



"LOADING PIT" MANUAL  
SECOND PRINTING

Written and compiled by:

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Raymond Zoerb

Issued to: \_\_\_\_\_

This manual is a report on the loading pit now in use at Sandia Base. All the latest changes and developments to date have been added with photostatic reproductions of these changes.

RZ/evl

I. APRON SPECIFICATIONS

The concrete apron surrounding the pit will be built 120' wide and 150' long, with a taxi strip (suggested 65' wide) entering the apron on a 120' side. This taxi strip is offset so that it is 17' from the right side when looking from the apron onto the taxi strip. The design loads and concrete used in this apron must meet the following specifications or equivalent for B-29 use:

**Subgrade** - Scarify to a depth of 9", compact this 9" to minimum of 95% of optimum density. Surface of prepared subgrade to be within  $-\frac{1}{4}$ " of established grade. Surface of sub-grade to be tight and moist at time of concrete pour.

**Concrete Slab** - Concrete mix design shall be such as to obtain a minimum strength of 4500 lbs. per sq. inch in compression at 28 days. Design shall be based upon maximum aggregate size not to exceed 2 inches. Total available free water (aggregate surface moisture included) not to exceed 6.3 gallons per bag of cement and a minimum of  $5\frac{1}{2}$  bags of cement per cu. yard. Fine grind or high early strength cements shall not be used without prior approval.

**Placement** - Concrete shall be placed in accordance with standards of good practice. If hand tamping is used it shall be sufficient to assure a minimum of honeycomb or voids. If mechanical vibrators are used excessive vibration shall be avoided to prevent segregation. After proper compaction, floating and straight-edging the slabs shall be given a final belt finish.

**Curing** - Shall be by use of an approved curing compound, or by the use of wet earth, mats, or flooding. Application of the curing method

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selected shall begin as soon as possible after the belt finish has been applied. Care must be taken that the surface is firm enough to prevent damage to the finish by the curing process. Curing shall continue for a minimum period of seven days immediately following the pour.

Jointing - All joints and cracks and checks shall be thoroughly cleaned of dirt, gravel, and misplaced concrete. At intersections of joints special care shall be taken to have the joints free and open. After the joints have been thoroughly cleaned the joints shall be given a prime coat of cut back asphalt. When the prime coat has cured to a tacky consistency the joints shall be poured full of a hot bituminous jointing compound. Care shall be taken to prevent loose gravel from falling into the joints before sealing. After the jointing compound has cooled it will be necessary to again go over the joints with the sealing compound to fill up any depressions in the joints.

The attached print illustrates the plan layout of the concrete apron with pit and shelter.

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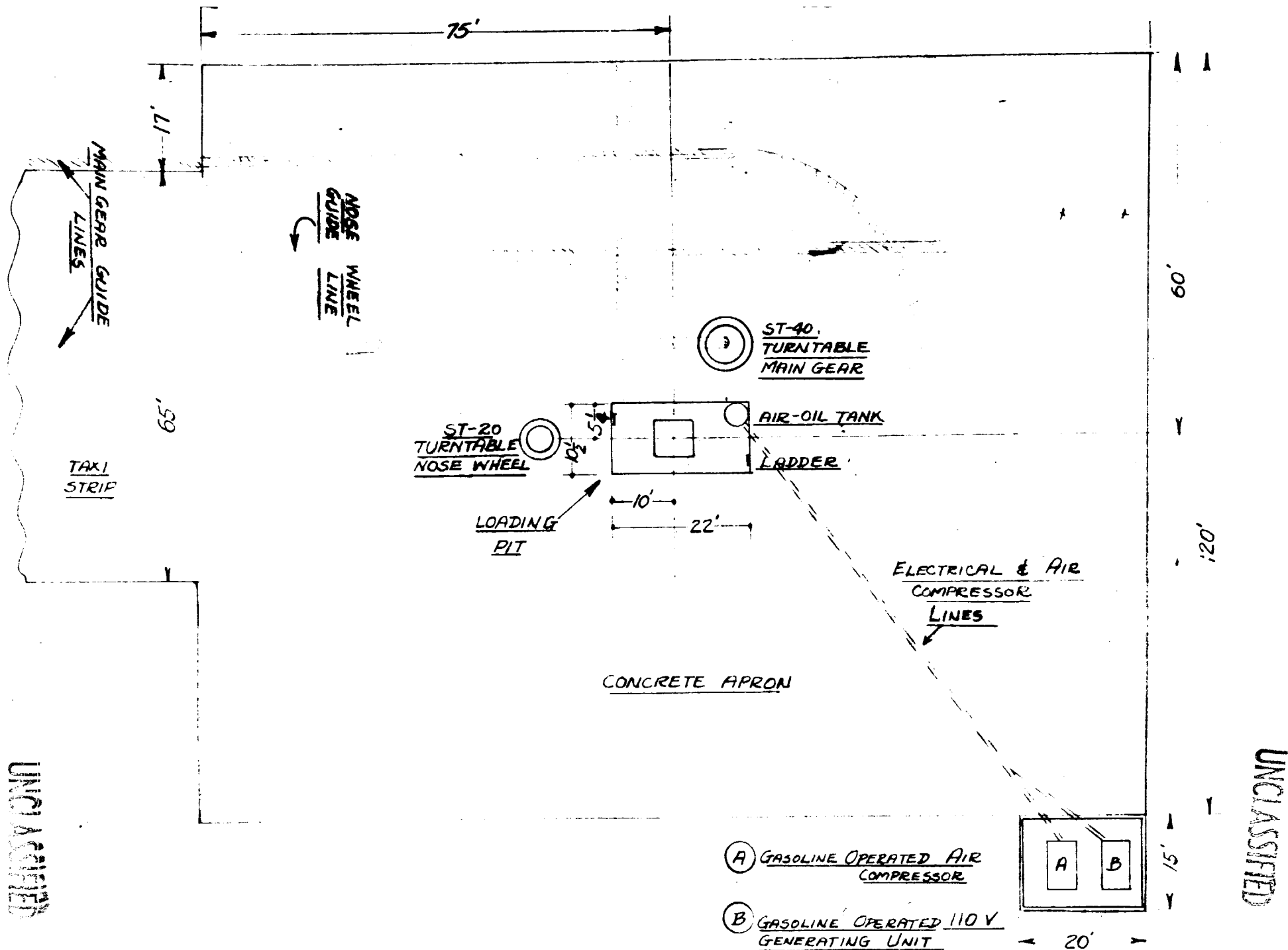


DIAGRAM OF AREA (TAXI STRIP & APRON)

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II. PIT SPECIFICATIONS

The center of the pit is located 75' from the 120' opening into the taxi strip and 60' from a 150' side. The inside dimensions of the pit are 10'-6" <sup>+0-1</sup> wide, 22' long, and 7'-6" deep. There are 4 concrete blocks on the floor of the pit, which are 18" high, 30" wide, and 30" long. These blocks are for the purpose of supporting the transport trailer and their placement is shown on an attached drawing. A 4 x 4 angle is imbedded in the concrete on the 22' side edges to reinforce same for truss treadways. These angles must be flush with the ground level. The concrete used in this construction should meet the specifications for the apron.

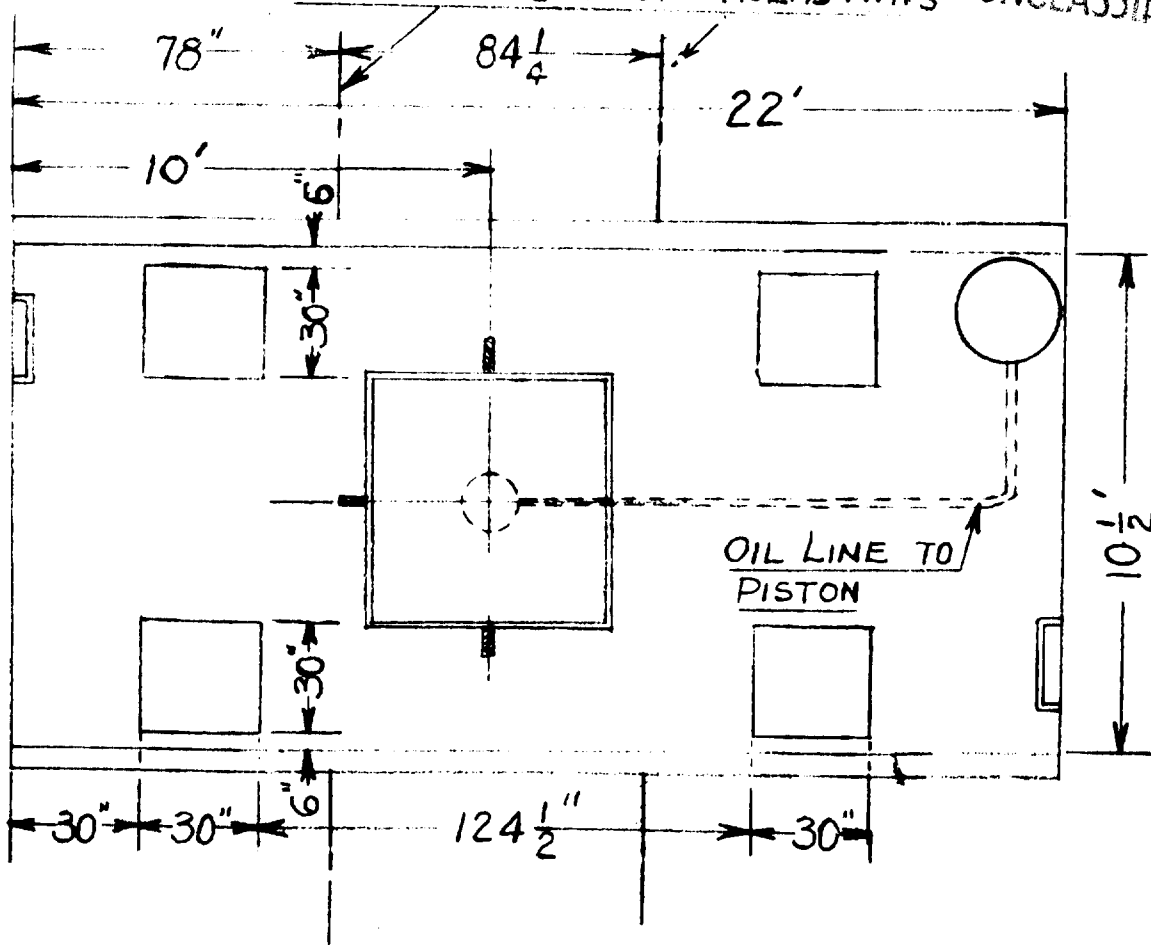
The center of the hoist is located 10' from the 10 $\frac{1}{2}$ ' side nearest the taxi strip and 5 $\frac{1}{2}$ ' from a 22' side. Drainage for the entire pit will be provided by sloping the floor evenly towards the hoist, to an outlet which will drain through a pipeline to a natural or dugout depression. The footing at the pit bottom should be of sufficient strength to hold 17,000 lbs. Two steel ladders in the pit are 1' wide and placed on the 10 $\frac{1}{2}$ ' walls, 1' away from the 22' sides in the positions shown on attached drawing. The air-oil reservoir is placed in the pit in either corner furthest away from the taxi strip.

The attached print illustrates the relative placement of all important components of the pit.

