Operation - Safety – Maintenance TCP-2430 Issue B Operating Manual & Routine Servicing





Compact Tracked Carrier мk5 v1



Taylor Construction Plant Ltd.

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Warranty Policy and Procedures

Foreword

Thank you very much for purchasing this TAYLOR or CONSTRUCTION PLANT Ltd product. We believe that it will serve you without fail. Ensure that you read the Operator's Manual carefully before use. With proper handling and maintenance, this TAYLOR CONSTRUCTION PLANT Ltd product will provide excellent service over an extended period of time.

Registration

Each machine supplied by TAYLOR CONSTRUCTION PLANT Ltd is accompanied by a registration card. This card must be completed in full and returned to: Warranty Manager (email: warranty@tcp.eu.com) Taylor Construction Plant Ltd. Quayside Industrial Park Bates Road Maldon Essex, CM9 5FA Failure to register your machine may invalidate the manufacturer's warranty.

Liability

The warranty period begins when the product is delivered to and installed at the first purchaser. Only genuine parts may be used to carry out repairs. Failure to use only genuine parts may invalidate the Manufacturers Warranty.

TAYLOR CONSTRUCTION PLANT Ltd will not be held responsible if:

- (i) the machine has been used to perform tasks that demand more than it's design and strength limitations, or
- (ii) the machine has undergone modifications not approved by TAYLOR CONSTRUCTION PLANT Ltd, or
- (iii) conditions of use have been abnormal, or
- (iv) normal maintenance, with regard to requirements as set out and detailed by the manufacturer, have not been adhered to.

TAYLOR CONSTRUCTION PLANT Ltd will not pay for normal maintenance or servicing nor any materials used to carry out routine servicing.

The warranty liability of TAYLOR CONSTRUCTION PLANT Ltd is limited to diagnosis, repair or replacement of the defective part, and actuating the repair - depending on the product terms and conditions, this will be free of charge.

TAYLOR CONSTRUCTION PLANT Ltd shall be under no liability whatever to the customer for any indirect loss and/or expense (including loss of profit) suffered by the customer arising out of a breach by TAYLOR CONSTRUCTION PLANT Ltd of this contract.

Warranty Audits and Surveys

TAYLOR CONSTRUCTION PLANT Ltd reserves the right to carry out audits and inspections from time to time in relation to any reimbursed or outstanding warranty claims in order to determine that all relevant details and information is correct.

Service and Warranty Training

Service and warranty training for service fitters can be requested in writing. Initial training is to be carried out at an appropriate TAYLOR CONSTRUCTION PLANT Ltd workshop. Once this initial training has been carried out, you are responsible to carry further training as required by your own service centre or depot network.

Service Bulletins

TAYLOR CONSTRUCTION PLANT Ltd may from time to time issue service bulletins to keep you up to date as to any improvements or changes that may take place on the complete assembly or component parts.

Warranty Terms for Machines

Model

Terms

TAYLOR CONSTRUCTION PLANT Hi-T500 tracked dumper

One year or 1000 hours whichever occurs first from date of installation

TAYLOR CONSTRUCTION PLANT Hi-C40 mobile crusher

One year or 1000 hours whichever occurs first from date of installation

ALL ENGINE WARRANTY ISSUES MUST BE DIRECTED TO THE ENGINE MANUFACTURER, OR THE MANUFACTURERS APPROVED/APPOINTED ENGINE DEALER.

General Exclusions:

THE FOLLOWING ARE WARRANTY EXCLUSIONS AS DETERMINED BY KUBOTA: Service items including lubricants, coolants, filters, glow plugs, fan belts, fuel injection equipment, stop solenoid/relay, charge regulator, leaks (oil, water and air).

IN ADDITION: paintwork, wear parts and tracks.

