SPECIFICATIONS

VO-36-I GENERAL SPECIFICATIONS

Note: *Specifications on units may vary or change without prior notification due to option selections.*

This section includes a brief description of each of the major (standard) components.

PLATFORM - The closed fiberglass platform is 24 In. x 24 In. x 42 In. deep (.61 m x .61 m x 1.07 m) with an inside and outside step for easy access. Leveling is automatic by a totally enclosed #60 chain and 1/2" diameter fiberglass rod parallelogram system. Standard platform capacity is 300 lbs. (136 kg).

PERSONNEL RESTRAINT SYSTEM - A safety belt or harness and lanyard are provided. The anchor for the lanyard is attached to the upper platform support.

BOOM ASSEMBLY - The lower boom consists of a 6 In. x 8 In. (.15 m x .20 m) rectangular steel section. The lower boom articulates from horizontal to 40° past vertical for a total range of 130°. The upper boom consists of a 6 In. x 6 In. (.15 m x .15 m) (inside dimension) fiberglass section. The upper boom articulates 190° relative to the lower boom. The upper boom is actuated at the knuckle by a hydraulic cylinder and a four bar linkage. Non-lube bushings are used at all pivot points. The hydraulic hoses are protected in all areas of boom movement by woven nylon hose protectors.

An upper boom support with ratchet type tie down strap and rubber platform support are included.

TURRET - The turret wings are 1/2 In. (13 mm) steel plate. A steel tube is welded between the turret wings to increase rigidity. The base plate is machined flat to support the rotation bearing. A full coverage continuously welded bearing cover is provided to prevent foreign material from interfering with lift rotation.

ROTATION - Rotation is 370° non-continuous with a mechanical stop. Continuous and unrestricted rotation is available as an option (see option descriptions). Rotation is accomplished by a hydraulically driven worm and spur gear set acting on a shear-ball rotation bearing. The critical bolts holding the turret to the rotation bearing and the bearing to the pedestal are SAE grade 8. These critical bolts are marked with a torque seal indicator to provide a quick means to inspect for loosening. A slotted adjustment is provided for pinion and rotation gear clearances. An external hex drive is provided for manual rotation in case of hydraulic failure.

PEDESTAL - The pedestal is a tubular shape with an access opening on both sides. The top plate is 1-1/4 In. (32 mm) thick and machined flat to support the rotation bearing.

LUBRICATION - Non-lube bearings are used at all points of motion. The rotation bearing and leveling system are the only components that require lubrication.

PAINTING - The complete unit is primed and painted prior to assembly. The standard color is white urethane.

HYDRAULIC OIL RESERVOIR - The hydraulic oil reservoir is an integral part of the pedestal. Sight gauges are provided to check the fluid level. The capacity of the reservoir is 12 gallons (45 L).

CYLINDERS - Cylinders are threaded end cap design and equipped with dual holding valves recessed into the base of each cylinder to prevent movement in case of hose failure. Bleed down ports are provided in case of hydraulic failure.

PINS - Pins are high strength alloy steel which are chrome plated and centerless ground for a hard finish and corrosion resistance. Pins are bolted in place with a welded pin tab at one end and a pin cap at the other for redundant retention.

CONTROL VALVES - Full pressure control valves at the platform and the turret control the rotation and the upper/lower boom assembly movements. The individual control levers at the platform have self centering locking handles. The optional Unitrol single lever control with a safety trigger is available. An emergency stop valve is also located at the platform controls. The turret controls are equipped with a manual selector valve to override the platform controls and also serves as the emergency stop for the upper controls.

TRUGUARD - This advanced upper controls isolation
system provides 4" of electrical isolation from the entire upper controls, including the control dash panel. This system also includes a protective shield which helps prevent environmental and work related contaminants from making direct contact with the isolating surfaces.

THE UPPER CONTROLS DO NOT PROVIDE PROTECTION IN THE EVENT OF ELECTRICAL CONTACT AND ARE NOT A SUBSTITUTE FOR MINIMUM APPROACH DISTANCES, COVER-UPS, RUBBER GLOVES AND OTHER PERSONAL PROTECTIVE EQUIPMENT.