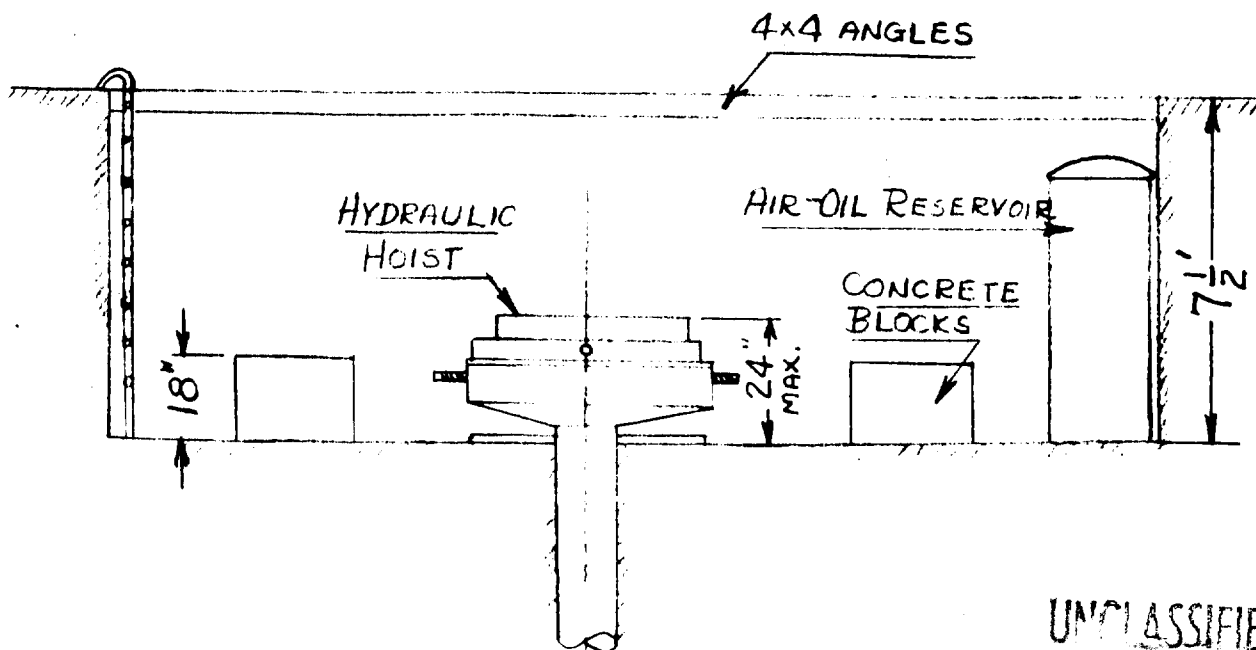
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6" WIDE PAINTED GUIDE LINES  
FOR PLACEMENT OF TREADWAYS

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LOADING PIT



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~~UNCLASSIFIED~~III. HYDRAULIC HOIST

The hydraulic hoist must have a lifting capacity of 17,000 lbs. and the units in use at present were built by the Joyce-Gridland Co. of Dayton, Ohio. The AAF Drawing No. of this hoisting unit is 1500. For general information on the present hoist refer to the attached Joyce Hydraulic Materialifts Manual #10, page 21 through 30. The control mechanism and general layout of the air-hydraulic hoist is illustrated on the attached prints. A schematic diagram of the hoist piping is also attached to this letter.

The instructions for installation, operation, and maintenance for AAF Special Traversing Platform Lifts are as follows:

A. INSTALLATION

1. Hydraulic fluid should be petroleum oil having a viscosity of 100 seconds at 100°F and a pour test of minus 30° zero F. Tank supplied with lift should be filled to within 3" from the top of the tank as measured at the filler hole. This is equivalent to a light engine oil SAE 10 or lighter. Be sure the tank has a capacity of 130 gal. of oil or greater.
2. Air supply for operation of the Jacking Unit and controls shall have a minimum pressure of 150 psi and a maximum not to exceed 250 pounds.
3. Hydraulic Fluid Piping-Hydraulic Fluid piping from the Jacking unit to the control valve on tank shall be the 1½ pipe size with a reducer connection to 1" pipe size at the valve. The hydraulic piping should have the union placed at suitable location for ease of assembly and disassembly.

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4. Air Piping. The air control connections are shown on sheet 1154-G. The air supply line should be 1" up to the tank, 3/8" lines may be carried from the tank control mechanism to the lift location from which point 1/2" couplers. The control hose valve and coupler assembly is shown also on sheet 1154-G. The coupler connecting the hose to the stationary air piping may be mounted in a floor box if desired, and the hose and valve assembly removed when not in use.

#### B. OPERATION

To raise the lift squeeze the valve marked "UP" on the hand control assembly shown on sheet 1154-G. This allows the air pressure to flow into the valve actuating cylinder mounted on the tank. The air cylinder piston opens the combination air and oil valve, allowing air to enter the top of the tank above the oil while also opening the oil control portion of the valve, allowing the oil to flow into the jacking unit; thus raising the lift. Releasing the remote control valve allowing the spring loaded cylinder mounted parallel to the air cylinder, to close the combination air oil valve. Closing of the oil section of the valve which is of the gate type automatically locks the lift on a column of oil at any point in its level.

Pressing the remote control valve marked "DOWN" reverses the air cylinder on the tank resulting in a reversal of the combination of oil and air valves, allowing the air pressure to exhaust from the tank through the muffler and allowing the oil to flow back from the jacking unit into the tank. Releasing the remote control down valve, exhausts the air from the air cylinder allowing the spring loaded cylinder to close the valve at any point in its travel. A major point to be stressed is the correct method of manipulating the remote controls to assure

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positive action. When the load being handled is expected to descend the remote control "down" valve should be opened only half way to allow the air over the oil to be exhausted before allowing the oil to rush back into the air-oil tank. If the valve is opened all the way immediately, the air pressure in the tank is sufficient to raise the load a ways before it starts its downward motion. This is true about control of the unit when attempting to raise the load too because the air pressure has to be built up before the hoist will rise.

A print of the remote control system accompanies this discussion.

### 1. PLATFORMS

The platform object mounting plate may be moved in any horizontal direction a distance of 6" from the center by turning the hex head screws projecting from two sides of each platform section with 1" hex ratchet wrenches supplied with lift.

### 2. AIR-OIL RESERVOIR TANK

The air-oil tank provided with the original unit did not have adequate capacity for the oil necessary in the complete 11 ft. rise. The tank, therefore, has been reworked as per drawing #S-126 which is included in this manual.

### C. MAINTENANCE OF HYDRAULIC HOIST

1. Jacking Unit - The only maintenance required by the jacking unit is the addition of a light gun grease in the packing. If the large cylinder should stick, the situation can be corrected by packing out the packing gland ring screws  $\frac{1}{4}$  turn at a time and checking for sticking conditions.

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2. Replacement of Packings - Packing may be replaced without removal of the rams from their cylinder by merely removing the packing gland rings and pulling the old packings out. This should be done without pressure in the cylinder.

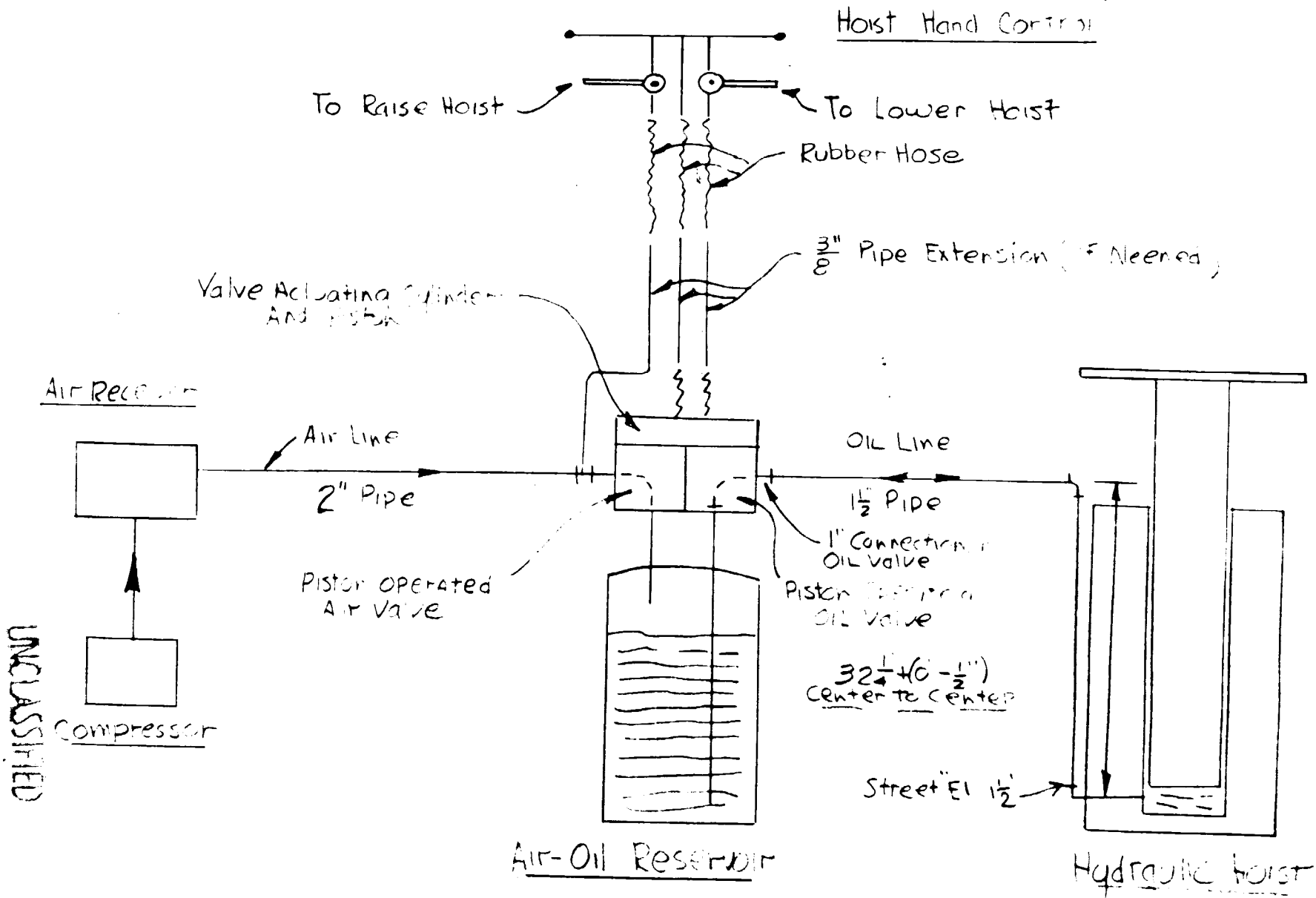
3. Platform - Only maintenance required on platforms will be an occasional cleaning and greasing of the transversing screws which move the platform. Be sure the plywood hood is placed over the hoist platform whenever same is not in use.

4. Air Tank and Equipment - Air Cylinder - Every 30 days the two hose connections on the air cylinder should be removed and a few drops of light oil squirted into the connection to lubricate the air cylinder packing piston rod. All toggle connections of the air and spring cylinders will be lubricated every 30 days by the addition of a few drops of oil. Every 30 days a light coating of grease should be applied to the cam surface of the combination air and oil valve.

5. Air and Oil Valve - Should any leakage occur around the stem of this valve, the packing gland lock nut next to the knurled packing nut may be loosened and the knurled packing tightened just tight enough to prevent leakage and still allow free movement of the valve stem under their own spring pressure. The lock nut should again be tightened.

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APPROVED FOR PUBLIC RELEASE  
DIAGRAM OF HYDRAULIC HOIST PIPING  
 (Schematic)



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## MATERIALIFT - AIR HYDRAULIC METHOD OF OPERATION

HISTORY

The JOYCE "R" Style method of lift control provides the greatest amount of flexibility, from the standpoint of the use of safety devices, than any other type of Air MATERIALIFT operation. It consists of an auxiliary extra heavy gauge welded steel standard pressure tank, which contains the oil supply for the operation of the MATERIALIFT.