Warranty Claim Submission Procedures

Claims must be reported accurately and all relevant details given, as follows:

OWNERS NAME AND ADDRESS: full name and address of customer and site location, if different MACHINE TYPE: State machine type, i.e. Hi-T500, tracked dumper, Hi-C40, crusher DATE OF FAILURE: INSTALLATION DATE: The actual date of installation, not invoice date SERIAL NUMBER: Serial number of unit ENGINE NUMBER: Serial number of engine HOURS USED: Sate hours used on hour clock. Please do not guess the hours used DETAILS OF FAILURE: Give a full report on the failure ORDER NUMBER: An order number will be required

Note: the order number is to cover the diagnostic and call out time, as well as to determine the following:

(i) That the failure is to be covered under the terms and conditions of warranty. If this is the case, then the costs will be covered by TAYLOR CONSTRUCTION PLANT Ltd and the **order number will not be used**.

(ii) If the failure is determined to be of a non-warrantable nature, further authorisation to continue will be sought before any rectification work takes place.

The information above must be provided even if your warranty claim is a "parts only" claim. An invoice will be raised for the exchange parts. The reported faulty/defective part must immediately be returned to TAYLOR CONSTRUCTION PLANT Ltd and full inspection of the parts carried out, if the failure is covered under the terms and conditions of warranty a credit note corresponding to the invoice will be despatched to the customer. If the failure is deemed to be of a non-warrantable nature, the invoice should be settled immediately.

Kubota UK Engine Dealers:

Bryce Group Ltd.

Daimler Close, Royal Oak Industrial Estate, Daventry, Northants NN11 5QJ. Tel:- 01327- 876166 Fax :- 01327- 300244 admin@bryco-diesel-engines.co.uk www.bryco-diesel-engines.co.uk

C.M.H. LTD.

Maudlins Industrial Estate, Monread Road, Naas, Co Kildare, Eire. Tel :- 00-353-458-76225 Fax :- 00353-459-7476 <u>cmhltd@gofree.indigo.ireland</u>

Hurley Engine Services.

Unit 7, The Maltings Industrial Estate, Brassmill Lane, Bath, Somerset, BA1 3JL. Tel :- 01225-336812 Fax :- 01225-442477 info@hurleyengines.co.uk

Bryco Group Ltd.

Daimler Close, Royal Oak Industrial Estate, Daventry, Northants. NN11 5QJ. Tel:- 01327- 876166 Fax :- 01327- 300244 admin@bryco-diesel-engines.co.uk www.bryco-diesel-engines.co.uk

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Jem Engines

23 Polmont Road, Laurieston, Falkirk, FK2 9QQ. Tel :- 01324-633266 Fax :- 01324-633870 info@jemengines.com www.jemengines.com

Meetens Industrial Engines Ltd.

Unit 2 Eclipse Trading Estate, 30 West Hill, Epson, Surrey. KT19 8JD Tel :- 0845-6340296 Fax :- 0800-0150707. sales@meetens.com www.meetens.com

Northern Lift Trucks (Northern Ireland) Ltd.

1 Flush Park, Knockmore Road, Lisburn, BT28 2DX. Tel :- 02892-673111 Fax :- 02892-660618 info@northern-group.co.uk

Phoenix Power Services.

Unit 12, Thames Trading Centre, Woodrow Way, Irlam, Manchester. M44 6BP. Tel :- 0161-775-4053 Fax :- 0161-776-2047. phoenixpower@btclick.com

Sean Cleary & Son Eng.Ltd. I.D.A. Industrial Estate, Dublin Road, Loughrea, Co.Galway, Eire. Tel :- 00-353-91-841420 Fax :- 00-353-91-842823

paddycleary@eircom.net

Trucks Morley Ltd.

Wakefield Road, Morley, Leeds. LS27 0JZ Tel :- 0113-2526777 Fax :- 0113-2380310. trucksmorley@tiscali.co.uk

Universal Engine Power Ltd.

Unit 9, Flitch Industrial Estate, Chelmsford Road, Great Dunmow, Essex. CM6 1XJ. Tel :- 01371-875331 Fax :- 0871-222-3772 info@uni-power.co.uk www.uni-power.co.uk

Woodleigh Power Ltd.