HOSES AND FITTINGS - The hoses routed through the booms are high pressure, non-conductive hoses with swaged hose end fittings. Protection is provided where hoses might chafe or rub. Plastic or woven nylon sleeves are installed over the hoses at all points of movement.

ENGINE START/STOP - The start/stop circuit has been designed so the lift cannot be operated unless the truck ignition switch is in the "RUN" position and the master control is activated. This feature makes it difficult for unauthorized individuals to operate the lift when the truck is locked. An air cylinder at the upper controls and a toggle switch at the lower controls are provided to actuate the engine start/stop control.

HYDRAULIC SYSTEM - The open center hydraulic system operates at 3 GPM (11.4 LPM) at 2500 PSI (172 bars). A 10 micron pressure line filter, a 10 micron return line filter with bypass valve and a 100 mesh suction strainer are included. Hydraulic oil is not included. This system can be driven by the chassis engine accessory belt or by the chassis transmission power take off.

ELECTRICAL INSULATION SPECIFICATIONS - The upper boom is tested and certified for electrical work at 46 KV and below in accordance with ANSI A92.2 requirements. Aerial devices may be designed and configured for gloving work and tool methods at 46KV and below.

OUTRIGGER BOOM INTERLOCK SYSTEM - The outrigger/boom interlock system is a feature designed to prevent the lift from being operated until the outriggers contact the ground. The interlock also prevents the outriggers from being retracted before the lower boom is properly stored.

SLOPE INDICATORS – Slope indicators are required on Versalift units and supplied by Time Manufacturing Co. Slope indicators shall be installed to indicate the level of rotation bearing relative to the ground.

MANUALS - Two Operator's manuals and two Service manuals, one Manual of Responsibilities, and one EMI Safety Manual, are included with each unit.

VO-36-I OPTION SPECIFICATIONS

Below is a brief description of some of the available options for the aerial lift.

OUTRIGGERS - The A-frame outriggers are attached to the pedestal. The outriggers are equipped with pilot operated check valves, internal thermal relief valves, and separate controls. At maximum extension, the outriggers furnish 120-in. (3.05 m) of spread and 9 in. (229 mm) of penetration. They have 17 in. (432 mm) of ground clearance based on 36-in. (0.91 m) or 31 in. (0.79 m) frame height.

INDEPENDENT OUTRIGGERS - A-frame outriggers are shear-plate mounted to the frame and are equipped with pilot operated check valves, internal thermal relief valves, and separate controls. At maximum extension, the outriggers furnish 120-in. (3.05 m) of spread and 9 in. (229 mm) of penetration. They have 17 in. (432 mm) of ground clearance based on 36-in. (0.91 m) or 31 in. (0.79 m) frame height.

TORSION BAR - Over frame, under frame, and front axle torsion bars are available and add to the stability of the vehicle. All Stable Ride torsion bars include rubber bushings at all points of movement and do not require lubrication. Ballast may be required with the use of a torsion bar.

CONTINUOUS ROTATION - Rotation is continuous and unrestricted in either direction. An electric and hydraulic collector assembly provides a path for hydraulic oil and electric signals from the pedestal to turret.

BACKUP PUMP - This system consists of a hydraulic pump driven by a 12V DC motor, which is powered by the truck engine battery. The system is connected in parallel with the main pump and is designed for non-continuous operation. An air cylinder at the upper controls and a toggle switch at the lower controls are used to energize this system. When used with continuous rotation, an additional pass in the collector assembly is usually required.

HYDRAULIC TOOL CIRCUIT AT THE PLATFORM - This system is designed to use open center hydraulic tools. The tool circuit provides 5 GPM (19LPM) at 2500 PSI (172 bars). The two speed manual throttle advance is required.

HYDRAULIC TOOL POWER AT THE GROUND CONTROLS - This system is designed to use open center hydraulic tools. The tool circuit provides 5 GPM (19 LPM) at 2500 PSI (172 bars). The two speed manual throttle advance is required.

HYDRAULIC 30 GALLON AUXILIARY RESERVOIR - The reservoir is designed to be bed mounted and includes a 100 mesh suction screen and 10 micron return line filter.

EXTRA CONTROL CIRCUIT FROM THE PLATFORM TO THE PEDESTAL - Consists of an additional air cylinder at the upper controls and an airline to the turret which actuates a pressure switch. When used with continuous rotation an additional pass in the collector assembly is usually required.