ADMITTING AIR PRESSURE

Air pressure builds up in the tank on the oil when admitted from the air inlet line from the air compressor through the air-inlet air-exhaust valve (page 22).

AIR VALVE NOT SELF-CLOSING

The air valve, when admitting live air, can be locked into the "inlet" position, and it is not necessary for the operator to control the valve inlet.

RAISING THE MATERIALIFT

In order to raise the MATERIALIFT, the oil pipe hand valve (page 22) must be open. This permits the oil to flow from the tank under air pressure, up through the oil pipe line from the tank, through the oil pipe line valve and into the MATERIALIFT.

SELF-CLOSING OIL CONTROL VALVE

The operator has complete control over the lifting operation at the oil pipe line valve. It is a self-closing valve under spring pressure. This means that the instant the operator removes pressure from the handle of the valve, it springs to a closed position - thus shutting off the oil pressure of the MATERIALIFT and stopping the rise immediately.

MATERIALIFT CANNOT COAST

The MATERIALIFT CANNOT coast under air pressure, because the air pressure cannot act upon the MATERIALIFT without doing so through the oil pipe line valve.

LIMIT OF RISE

When the MATERIALIFT reaches its limit of rise, of course the pressure equalizes, the MATERIALIFT no longer moves, and the operator knows the extreme raised position has been reached.

LOWERING THE MATERIALIFT

In order to lower the MATERIALIFT, the air valve is turned to the "exhaust" position, at which point it locks. When all the air pressure is removed from the tank, the operator (by opening the oil pipe line valve) permits the oil to flow back into the tank from the weight on the MATERIALIFT.

OPERATOR HAS COMPLETE CONTROL

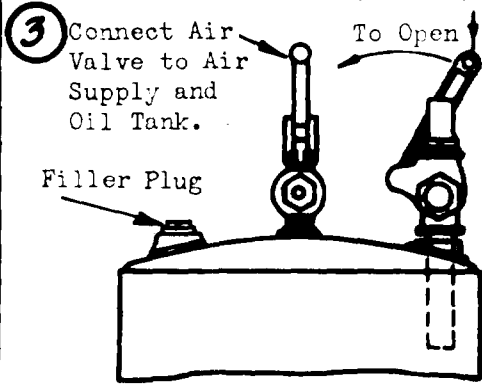
The operator has complete control over the lowering operation, just as he had over the lifting operation. Any time he removes pressure from the handle of the

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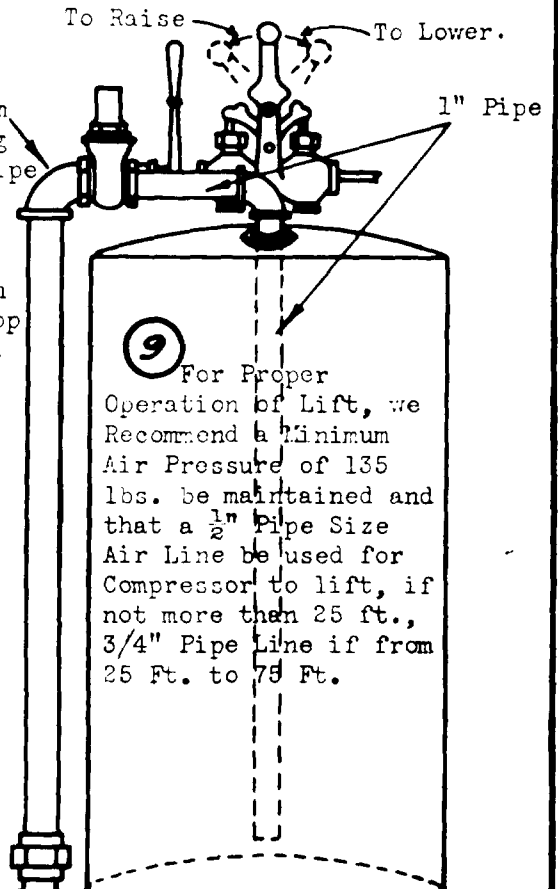
Dead Man Oil Valve Must be held open to raise or lower.

8 Set Air Valve Lever to (Exhaust) before attempting to fill Tank with Oil.

Air Valve locks in raising or lowering position.

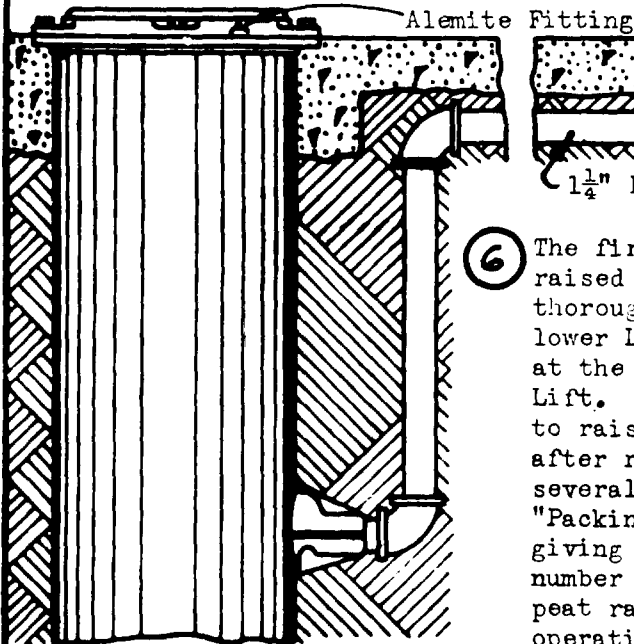


2 Finish piping from Lift to tank using 1 1/4" Extra Heavy Pipe to Oil Valve and 1" Pipe from Oil Valve to Tank. A Ground Joint Union is desirable at top of floor as shown.



4 Set Air Valve "To Lower" and fill Tank at "Filler Plug" with Oil which has a Viscosity of 100 Seconds at 100° F. and a Pour Test of 30° below 0°F. If a higher Viscosity is used the Lift will operate slow, and it may be necessary to add as much as 50% Kerosene to obtain the correct operating speed.

5 Operation:- To raise Lift set Air Valve in position shown "To Raise"-Operate Oil Valve to control raising. To lower Lift set Air Valve in position shown "To Lower". Operate Oil Valve to control lowering.



1 Locate Oil Tank which may be above or below Ground as desired.

*In State of Massachusetts, tank must be installed above ground.*

7 Always keep Tank filled with Oil. Keep Gland Grease Reservoir filled with light Cup Grease. (Fill at Alemite Fitting.) Exhaust Air may be used without lowering or effecting safety of Lift. If it is not used pipe Exhaust in Sewer to eliminate noise.

**CAUTION:** Do not attempt to raise lift without oil in same.

**AIR VALVE, OIL VALVE AND PIPING INSTALLATION.**

IN STATE OF MASSACHUSETTS, TANK MUST BE INSTALLED ABOVE GROUND.

THE JOYCE-CRIDLAND COMPANY  
DAYTON - OHIO

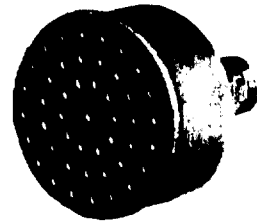
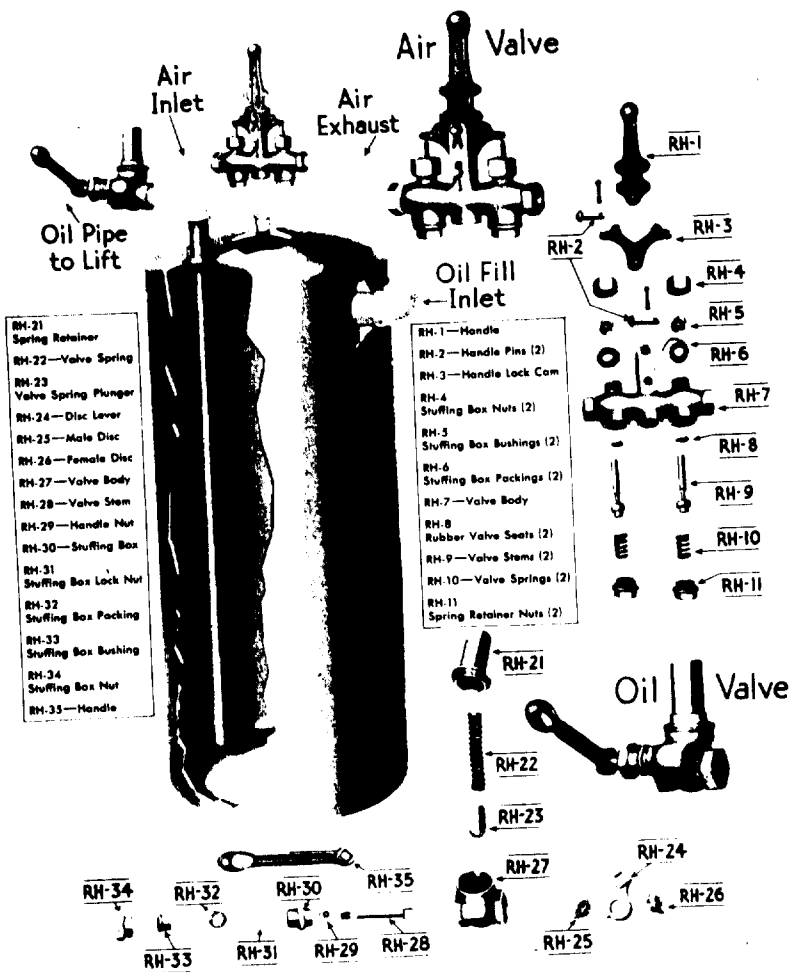
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METHOD OF OPERATION - AIR OPERATED  
"R" STYLE, REMOTE HAND CONTROL

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"R" STYLE EXHAUST MUFFLER

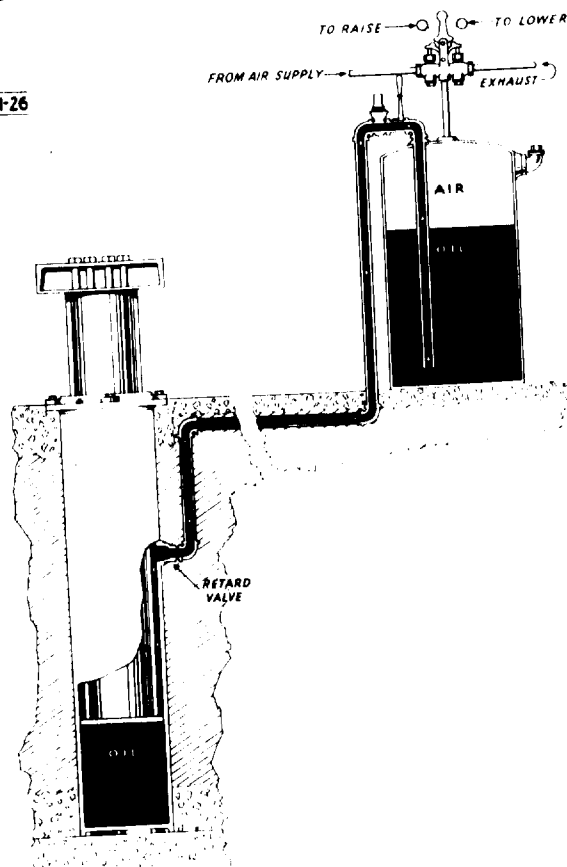
The "R" style muffler, which can be attached to the exhaust end of the air valve, effectively muffles the noise of exhausting air. Can be furnished, when specified, on "R" style MATERIALIFTS and ELEVATORS.