Unit 20, Highcroft Industrial Estate, Enterprise Road Horndean, Waterlooville, Hants. PO8 0BT. Tel :- 02392-571360 Fax :- 02392-592056. <u>sales@woodleighpower.co.uk</u> www.woodleighpower.co.uk

Yardbury Kinetics Ltd.

Altens Trade Centre, Hareeness Circle, Aberdeen. AB12 3LY Tel :- 01224-897947 Fax :- 01224-872374 admin@yardburykinetics.co www.yardbury.com

CERTIFICATE OF CONFORMITY

We declare that this product complies with the following Standards/Directives.

Machinery Directive 89/392/EEC as implemented by The Supply of Machinery (Safety) Regulations 1992 (Amended 1994).

BS/EN500 Mobile road construction machinery (Safety)

Product	:Tracked Carrier
Model	:HiT 500
Serial No	:HT-Bxxxx
Manufacturer Date	:xx/xx/2006
1	

Signed: PDrew

Date: xx/xx/2006

Mr Paul Drew Development Manager

This is a sample certificate of conformity inserted in this manual for reference, each machine is issued with a bespoke certificate sent to the head office of the purchaser, and copies are available on the request of purchaser.

1. Introduction

Please read carefully and understand before operating the equipment.

This Handbook is provided as a guide to familiarise the operator and service engineer with the controls, recommended inspections, start-up, operating, and shutdown procedures for HiT range of equipment.

Safety Precautions

This piece of equipment is designed as a compact tracked carrier with the carrying capacity of 500 Kg only. At all times loads should carried with the body in the low position and raised for tipping only when the unit is stationery

FAILURE TO COMPLY WITH WARNINGS COULD RESULT IN SERIOUS PROPERTY DAMAGE AND POSSIBLE PERSONAL INJURY.

The machine should be properly operated and maintained to keep it in safe efficient operating condition. Be sure that all controls are free of mud, grease, or other matter that might cause slips hazardous to the operator, serviceman, or other personnel or equipment.

Report all malfunctions to those responsible for maintenance. Do not operate the equipment until corrected. Normal service or maintenance performed as required can prevent unexpected and unnecessary down time. This handbook describes general inspections, servicing and operation with the normal safety precautions required for normal servicing and operating conditions. It is not a guide however, for other than normal conditions or situations.

Operators and Servicemen must be safety conscious and alert to recognise potential operating or servicing safety hazards at all times, and take, necessary precautions to ensure safe operation and servicing of the machine.

All information, illustrations and specifications contained in this publication are based on the latest product information available at the time of publication. The right is reserved to make changes at any time without notice

Continuing improvement and advancement of the design may cause changes to your machine that may not be included in this publication.

This Handbook contains lubrication and routine servicing instructions, most of which can be performed in the field. Service manual containing repair and rebuild procedures are available from the factory.

Machine Identification

Whilst reading this handbook you will notice references to controls and equipment that may not be found on all machines. It is important that you know your machine and its equipment and how to operate it properly.

Information regarding the machine model, code and chassis serial number is on the unit serial number plate. This plate is on the rear Left-hand side the machine model and serial number should always be referenced in any correspondence with your dealer or factory.



Data Plate (Fig. 1)

Theft Deterrent Practices

The owner/operator should take the following precautions to discourage theft, to aid in recovery in the event that the machine is stolen, or to reduce vandalism.

Actions to Discourage Theft and vandalism

- Remove all keys any time the machine is left unattended.
- Immobilise the machine by removing a critical electrical or starting system device.
- Upon receipt of a machine, record the machine serial number and the serial numbers of all-major components and attachments. Keep this list up to date and filed in a safe location for fast retrieval.
- Place a decal or notice on the machine stating that all serial numbers are recorded.
- Discourage the thief! Inspect the gates and fences of the machinery storage yard or construction site. Keep machines in well-lit areas and ask the local law enforcement authorities to make frequent checks around the storage yard or work site.
- Establish liaison with neighbours and ask them to watch equipment left at job sites and to report any suspicious activities to local allow enforcement authorities.
- Make frequent inventories of machines to promptly detect losses or vandalism.