TWO-SPEED MANUAL THROTTLE CONTROL - This system provides for aerial lift operation at efficient, economical engine idle speeds or faster engine speeds for hydraulic tool operation. An air cylinder at the upper controls and a toggle switch at the lower controls are used to energize the manual throttle control. When used with continuous rotation, an additional pass in the collector assembly is usually required.

SINGLE STICK PLATFORM CONTROL - The Unitrol single stick control is mounted between the platform and boom and consists of a multi-jointed handle which operates the control valve. A safety trigger located on the underside of the single stick handle will not allow boom movement until the trigger is depressed. The control valve is full pressure and full flow. The operator can feather between the three control movements to provide multi-function boom action. An emergency stop control is provided.

PLATFORM TILT - This option allows the platform to be tilted for clean out or rescue. A cam lock releases the platform and hydraulic dampeners limit the speed of the platform tilt.

PLATFORM VARIATIONS - The standard platform is a 24 In. x 24 In. x 42 In. (.61 m x .61 m x 1.07 m) closed platform with an inside and outside step.

A 24 In. x 30 In. x 42 In. (.61 m x .76 m x 1.07 m) closed platform with side access step is available.

PLATFORM LINER - A 24 In. x 24 In. x 42 In. (.61 m x .61 m x 1.07 m) and a 24 In. x 30 In. x 42 In. (.61 m x .76 m x 1.07 m) platform liners are available. The liners are tested and rated to 50 KV AC.

VINYL PLATFORM COVER - The soft vinyl cover sizes include 24 In. x 24 In. (.61 m x .61 m) and 24 In. x 30 In. (.61 m x .76 m).

CAPACITY VARIATIONS - Higher capacities are available but may affect stability. The maximum available platform capacity for the VO-36 varies with platform size, control type, and liner. The table below shows the capacities that are available for each combination of options.

CATEGORY B DIELECTRIC TESTING AND CERTIFICATION - Testing and certification for Category B, 46 KV and below or 69 KV per ANSI A92.2 are available on the unit. Aerial device may be designed and configured for gloving work provided it meets the requirements per ANSI A92.2 Category B. The system includes interior and exterior test bands and bonding of all interior boom parts at the knuckle end of the upper boom. The components are wired in series to a single exterior plug allowing the integrity of the connections to be easily verified.

An upper boom test electrode and atmospheric vents for vacuum flashover protection are required for Category B testing and certification. This option includes vacuum prevention for all the hydraulic hoses routed through the insulated booms.

CATEGORY D DIELECTRIC TESTING AND CERTIFICATION - Testing and certification for ANSI A92.2 Category D are available. These aerial devices which are designed and manufactured for work in which the insulating system is not considered as primary insulation, but secondary. These aerial devices are NOT designed for gloving work methods. They are rated at voltages of 46kv.

CONTROL TYPE	24 x 24 PLATFORM	24 x 30 PLATFORM
3-LEVER CONTROLS	CODE DESCRIPTION CA-900 300 lbs (136 kg) CA-902 300 lbs (136 kg) No deduct for liner CA-853 350 lbs (160 kg) CA-903 350 lbs (160 kg) No deduct for liner	CODE DESCRIPTION CA-900 300 lbs (136 kg) CA-902 300 lbs (136 kg) No deduct for liner

CHASSIS INSULATION SYSTEM (Lower Boom Insert) - The fiberglass insert provides an insulation gap of 12 In. (305 mm) on the unit. The insert is mounted on the steel boom sections, then adhesive is pumped in under pressure to fill all voids. A stainless steel stud is provided at each end of the insert to shunt the system during electrical testing. The insert is tested per ANSI A92.2.

LIFTING EYE ATTACHMENT - The lifting eye attachment is located near the elbow on the lower boom. The lifting eye has a maximum capacity of 700 lbs. (318 kg).

VO-36-I DIMENSIONAL SPECIFICATIONS

Note: All dimensions and angles are nominal, based on 40 in. (1.02m) frame height.