(Continued from page 21)

oil pipe line valve, the spring pressure closes it, and the lowering operation stops instantly. This is the one great advantage this method of operation has over all other types of air operated MATERIALIFTS.

TWO SAFETY LOCKS

Two positive safety locks are provided; first, by locking the compressed air in the auxiliary tank; and second, by locking the oil in the oil line by the oil pipe line valve -- both of which have to be manipulated before the lowering operation can commence.



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MATERIALIFT JACKING UNIT ENGINEERING DATA - FOR AIR OPERATION

Piston Diam. Inches	Capacity in Pounds - Balanced Load over Center of Piston at Air Pressure in Pounds Per Square Inch - 70% Average Efficiency												
	80	90	100	110	120	130	140	150	160	170	180	190	200
4-15/16"	1072	1206	1340	1474	1608	1743	1876	2011	2144	2279	2412	2547	2681
6 $\frac{1}{2}$ "	1857	2090	2322	2555	2787	3019	3251	3483	3716	3948	4180	4412	4645
7 $\frac{1}{2}$ "	2473	2783	3092	3402	3711	4020	4329	4638	4948	5257	5566	5875	6185
8 $\frac{1}{2}$ "	3178	3575	3972	4370	4767	5264	5562	5959	6356	6753	7250	7548 -	7945
9 $\frac{1}{2}$ "	3969	4465	5395	5457	5954	6449	6946	7442	7938	8435	8930	9426	9923
10 $\frac{1}{2}$ "	4848	5455	6061	6667	7273	7879	8486	9032	9508	10304	10910	11516	12122
12 $\frac{1}{2}$ "	6871	7734	8590	9449	10308	11167	12026	12885	13744	14603	15463	16321	17180
13-3/4"	8315	9354	10394	11433	12473	13512	14552	15591	16630	17670	18709	19749	20788
14-3/4"	9569	10764	11960	13157	14352	15549	16745	17941	19137	20333	21529	22725	23921
17-3/4"	13857	15589	17321	19054	20785	22518	24250	25982	27714	29446	31178	32911	34643

This chart for estimating purposes only. Subject to confirmation from Engineering Department, Dayton, Ohio.

To determine the proper lifting capacity for JOYCE Materialifts and elevators refer to page 42.

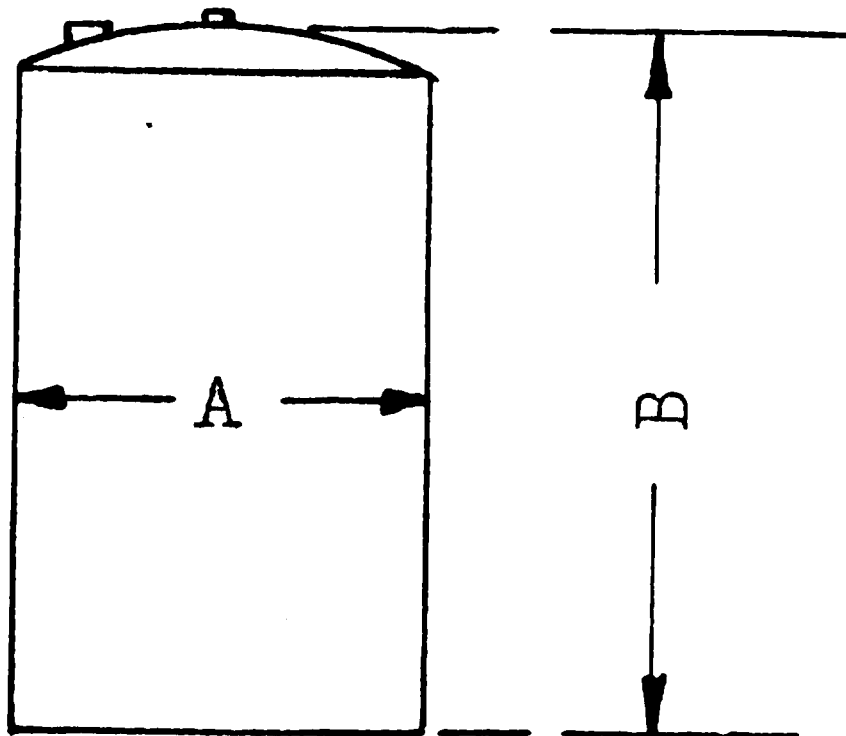
For Engineering Data concerning piston area sq. inches, quantity of oil required in gallons per foot of rise, estimated shipping weight, dimensions, and piston head bolt circle dimensions - refer to page 20.

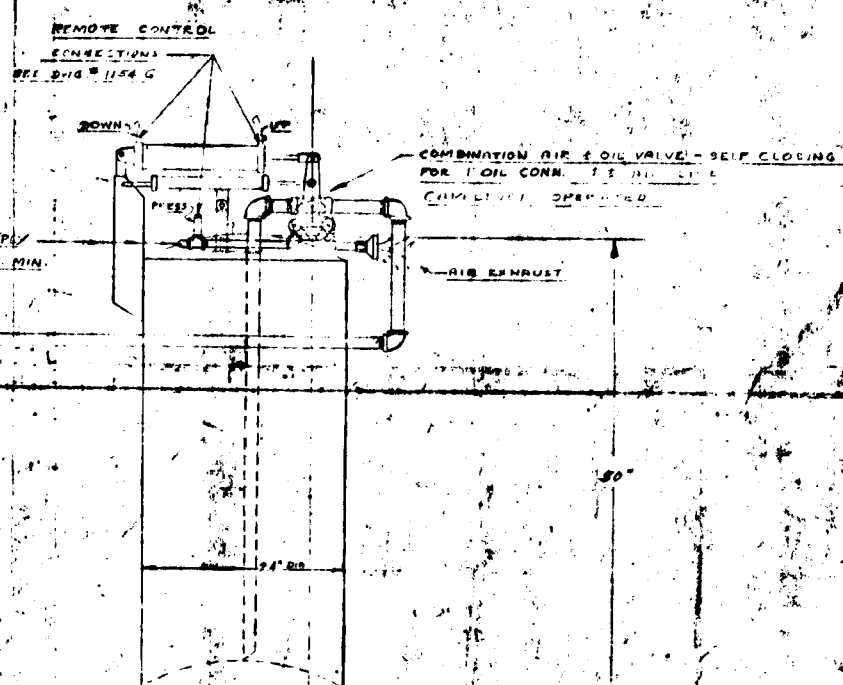
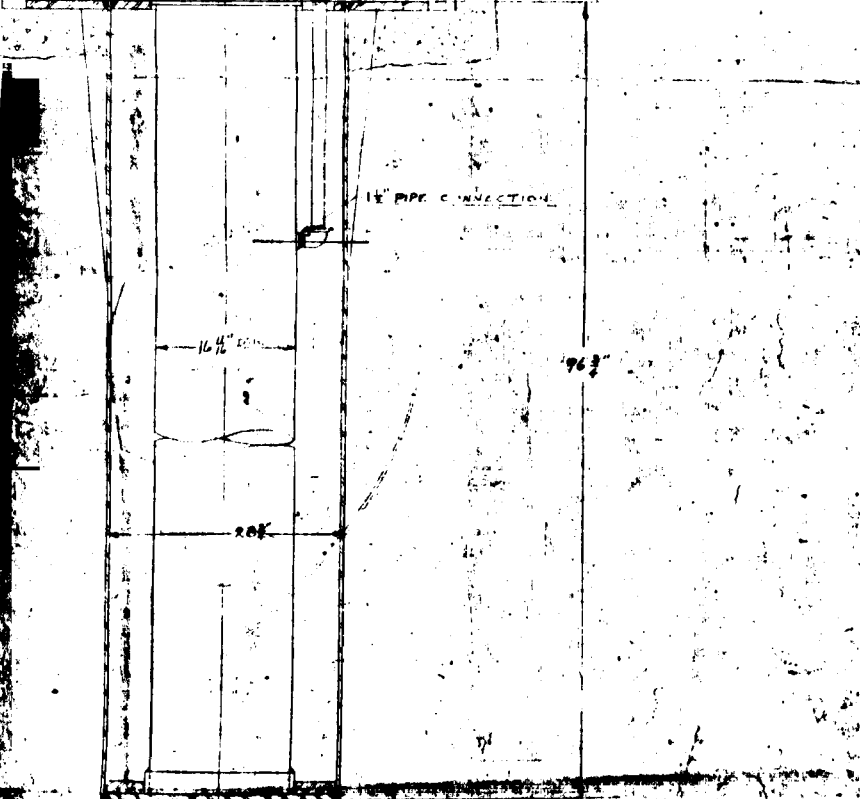
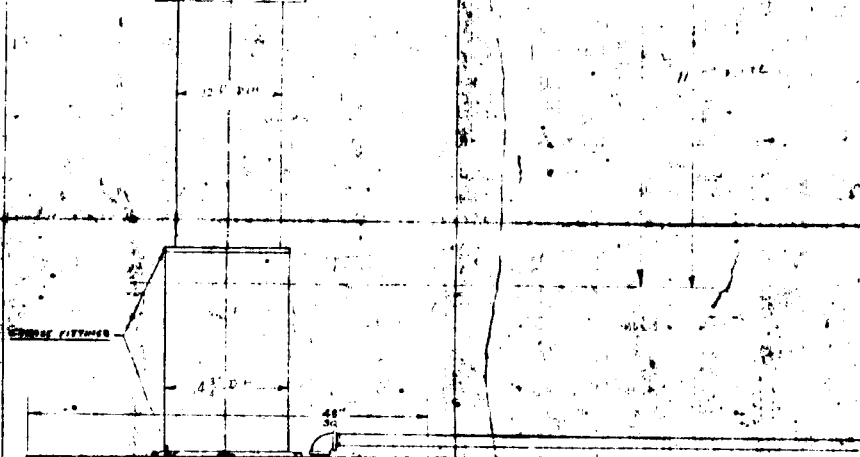
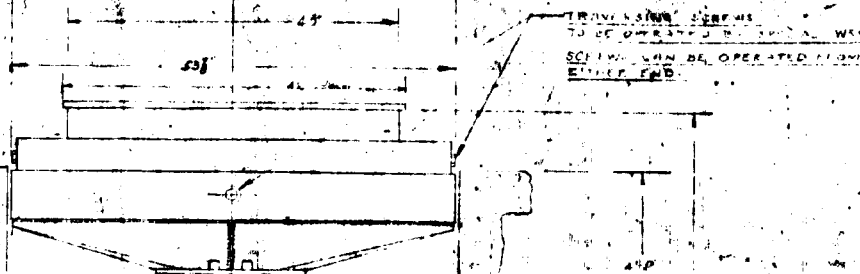
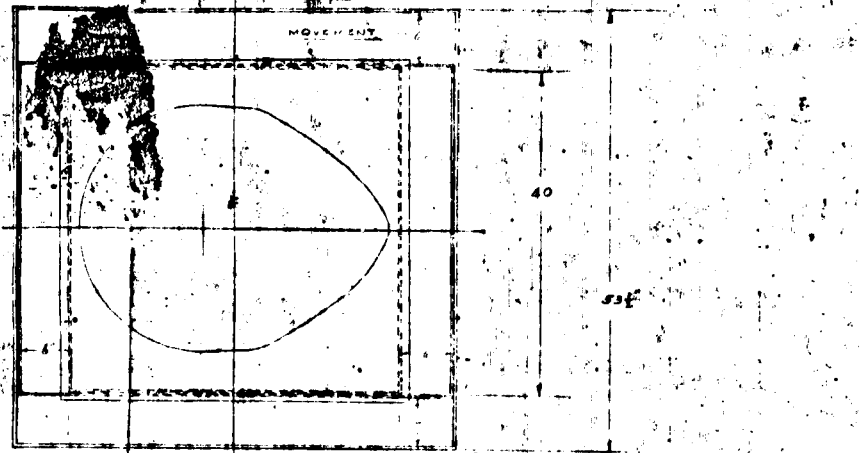
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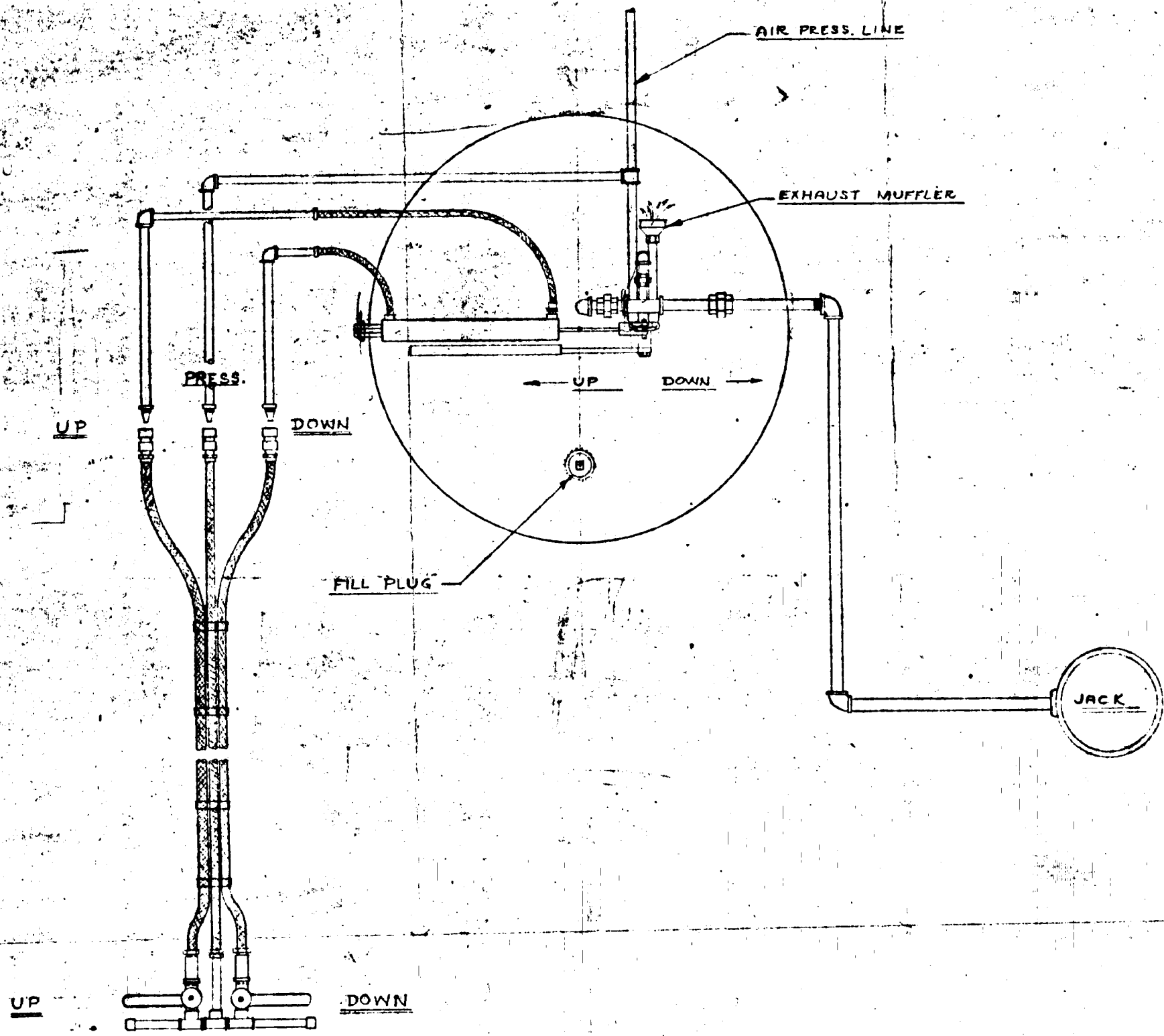