Actions to aid in recovery of stolen machines

In the event of theft, immediately notify the law enforcement authorities having jurisdiction. Provide the investigating officer with name, type of equipment, chassis and serial numbers of major attachments and components. It would be helpful to show the investigating officer an Operator's Handbook, photographs, and advertising, to familiarise him with the appearance of the machine.

Report the theft to the insurance company. Provide the model and all serial numbers.

Report the model and serial numbers of the stolen machine to a dealer handling the respective line of equipment. Request that the dealer forward this same information to the equipment manufacturer.

2. Safety Precautions

General



- Read this operator's Handbook and learn the operating characteristics and limitations of the machine. Know what operating clearances the machine requires.
- Know clearances of all side and overhead obstructions such as wires, etc., for operating safety.
- Be aware of operating hazards that weather changes can create on the job. Know proper procedures to follow when a severe rain or electrical storm strikes.
- Never attempt to operate or work on a machine when not feeling physically fit.
- Know what safety equipment is required and use it. Such equipment may be hardhat, safety glasses, reflector type vests, respirators and earplugs.
- Never wear loose clothing, rings, and watches etc. that might catch levers and controls and cause loss of control.
- Keep hand controls free from water, grease and mud to assure non-slip control.
- Handle fuels and lubricants carefully and clean up spills to avoid fire and slipping hazards.
- Never rush. Walk, do not run.

Preventing Fire Hazards



General Fire Precautions

- Clean all dirt, oil, grease and other fluids from systems and components to minimise fire hazards and aid in spotting loose or leaking lines, fittings etc.
- Check the engine for rubbish, oily rags or other debris that could cause fires before starting the engine.
- Safely dispose of greasy, oily rags or similar hazards.
- Flammable Fluid Precautions
- Don't use diesel fuel or other flammable fluids for cleaning purposes. Use approved non-flammable solvents.
- Make sure all-fluid systems caps, drain, valves, fittings, lines etc., are secure and leak free.
- Never use an open flame (match, lighter etc.) when checking fuel, lubricant, coolant and battery fluid levels or when checking for fluid leaks. Use a flashlight or other safe lighting only.
- Shut off engine and use extra caution if engine is hot when refuelling. Never smoke while checking or adding fuel or other fluid or handling fluid containers and lines.
- Use care and do not stand downwind when adding fuel or other flammable fluids to tanks and reservoirs to avoid fluids being blown or splashed onto clothing.
- Close fuel tank shut-off valves, if used, before servicing fuel system.
- When preparing machines or components for storage, seal and tape all openings and close containers tightly to seal in all volatile inhibitor fluids and compounds used.
- Follow manufacturer's recommendations when handling and using engine-starting fluids and disposing of spent containers. Do not puncture or burn empty containers. These fluids are explosive and highly flammable.

Precautions Electrical Hazard.



- Never smoke or allow open flames or sparks near batteries.
- Leave battery box open when charging batteries in machine for adequate ventilation of explosive gas (Hydrogen) produced.
- Always disconnect batteries before repairing electrical system to avoid danger of fire-causing sparks. Disconnect battery ground cable first and reconnect last.
- Always disconnect batteries and alternator leads before carrying out any welding on the machine.
- Never check battery charge by placing metal objects across battery posts to avoid sparks at battery posts.
- Use jumper cables only as recommended. Improper use can result in battery explosion or unexpected machine motion.
- Never operate engine starter for more than 15 seconds and allow 30 seconds between cranking periods for cooling. An overheated starter could cause a fire.

Pre-Starting



- If engine is to be started and run indoors, ensure proper ventilation to remove deadly exhaust gases.
- Always perform 'Pre-Starting Inspection' instructions described in this manual to ensure the machine is ready for operation.

Starting



- Do not start the engine or operate any control if there is a 'DO NOT OPERATE' or similar warning sign attached to any control.
- Use jumper cables only as recommended. Improper use can result in battery explosion or unexpected machine motion.