Horizontal Reach ..... 29 ft. 1 in. (8.85 m)
(Overcenter & Non-Overcenter)
Maximum Platform Capacity..... 400 lbs. (181 kg)

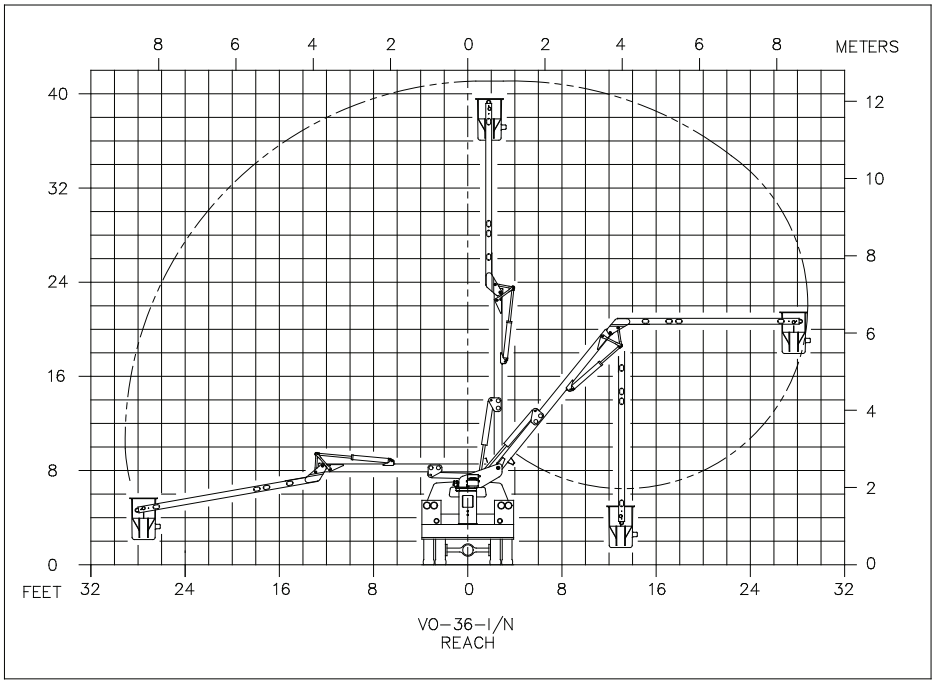
Height to Bottom of Platform ..... 36 ft. 4 in. (11.07 m)
Working Height..... 41 ft. 4 in. (12.60 m)
Stowed Travel Height ..... 10 ft. 4 in. (3.15 m)
Weight of Lift..... 2,180 lbs. (989 kg)
(Without oil and mounting hardware)

Hydraulic System
Operating Pressure ..... 2500 psi (172 bars)
Flow Rate ..... 3 gpm (11.4 lpm)
Filtration..... 10 Micron Pressure and Return
100 mesh Suction
System Type.....Open Center
Power Source ..... PTO Pump
Belt Drive System

Boom Action
Upper Boom .....190° Relative to Lower Boom
Lower Boom ..... 130° Total Articulation from 0° to 40° Past Vertical
Rotation .....370° Non-Continuous with Mechanical Stop

Insulation Gap
Upper-Boom .....92 in. (2.34 m)
Upper-Boom With Test Electrode .....81.5 in. (2.07 m)
Lower Boom Insert (Optional)..... 12 in. (0.30 m)

Ambient Temperature Range for Structural Integrity .....-40°F (-40°C) to 125°F (52°C)