Tank Size	Capacity in Gallons	Dimensions		Est. Ship Wt.
		"A"	"B"	
1	29	16"	36"	110#
2	53	20"	42"	250#
3	75	24"	42"	420#
4	92	24"	50"	460#
5 "SANDIA CHANGE"	130	24"	70"	620#

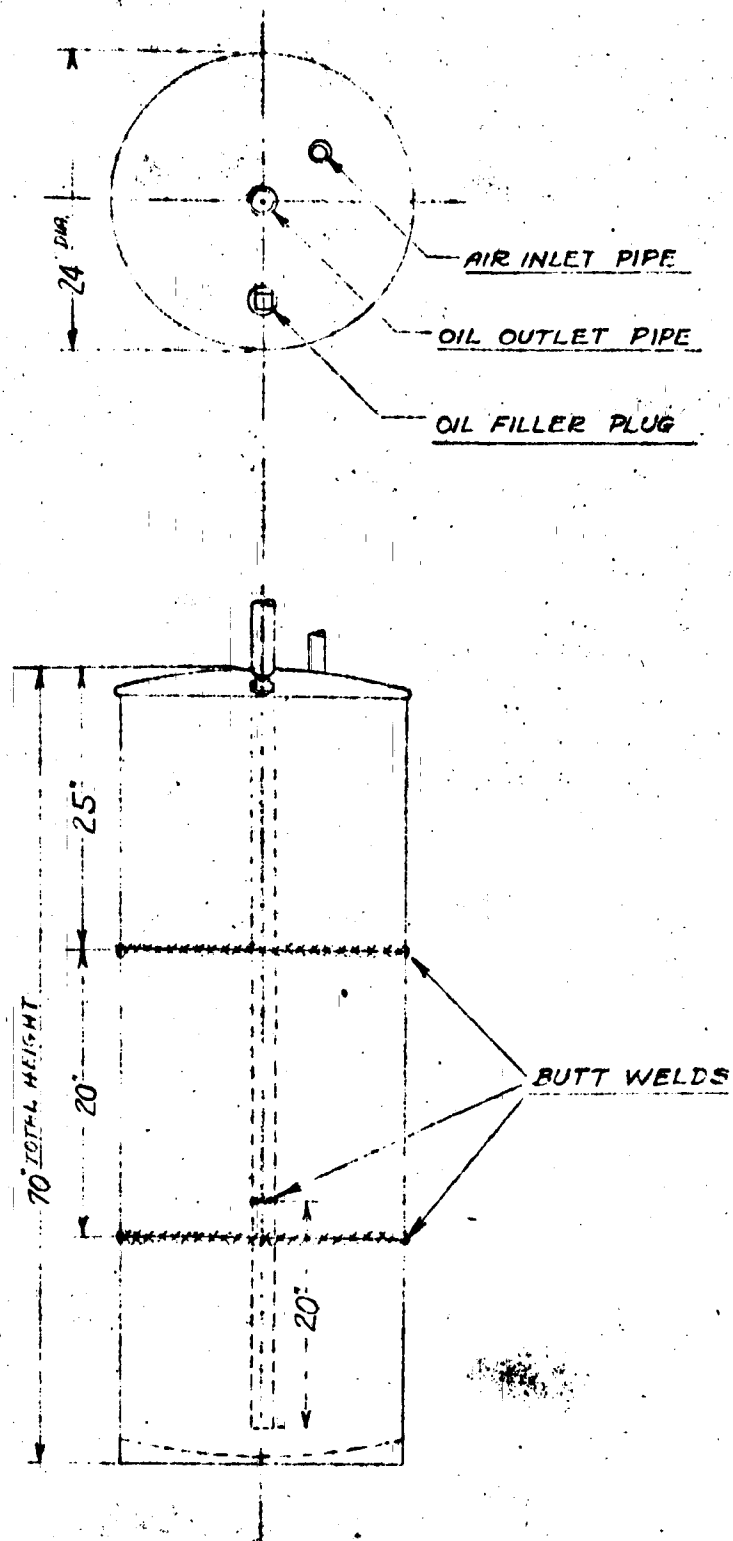




JOYCE-ENGLAND LIST  
 JUL 1948  
 THE JOYCE-ENGLAND CO., DAYTON, O., U.S.A.  
 MODEL 7000 (REV. 1-15-47) PART 115



MATERIAL PNEUMATIC CONTROL FOR  
 AIR-OIL TANK OPERATOR  
 JL-19008  
 THE JOYCE-CRIDLAND CO. DAYTON, O. U. S. A.  
 DWN W.L.S. DATE 7-26-45 SCALE - SHEET NO 1154 G.



THIS AIR-OIL RESERVOIR TANK FOR THE JOYCE-CRIDLAND HOIST IS 50" HIGH AND 24" DIA. AS IT COMES FROM THE MANUFACTURER. IN THIS STATE ITS CAPACITY IS 92 GAL. WHICH IS INCREASED TO 130 GAL. WHEN A 20" HIGH, 24" DIA. CYLINDRICAL SECTION IS ADDED TO THE ORIGINAL TANK. A SUGGESTED METHOD OF RE-WORKING IS TO:

- 1) CUT THE ORIGINAL TANK IN HALF PERPENDICULAR TO ITS LONGITUDINAL AXIS.
- 2) WELD A 20" LENGTH OF 1" DIA. STD. PIPE FOR EXTENSION ON OIL OUTLET LINE.
- 3) WELD A 24" DIA., 20" HIGH, 5/16 THICK STEEL CYLINDRICAL SECTION INTO PLACE AS SHOWN.

APPROVED FOR CONY	NET ASSEM	FINAL ASSEM	DASH NO. OR STD. PART NO.	ASSEM. NO.	QTY
CHIEF ENG	NO. REQ'D PER ASSEM				NEXT ASSEMBLY
PROJ ENG					
CHECKED					
DRAWN	R.Z.	3-27-46			
GROUP REPR	GROUP NO.	LAYOUT OF SKETCH			
FINISHED	INITIALS	DATE	REV LET	CHANGED ITEM WAS	DATE BY
GROUND				MODEL OR TITLE	SCALE
SMOOTH MACHINE	CALC. WT.			AIR-OIL TANK	DRAWING NO.
ROUGH MACHINE	ACT. WT.			FOR JOYCE	JOB NO. SHEET NO. C
TOLERANCE EXCEPT AS NOTED	SUPERSEDES			CRIDLAND HOIST	S-126
FRACTIONAL 1/64	SUPERSEDED BY				
ANGLES 21/2°					
SHEET METAL 1/16					
DECIMALS NOTED					

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IV. THE AIR COMPRESSOR

The air compressor necessary to operate the hoist will be a receiver-mounted type rated at 40 to 60 cfm at 250 psi for intermittent operation. The receiver tank will have a minimum capacity of 80 gal. and the unit will be similar to the Ingersoll-Rand Model H64 x G2 type 30 two-stage, constant speed, air-cooled type, powered by a gasoline engine. The unit in use at Samia is a Westinghouse 2-stage air compressor type VE4, Model 4 4YC, No. 129647 and the pop-off valve is set for 150 psi. The maintenance of this compressor is fairly simple because the crankcase oil is the only thing that needs attention. The compressor crankcase will be filled with SAE 20 high grade motor oil and a sample will be taken every 100 hours of operation in order to determine its condition. If the oil level is low, same will be added and if oil is dirty the crankcase will be drained and fresh oil poured into the crankcase.