- Always obey 'Starting the Engine' instructions.
- Start and operate the machine **only** from the operator's station.

Operating



- Always perform 'Pre-Operating Checks' described in this manual to ensure the machine is ready for operating.
- Do not operate the machine if exposed personnel enter the immediate work area.
- Be sure the body is fully down before moving the machine-warning buzzer will sound if body is not fully down.
- Always try to face or look in the direction the machine is travelling.
- Always operate straight up or down slopes whenever possible. Side-hill operation can cause sideslip and possible rollover.
- Slow down when moving in congested areas. Do not race with other machines. Stop in authorised areas only, except in an emergency.
- Always watch for holes, soft edges or other hazards when dumping over a spoil bank.
- Operate body raising mechanism on firm level surface only, a buzzer will sound to warn the operator and others in the area once the body raises above horizontal.

Lubrication and Servicing

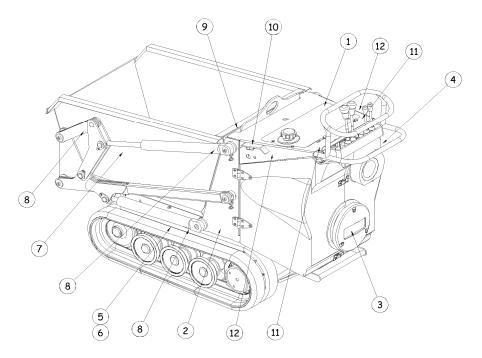


- Do not allow unauthorised personnel to service or maintain the machine. Study the Operator's handbook and Service Manual before starting, operating or servicing the machine.
- Do not work under or near unblocked or unsupported body. Always invert the empty body.
- Do not work under or near any unblocked or unsupported linkage, part or machine.
- Always relieve pressure before servicing any pressurised system.

Decals

Decals fitted to machines may vary from country to country to suit local needs. These pages contain a brief description and the location of the decals and control plates that may appear on this machine.

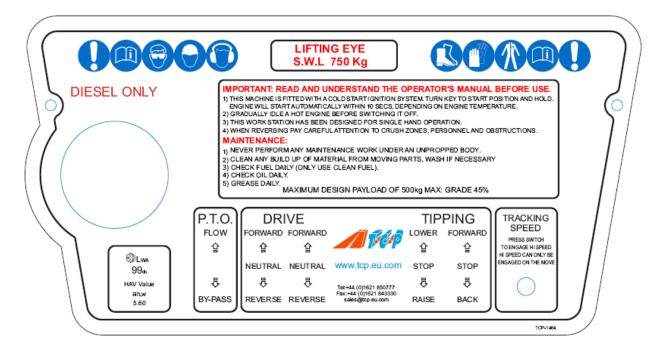
Ref	Part	Part Name	Qty
	Number		
1	80-0076	Control Panel Mk4	1
2	80-0001	Data Plate – Serial No.	1
3	80-0077	Muffler	6
4	80-0004	Warning Hot Exhaust	2
5	80-0012	Oil Filter & Dipstick	1
6	80-0005	Oil Filler	1
7	80-0010	H T 500 Body Logo	2
8	80-0003	Warning Crush Zone	6
9	80-0013	Caution Sign	1
10	80-0020	Starting Instructions	1
11	80-0009	Warning Crush Zone	2
12	80-0007	'CE' Marking	2
12	80-0011	PTO Optional	1



Decal Layout (Fig. 2)

3. Controls

Operating Control Diagram



A view of the Control Panel (fig 3)

Engine Accelerator

This is mounted on the left-hand side of handlebar assembly and is operated by the hand. Press the lever down as required to increase fuel flow to accelerate the engine.

Do not place engine under full load at full speed immediately after starting. Always allow the engine to fully circulate lubricant and warm up gradually before operating at full speed and full load. Operate the engine at top rated speed when maximum power is needed for maximum speed and load.

Steering Via Hydrostatic Drive

The steering is performed by:



- To steer the machine, apply differing pressure to the control levers.
- Apply equal pressure on both levers to the forward position will make the machine move forward in the desired direction at speed.
- The machine will turn only when more or less pressure is applied to either lever proportional to the lever movement

To operate in the opposite direction.