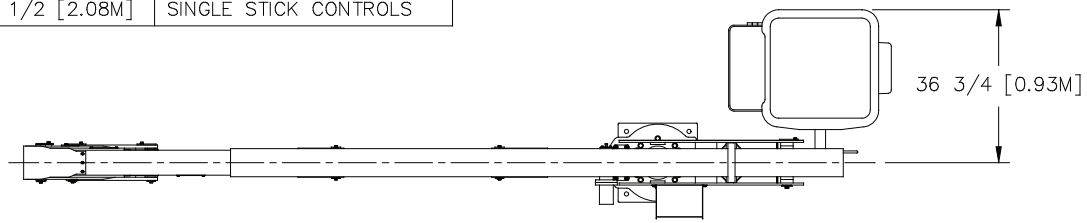
DWG. NO.	REV.
27473–1	–

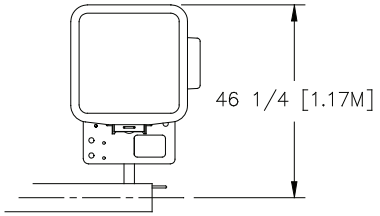
VO-36-I
Platform Travel

SPECIFICATIONS

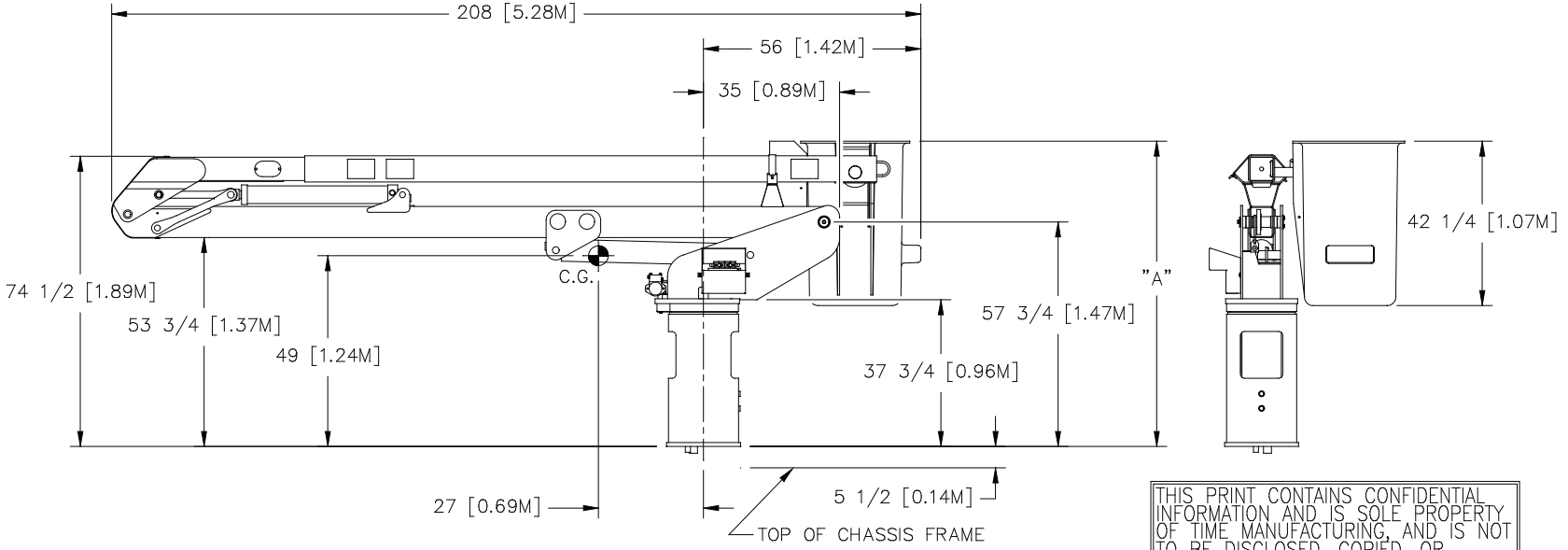
REV.	ERCN NO.	DESCRIPTION	BY	CHKD.	APPR.	DATE
A	51877	ADDED SHEET 2	JKH	KK	KK	4/27/01

DIM "A"	USED ON
78 1/2 [2.00M]	STANDARD CONTROLS
81 1/2 [2.08M]	SINGLE STICK CONTROLS





SINGLE STICK CONTROLS
(OPTIONAL)



NOTE: 1. ALL DIMENSIONS ARE IN INCHES WITH METRIC EQUIVALENTS IN METERS.
2. WEIGHT OF LIFT = 2180 LBS (989 kg) W/O OIL AND MOUNTING HARDWARE.
3. ADD 88 LBS (40 kg) FOR 12 GALLONS (46 L) OF HYDRAULIC OIL.
4. ADD 210 LBS (95 kg) FOR MOUNTING HARDWARE.

