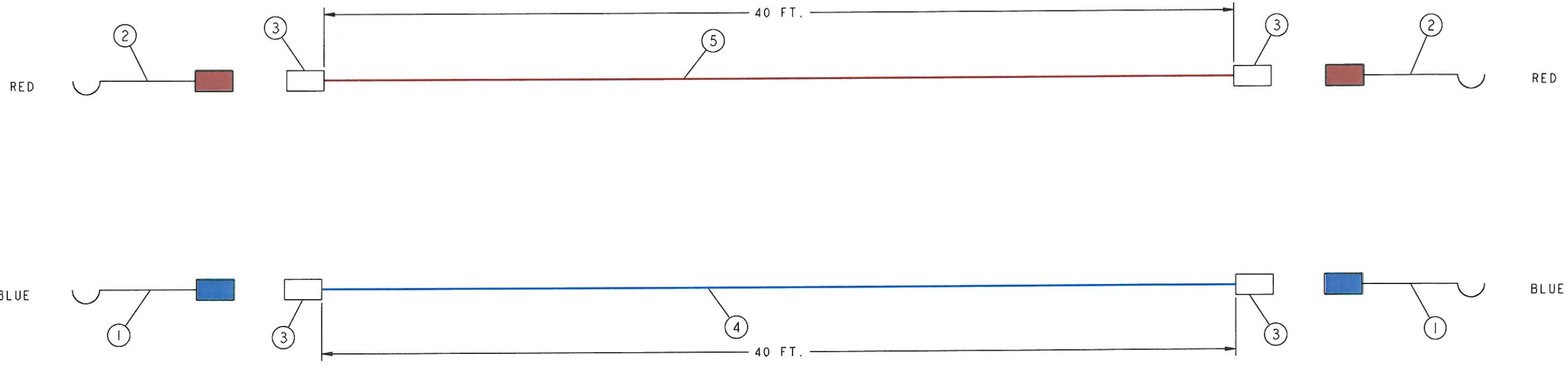


CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: MINI RAIL TRAIN			
FRACTION	± 1/8	DESCRIPTION: AIR BRAKE SCHEMATIC			
.X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV.
.XX	± .03	D	NTS	J00013	-
.XXX	± .010	ASSEMBLY: -		SHEET 1 OF 2	

NEW ISSUE	DATE: 16-Jul-12	CHECKED BY:	DATE:	DATE:	DATE:
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BILL OF MATERIALS				
ITEM NO.	PART NUMBER OR MATERIAL	QTY. REQ.	UNIT	PART NAME
1	J12-006	2		STANDARD GLADHAND (BLUE)
2	J12-008	2		STANDARD GLADHAND (RED)
3	JPM-16	4		1/2" NPT X 3/8" PUSH ON HOSE BARB
4	JH20106BU-250R	1		H201, GEN. PURPOSE HOSE, BLUE 3/8" I.D. X 5/8" O.D., 40 FT.
5	JH20106RD-250R	1		H201, GEN. PURPOSE HOSE, RED 3/8" I.D. X 5/8" O.D., 40 FT.



CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: MINI RAIL TRAIN			
FRACTION	± 1/8	DESCRIPTION: AIR BRAKE SCHEMATIC			
.X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV.
.XX	± .03	D	NTS	J00013	-
.XXX	± .010	ASSEMBLY: -		SHEET 2 OF 2	