The Reverse procedure is performed by:



- Apply equal pressure on both levers to the reverse position will make the machine move backward in the desired direction at speed.
- The machine will stop and hold any position when the both levers are released (Dead-man Brake)

4. Operating

Operating

Pre-starting Inspection



- Before the engine is started ensure the machine is ready for operation
- The machine should be in a level position to permit accurate checking of fluid quantities in the engine and other components.
- Walk around the machine and carry out the Inspections and Components Checks described on the following pages.

Daily Component Checks

ACCESS TO THE ENGINE FOR ROUTINE MAINTENANCE IS ACHIEVED BY OPENING THE LEFT HAND SIDE OF THE ENGINE ENCLOSURE.

- Reference should be made to engine manufactures handbook.
- Engine With engine off, check oil level. The level should be just over the last thread at filler Add oil if low. (See lubricant chart for correct oil).
- Inspect the engine air cleaner for any damage (replace immediately. Using an engine with a damaged air cleaner will seriously reduce engine life).
- Check that oil cooler outlet grill (between body and chassis) is clear of obstructions.

THESE INSTRUCTIONS MUST BE ADHERED TO IN ORDER TO ASSURE CONTINUANCE OF ENGINES WARRANTY.

- Carefully inspect tracks for cuts, or other damage, and correct spring preload.
- Inspect for any leaks whether fuel, engine oil or hydraulic oil.
- Check fuel level Fuel tank should be filled at end of each shift.

Engine Operation



Do not place engine under *FULL LOAD* at *FULL SPEED IMMEDIATELY* after starting. *ALWAYS* allow the engine to fully circulate lubricant and warm up gradually before operating at full speed and full load.

Operate engine at top rated speed when maximum power is needed for the load.

NEVER IDLE THE ENGINE FOR MORE THAN 5 MINUTES AT A TIME. SHUT IT OFF.

If operated outside its normal operating range, shut engine down immediately and report to service or maintenance personnel.

WARNING

Never start the engine indoors unless proper exhaust ventilation is provided to remove deadly exhaust gases. Once the engine is running, move the machine outdoors as soon as possible. Exhaust gases are hazardous and can cause unconsciousness and death.

Operating the engine beyond high idle speed can cause severe engine damage. The engine speed must not exceed 3,600 rev/min under any circumstances. When descending a steep grade, use a combination of lever and engine speed.

Starting the Engine

The Mk5 is fitted with a start delay circuit to allow the glow-plug to reach its operating temperature before the engine will crank, this is operative at all times.

- 1. Make sure that all levers are in the neutral position.
- 2. Insert switch key and turn fully clockwise to position '3' and hold, the engine will crank automatically after approximately 5 seconds, release key.

NOTE:

Never crank the engine for more than 10 seconds continuously. Allow starter at least 30 seconds cooling time between cranking periods to avoid overheating.

Starting the Engine with Jumper Cables.

Access to the battery and starter motor terminals is restricted on the Mk5. To allow jump starting to take place a Stud Terminal is located on the left rear of the engine mounting frame, this Stud Terminal is connected to the positive stud on the battery. To access this Stud Terminal open the left hand side of the engine enclosure.

WARNING CHARGING OF ODYSSEY BATTERIES

Check for polarity connections of the discharged battery. Do not exceed 15 volts during charge. Excessive booster voltage and/or incorrect jumper cable connections will destroy working plates inside battery. Keep all sources of ignition away from batteries. Do not lean over batteries. Do not allow the battery to become full discharged you may find that it can not be recover from this state rendering it unserviceable

Voltmeter Reading	State of charge
12.84 Volts	100%
12.50 Volts	75%
12.18 Volts	50%
11.88 Volts	25%

Do not jump start a vehicle by using arc welding equipment. Currents and voltages are dangerously high and cannot be sufficiently reduced to make the method safe.

NOTE:

Be sure machines are not touching each other. Use cables that are equal to cable size on the machine.