TIME MANUFACTURING COMPANY
WACO TEXAS

DWN. BY LBR	DATE 11-8-99	TITLE VO-36-I OVERALL
CHKD. BY SRS	DATE 11-19-99	
SIZE A	SCALE 1/41	
SHEET 1 OF 2		DWG. NO. 27460-1

VO-36-I VEHICLE SPECIFICATIONS

Recommended vehicle specifications

Cab-to-Rear Axle Dimensions For Torsion Bar ..... 60 in. (1.52 m)
Cab-to-Rear Axle Dimensions For Outriggers ..... 84 in. (2.13 m)
Frame Section Modulus (Per frame rail) ..... 9.75 in^3 (160 cm^3)
Frame Resisting Bending Moment (Per frame rail) ..... 351,000 in-lbs. (39,658 N-m)

With Torsion Bar

GVWR ..... 20,000 lbs. (9072 kg)
GAWR (Front) ..... 5,000 lbs. (2270 kg)
GAWR (Rear) ..... 15,000 lbs. (6805 kg)
Approximate Weight for Stability ..... 15,000 lbs. (6805 kg)

With Dual Torsion Bars

GVWR ..... 15,000 lbs. (6805 kg)
GAWR (Front) ..... 6,000 lbs. (2722 kg)
GAWR (Rear) ..... 11,000 lbs. (4990 kg)
Approximate Weight for Stability ..... 12,300 lbs. (5580 kg)

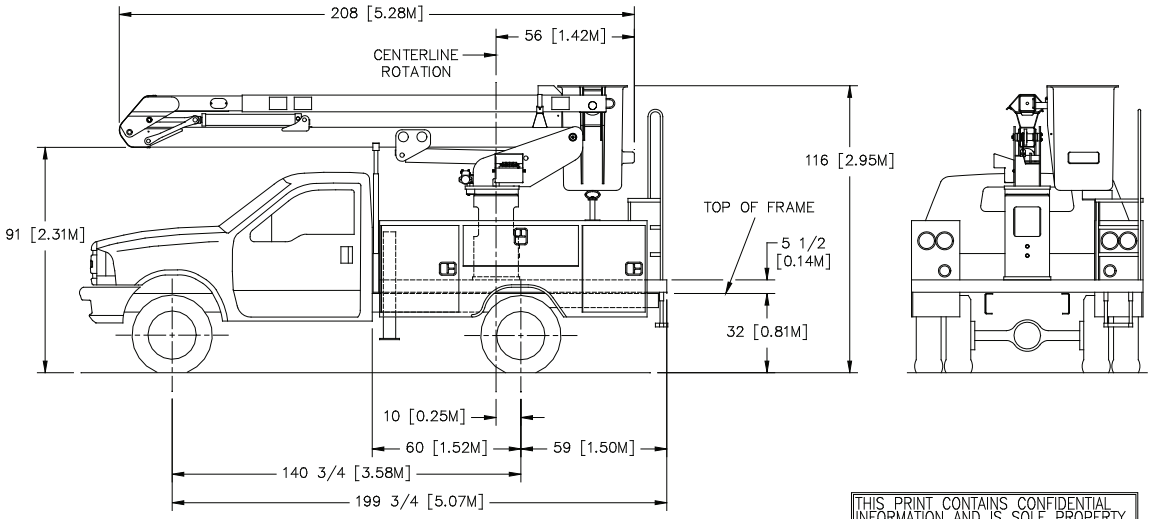
With Outriggers

GVWR ..... 15,000 lbs. (6805 kg)
GAWR (Front) ..... 5,000 lbs. (2270 kg)
GAWR (Rear) ..... 10,000 lbs. (4535 kg)
Approximate Weight for Stability ..... 10,300 lbs. (4672 kg)

NOTES: Actual GVWR and GAWR's should be based on the weight and location of the chassis, body, lift, ballast (if required), accessories, and the payload.

The curb weight of the unit will vary based on the rated platform capacity, mounting configuration, frame stiffness, and stability test requirements.

REV.	ERCN NO.	DESCRIPTION	BY	APPR.	DATE
	50876	FIRST RELEASE	LBR	SRS	11-19-99



TIME MANUFACTURING COMPANY
WACO TEXAS

DWN. BY: LBR	DATE: 11-16-99	TITLE: VO-36-I OUTLINE
CHKD. BY: SRS	DATE: 11-19-99	
SIZE: A	SCALE: 1=50	
SHEET: 1 OF 1		DWG. NO.: 27466-1