This compressor is powered by a Wisconsin Air-cooled 4 cyl., 3 x 3 $\frac{1}{2}$ , Model VE4 Gasoline Engine. The maintenance of this engine will consist of checking the engine for sufficient gasoline before every use and the throttle set for moderately high speed (2000 - 2200 rpm) to avoid overheating. The VE-4 engine consumes about 1 ptl of oil every 30 hrs. so the oil will be checked every day. The oil capacity of the crank case is 4 qts. and should be changed every 100 hrs. of operation. The oil bath air cleaner on the carburetor intake will be serviced every 12 hrs. of operation by removing and cleaning the oil cup and baffle. Replace the baffle and fill the oil cup up to indicated level with SAE 20 oil. Inspect the gasket before reinstalling the oil cup and run a heavy bent wire down the intake to be sure air passage is not restricted by dirt in the backfire chamber.

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V. THE ELECTRIC GENERATING UNIT

The gasoline powered electric generating unit to furnish sufficient lighting should be 110V system with a 7.5 to 10 KW capacity. This unit will be used to supply electrical power to 4 banks of 4 lights each for the apron and 4 leading lights in the pit. The unit in use at Sandia is a Master 9.4 KVA Generator with Exciter and powered by a Wisconsin air-cooled 2 cyl. 3 x 3 $\frac{1}{2}$  gasoline engine. No. 326996 type VF4-1.

The generator has sealed ball bearings so added lubrication is not necessary except on obvious rotating parts. The engine will have the same maintenance as the engine on compressor.

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VI. SHELTERS FOR AIR COMPRESSOR, ELECTRICAL GENERATOR, HOIST  
AND AIR-OIL RESERVOIR

The air compressor mounted on its receiver, and the gasoline operated 110 volt electric generating unit are housed in a small shelter adjacent to the pit apron as illustrated on a sketch of the same. This shelter should be large enough to house both of these units with about 5 ft. clearance on all sides.

Compressor bldg. - To be constructed in conformance with Drawing SP-23. The 4" concrete floor is to be omitted until after the foundations for the gasoline powered air compressor and electric power generator has been poured. The only rigid bldg. specification is that the structure should not be over 10 ft. high to allow ample clearance of the left wing of the plane while rotating the plane on the main turn-table.

The hoist mechanism and main gear turn-table are covered to protect them from the elements. Drawing #133 & 134. When the apron or pit are not in use the pit should be covered as will the turn-table.

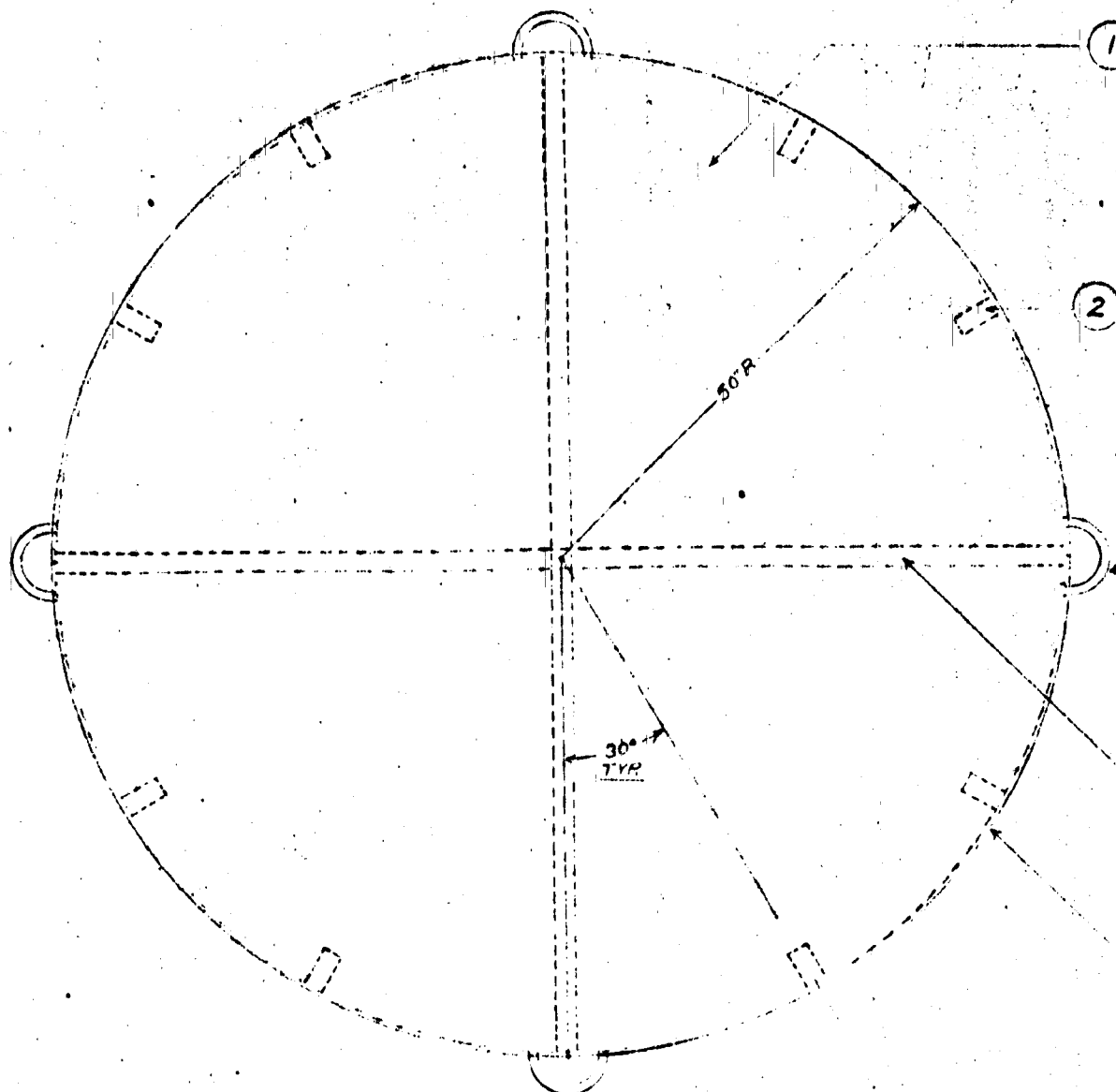
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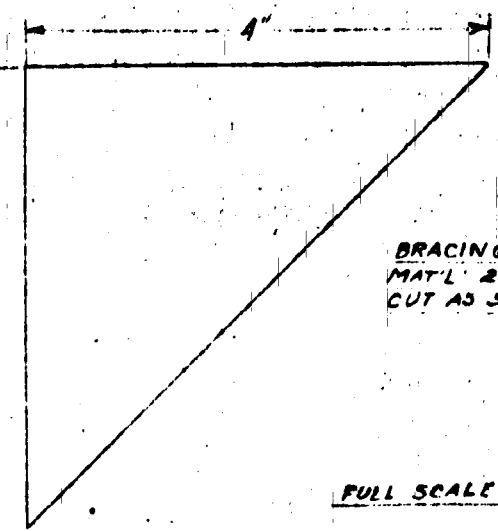
1 TOP  
MAT'L:  $\frac{1}{2}$ " PLYWOOD

2 BRACING BLOCK  
SEE DETAIL ON  
SAME PAGE

3 ROPE HANDLES  
MAT'L: 1" STD ROPE  
APPROX 16' LONG  
4 REQ'D

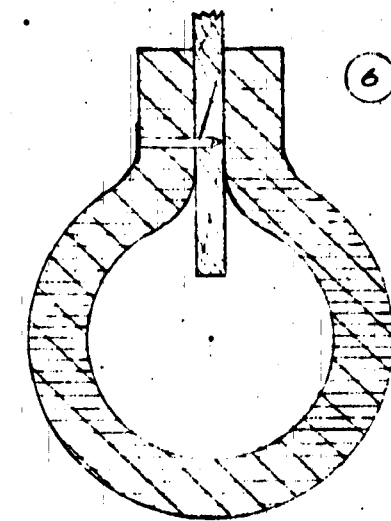
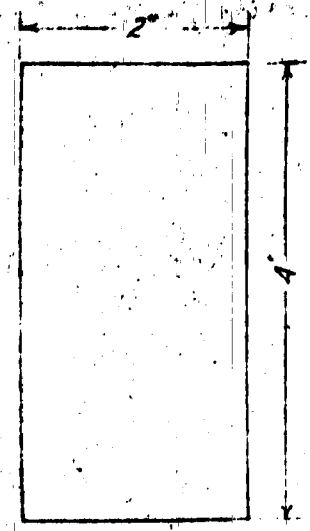
4 CROSS MEMBER  
SEE DETAIL ON  
SAME PAGE

5 SIDES MAT'L:  $\frac{1}{2}$ " PLYWOOD  
EACH SECTION 4' X 6'  $\frac{1}{2}$ "  
BUTT SECTIONS ON  
ENDS OF CROSS MEMBERS  
4 REQ'D



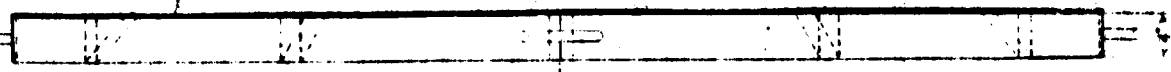
2  
BRACING BLOCK  
MAT'L: 2X4 STD LUMBER  
CUT AS SHOWN. 8 REQ'D

FULL SCALE

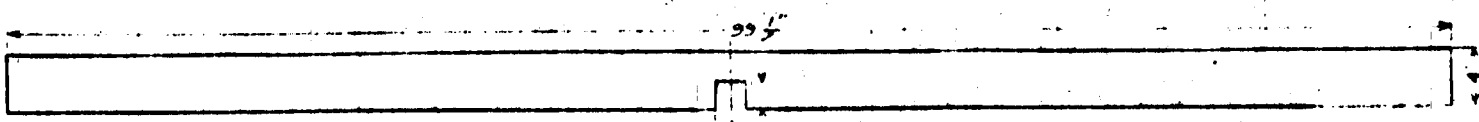


6 FELT SEAL BETWEEN COVER AND  
PAVEMENT MAT'L: MED. SOFT FELT  
APPROX  $\frac{1}{2}$ " X 10' X 27'. NAIL WITH  
 $\frac{1}{2}$ " ROOFING NAILS ON 3" CENTERS

FULL SCALE



SCALE -  $\frac{3}{8}$ " IN. = 1 IN



49 3/4"

SCALE -  $\frac{1}{2}$ " IN. = 1 IN

4 CROSS MEMBERS MAT'L: 2X4 STD LUMBER  
APPROX 8' 4" LONG NOTCHED AS SHOWN  
2 REQ'D

APPROVED FOR CONDT	CHIEF ENG.	PROJ. ENG.	DESIGNED	DRAWN	GROUP REPR.	GROUP NO.	LAYOUT OR SKETCH	INITIALS	DATE	REV. NO.	CHANGED ITEM WAS	DATE	BY
			KZ	DME									
			4-10-46	4-6-46									
FINISHES	GROUND	SMOOTH MACHINE	ROUGH MACHINE	TOLERANCE EXCEPT AS NOTED	FRACTIONAL	ANGLES	SHEET METAL	DECIMALS	NOTES	CALC. WT.	ACT. WT.	SUPERSEDED	SUPERSEDED BY
										MODEL OR TITLE	SCALE	DRAWING NO.	JOB NO.
										TURNTABLE COVER		5-134	SHEET C
													TOTAL

UNCLASSIFIED

VII. TURNTABLE NECESSARY FOR INSTALLATION

There is one turntable necessary per installation to spot the plane over the pit accurately. This turntable is an Ideco portable aircraft BT-40 (40 ton cap.) turntable (International Stacy Corp. Columbus, Ohio). The turntable is to the left of the pit when approaching from the taxi strip and its center is placed 14'3" away from the longitudinal centerline of the pit and 1'9" from the 10 $\frac{1}{2}$ ' side furthest away from the taxi strip. The concrete in this vicinity is chipped out to a depth of 5" and 95" diam. to accommodate the turntable and to make the same about flush with the surrounding ground level. Three landing gear guide lines 7" wide and 150' long will be painted on the apron starting at the turntable and extending onto the taxi strip to guide the plane on approach. Drawg. No. SP-23.