If jumper cables are used to start an engine, be sure to follow this procedure: Connect one end of the jumper cable, usually coloured red, to the

discharged battery '**POSITIVE'** (+) stud terminal.

Connect the other end of the same cable to the **'POSITIVE' (+)** post on the booster or charged battery.

Connect one end of the second cable, usually coloured black to the **NEGATIVE' (-)** post of the booster battery.

Connect one end of the jumper cable to a convenient point on the engine frame 'NEGATIVE' (-).

Keep grounding point clear of battery so that if a spark occurs, it is away from battery fumes (explosive hydrogen).

Check for cause of failure on the dead battery.

Battery Charging

A battery charging connection stud (+ve) is built into the Mk5 and is located on the left hand side of the Battery Box, fixed to the engine mounting frame. Access to this is gained by opening the left hand enclosure panel. The -ve connection can be made to any part of the engine casting or mounting frame.

Moving and Stopping



- 1. Make sure the area around the machine is clear of personnel and obstructions before moving off.
- 2. In the first few minutes of travel check carefully for the required controls for maximum operating safety.
- 3. Make sure the body is fully down, buzzer will sound if in the raised position.
- 4. Select the driving direction and the required engine speed.
- 5. Move levers to the required position; apply more accelerator until the required speed has been reached.
- 6. To stop the machine release the control levers slowly and release the accelerator as the machine slows until it stops.

Stopping the Engine



- 1. Cool a hot engine by operating the engine at 1,000 rev/min and then slowly decelerating it over a 5-minute period until the engine is idling. Let it idle for at least 2 minutes.
- 2. ALWAYS COOL A HOT ENGINE GRADUALLY BEFORE SHUTTING IT OFF.
- 3. Turn ignition key switch off to shut off fuel and stop engine.
- 4. Make sure body is in the lower position.

Parking



When parking the machine overnight, or for an extended period, the following procedure in addition to that given in **'Stopping the Engine'** will help maintain it in good condition for subsequent use:

- 1. Fill the fuel tank completely before parking the machine overnight or for extended periods, to prevent condensation. If security kit is supplied, keep it locked
- 2. Always park on level ground where possible. If it must be parked on a slope, position machine at right angles to the slope and block tracks securely.
- 3. Remove key to a place of safety

WARNING

Check tracks, hoses, wiring, tubing and fittings for cuts, abrasion, fraying, or other damage or deterioration. Inspect for damage to the body or chassis. Attach warning signs to the controls to alert others if lubricant has been drained, batteries removed etc.

Loading

The most common methods of loading this type of machine is with hydraulic excavators, or by hand, these units can be loaded equally well from the front or the side. Ideally, excavators should require 90° or less swing.

Always position the machine on a level firm surface for loading and leave the loading area until indicated by loader driver.

The following precautions should be observed when approaching the loading area and while being loaded wait until it is safe to return to the machine.

Avoid over filling the dump body. Spillage could damage the tracks and other components. Clear up such debris (see fig 4).

Do not load with machines that are over large and would allow material and fill to fall from the bucket missing the body. This can be dangerous to both operator and the unit.

Pay attention to site conditions to avoid rocks, holes, or other obstacles. Such obstacles present hazards to safe operation, but also can needlessly damage tracks.

Tipping



The tipping operation usually depends on the type of material being hauled. Be aware of other personnel within the operating area.

A warning buzzer sounds whenever the body is raised above the horizontal position, this is as a general warning to the operators and other personnel in the operators' zone to take necessary care and precautions.

If tipping at low level, ensure you are clear of all obstacles within the tipping arc of the body. It is possible to fully invert the body of the Hi-T tracked carrier, care must be taken that the load to be discharged will readily leave the body once tipping commences. A retained load may result in machine instability.

Never leave a machine loaded over night, or load with a material that could settle with the engine ticking over for a long period.

Always clean the body of any retained load for efficient safe working.

Be aware of any precautions and additional safety equipment that may be needed when handling, hazardous, caustic or cementious materials.