The main gear turntable has had a few additions made to it to provide a positive means of stopping the plane in the correct position and to ease the right main gear tires over the sharp concrete edge of the imbedded turntable. The stop ~~block~~<sup>CHOCK</sup> and spacer are designed and their drawing No. is 3-117 attached.

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-12-

VIII. STANDARD AND EXTRA HEAVY PIPE AND FITTINGS NECESSARY  
FOR AIR SUPPLY LINES, ELECTRICAL LINES AND OIL SUPPLY  
LINES.

The amount of piping and fittings necessary are as follows:  
300' of 1" standard pipe, 24 - 1" standard elbows; 6 - 1" standard  
tees; 6 -  $\frac{1}{2}$ " x 1" standard reducers. The material specified above  
will be sufficient for the air and electrical lines up to the pit.  
The oil supply lines necessary are made up of 50' of  $1\frac{1}{2}$ " extra  
heavy pipe, 10 -  $1\frac{1}{2}$ " extra heavy elbows, 5 -  $1\frac{1}{2}$ " extra heavy tees,  
3 - 1" standard x  $1\frac{1}{2}$ " extra heavy reducers. A sufficient amount of  
red lead or other seal is necessary for the pipe threads.

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IX. OTHER PIT EQUIPMENT NECESSARY FOR LOADING

A special low bed trailer is necessary to transport the unit from the assembly bldg. to the pit and used at the pit to load the unit into the place by lowering the whole trailer plus the unit into the pit, removing the shear pins from the trailer, and raising the unit plus the cradle into proper position to the shackle in the bomb bay. The trailer design is Dwg. #SKB 2340 attached.

In order to lower the trailer into the pit a set of trusses are necessary to span the pit in the first operation of loading. These transport trusses are CIT dwg. #CIT 30-1-0.

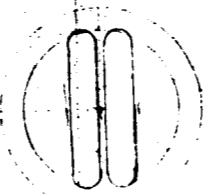
The pit should be kept covered for safety and convenience when not in use.

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PATH OF  
OUTSIDE WHEEL

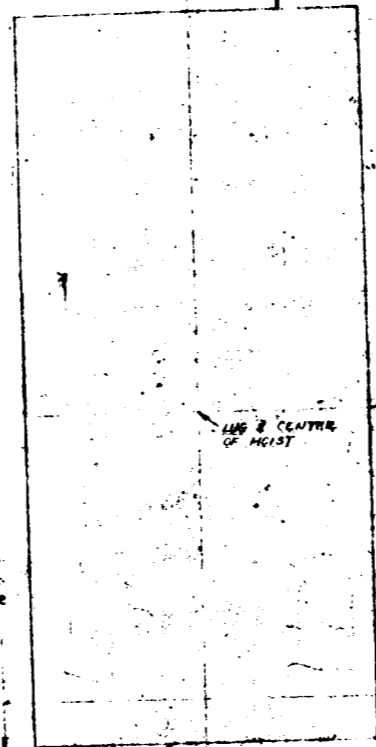
PATH OF  
INSIDE WHEEL

NOSE WHEEL



ST-40 TURNABLE

MAIN GEAR



THIS DIMENSION FROM  
AN-01-1B-80 GUNITE

LINE & CENTRE  
OF HOIST

DIRECTION OF APPROXIMATE  
EMPTY SHLF

34' 4.5"

21.5  
1.5  
34.6

DIMENSIONS FROM GENERAL  
PLANS DRAWING NO. E-23  
DWG. NO. 15-10787

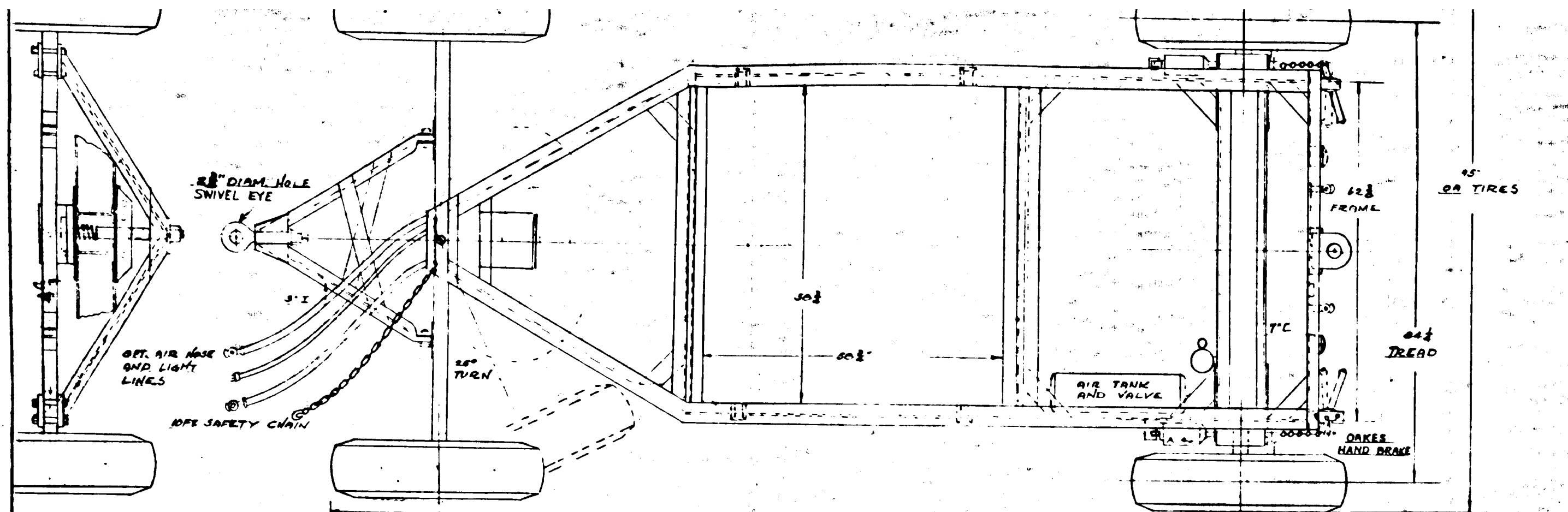
DIRECTION OF  
LEADED PLANE



NOSE WHEEL

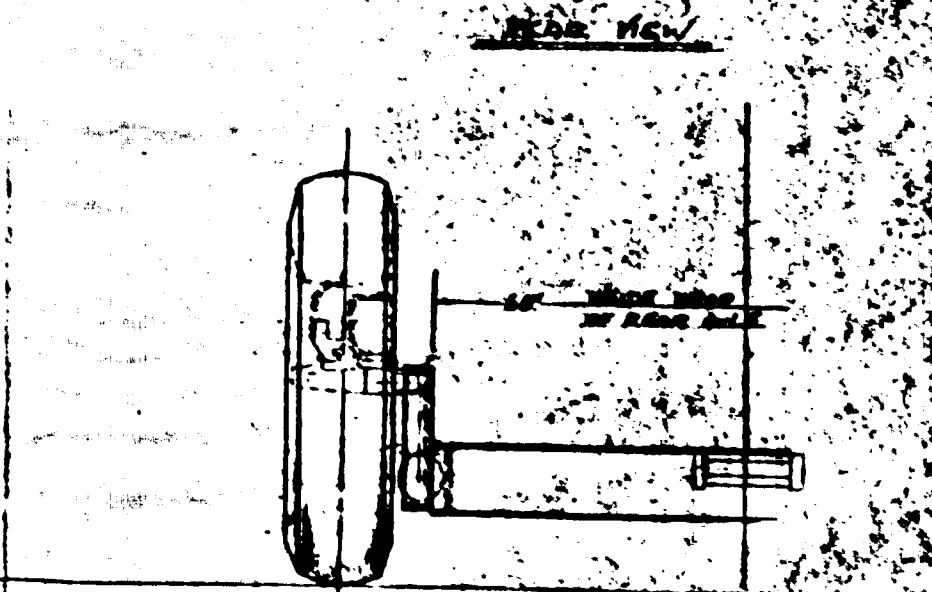
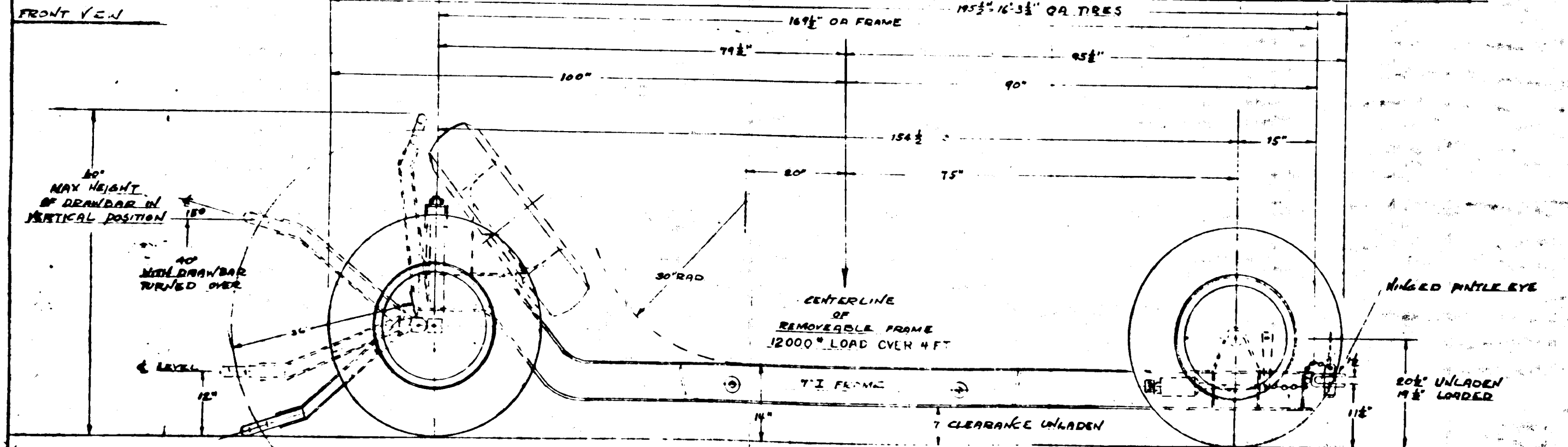
APPROVED & LOADING LIMIT  
SCALE 1/4" = 1' (C)  
M.D.R. 10/15/45





- SPECIFICATIONS**
- AXLES 2 1/2" SQUARE
  - SPRINGS NONE
  - BRAKES REAR ONLY 17" DRUM
  - BOOSTERS AIR AND 1/2" HOLES
  - HUBS 36-5-140 1" HOLE
  - WHEELS 80X12 1/2" PHOSPHOR BRONZE 3/8" DIA
  - TIRES 1200X20 12 PLY SINGLES
  - LIGHTS 16C EYELETS
  - BLACKOUT TAILLIGHTS AND SWITCH
  - PAINT PER CUSTOMER

- REFERENCE TO DRAWINGS**
- FRAME DETAILS E-245
  - BOOSTER MOUNTING E-246
  - PARTS DETAIL E-247
  - FRONT ASM. E-248



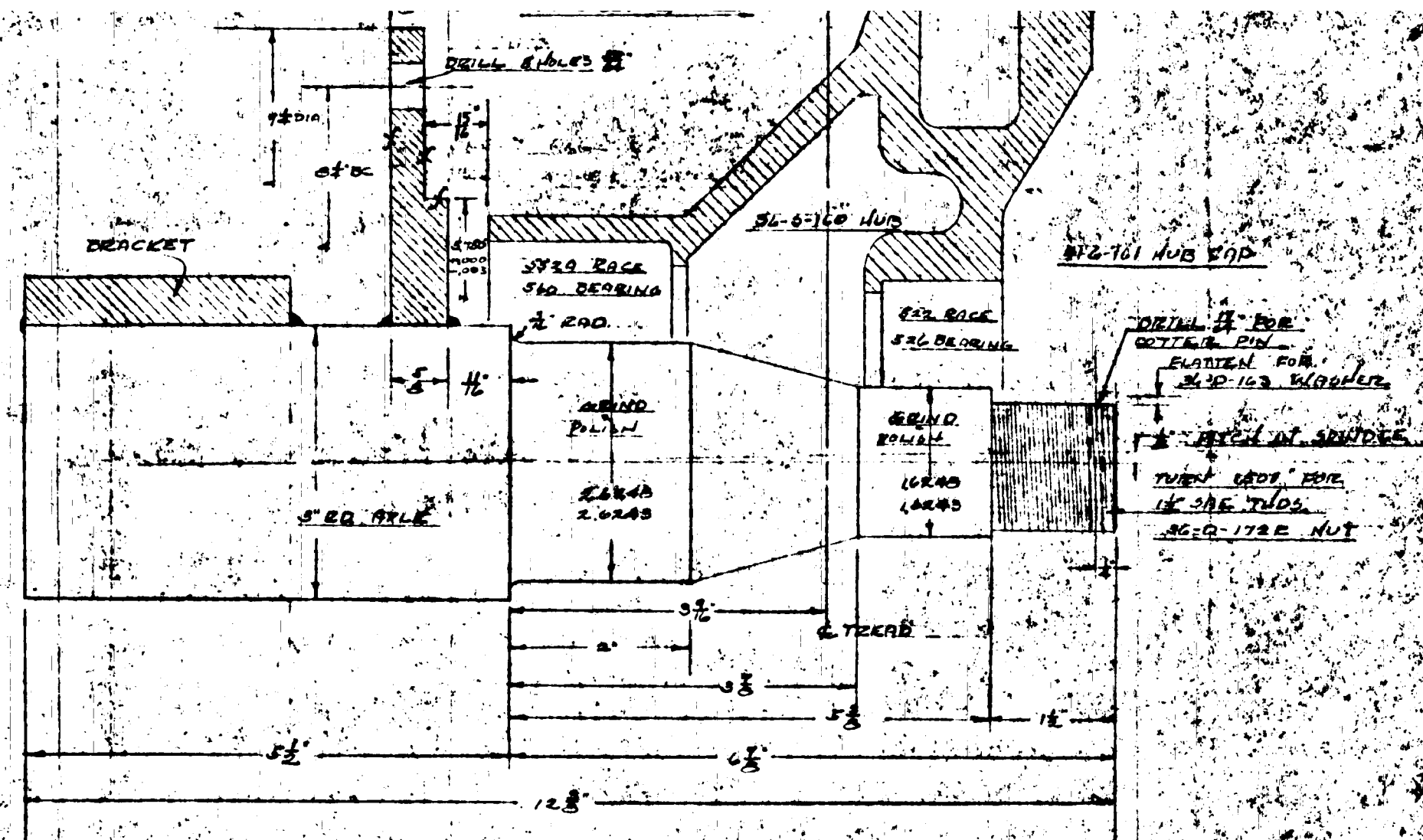
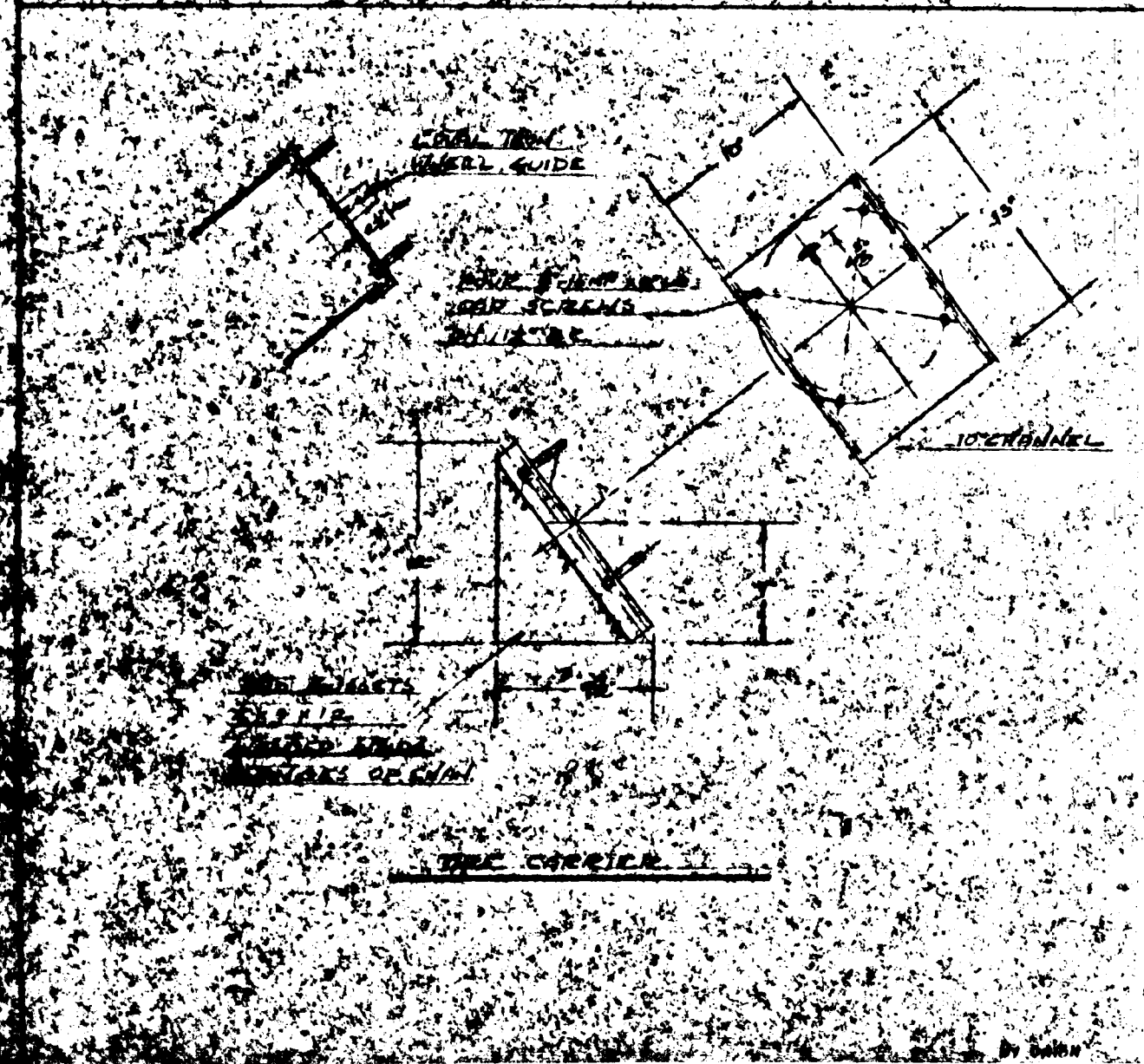
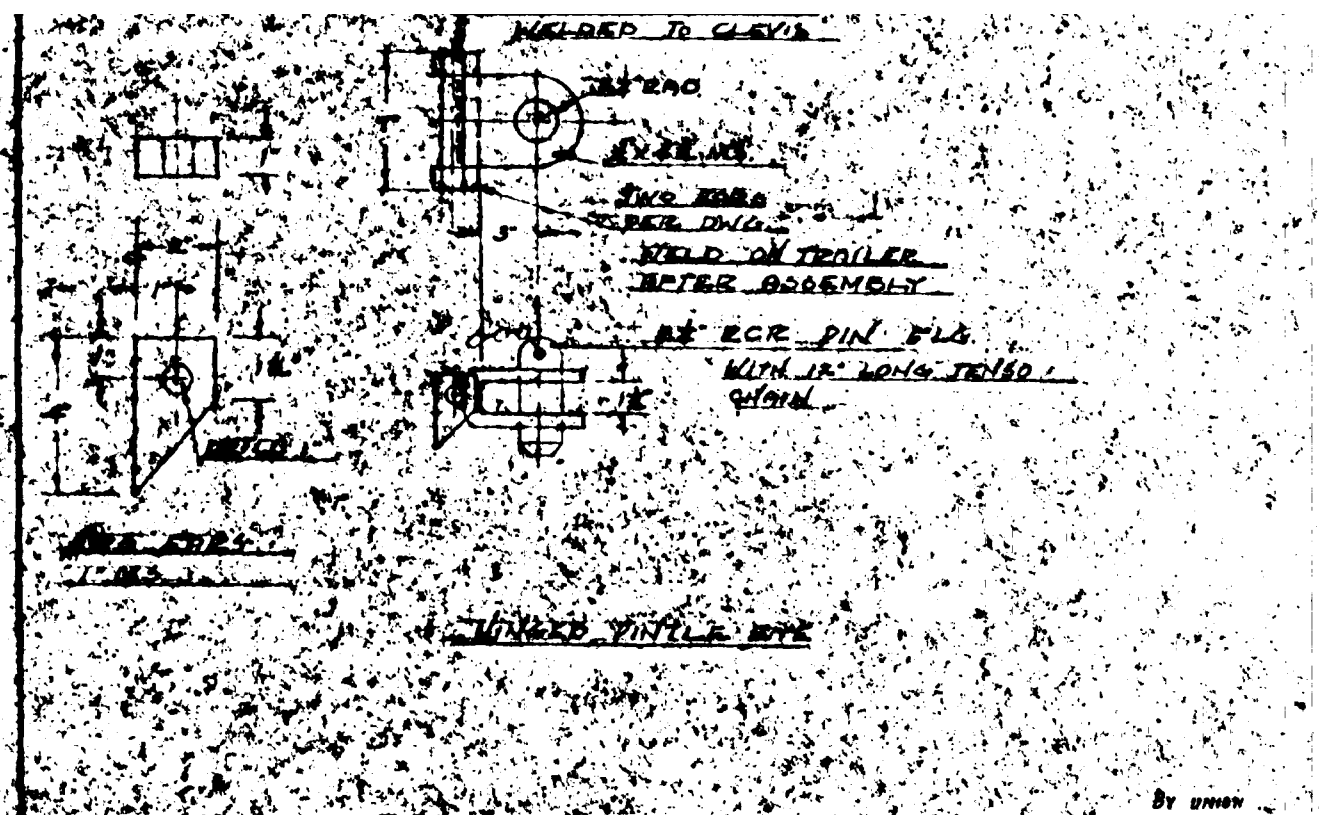
WEIGHT BALANCE IS WITHOUT SPARE TIRE AND WHEEL. ADD 170# OVER REAR CROSSMEMBER TO BALANCE IF TIRE AND WHEEL ARE MOUNTED.

NO.	DATE	UTILITY TRAILER MFG. CO.
		1200X20 SPECIAL LOWBOY
		APPROVED FOR PUBLIC RELEASE









HUB AND AXLE ASY BY UTILITY  
SCALE FULL SIZE

NO.	REV.	DATE	UTILITY TRAILER MFG. CO.
			1201 HARBOR CALIFORNIA
			TELETYPE LOWBED PARTS
			DRAWN BY JES
			SCALE AS SHOWN
			DATE 5-12-54





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DOCUMENT

*Dick*

~~6/24/46~~

6/24/46

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