If in doubt seek advice.

Before discharging the load, the machine must be on firm level ground. If one track is higher than the other, a twisting strain is imposed upon the body hinge pins and chassis. This could result in machine instability and damage.

Use the control levers to position the body. Operate from the designed operating position only, keep clear of the tipping mechanism injury could occur. Once the load has been tipped, move the control levers into the 'DOWN' position.

If the load does not clear completely, the built in stops in the mechanism may used to assist discharge, the cylinder does not need to be retracted before extending again.

To tip into a waste skip choose a position that will allow the body to fully discharge its load, raise the body only with the machine stationary, once raised the machine may be inched forward until the tracks contact the side of the waste skip. The body can then be tipped to discharge load.

Average Specific Gravity

	Loose Density		Fill Factor	
Material	kg/m ³	Ib/yd^3	%	
Snow (Fresh)	200	337	100	
Peat (Dry);	400	674	100	
Sugar beet	530	894	100	
Coke (Loose)	570	961	85	
Barley	600	1012	85	
Petroleum Coke	680	1146	85	
Wheat	730	1231	85	
Coal Bituminous	765	1290	100	
Fertilizer (Mixed)	1030	1737	85	
Coal Anthracite	1046	1764	100	
Earth (Dry)(Loose)	1150	1939	100	
Nitrate Fertilizer	1250	2180	85	
Sodium Chloride (Dry)(Salt)	1300	2192	85	
Cement Portland	1440	2428	100	
Limestone (Crushed)	1530	2580	100	
Sand (Dry)	1550	2613	100	
Asphalt	1600	2698	100	
Gravel (Dry)	1650	2782	85	
Clay (Wet)	1680	2832	110	
Sand (Wet)	1890	3187	110	
Fire Clay	2080	3507	100	
Ready Mixed Concrete	2194	3698	85	
Copper (Concentrate)	2300	3878	85	
Slate	2800	4721	100	
Magnetite	3204	5402	100	

Specific Gravity (Fig. 4)

5. Lubrication and Servicing

SAFETY PRECAUTIONS

- Do not allow unauthorised personnel to service or maintain this machine.
- Study the Operator's Handbook and Service Manual before staring, operating or servicing this machine. Always follow procedures and safety precautions detailed in this manual.
- Do not work under or near an unblocked or unsupported body. Always invert the empty body.
- Do not work under or near any unblocked or unsupported linkage, or any part of machine.
- Always shut down machine according to the procedure described under 'Stopping The Engine' before cleaning, lubricating or servicing the machine
- Always relieve pressure before servicing any pressurisation system.
- Always attach a 'DO NOT OPERATE' or similar warning sign to ignition switch or a control before cleaning or servicing the machine.
- Use correct 'Personal Protection Equipment' when handling the Ceramic wrapped exhaust pipe and engine cover Ceramic heat barrier.

LUBRICATION AND SERVICING

ACCESS TO THE ENGINE FOR ROUTINE MAINTENANCE IS ACHIEVED BY OPENING THE LEFT HAND SIDE OF THE ENGINE ENCLOSURE.

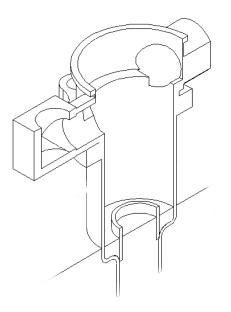
- Lubrication is an essential part of preventive maintenance. It is important that the instructions regarding types of lubricants and the frequency of their application be followed to prolong the useful life of the machine. Periodic lubrications of moving parts reduce to a minimum the possibility of mechanical failures.
- Thoroughly clean all fittings, caps, plugs etc., to prevent dirt from entering the system while servicing.
- Lubricants must be at operating temperatures when draining.

- Do not operate any system unless oil level is within the operating range as indicated on the dipstick, or level plug.
- All change and service periods are recommendations based on average operating conditions. Lubricants showing evidence of excessive heat, oxidation or dirt should be changed more frequently to prevent these conditions. Lubricants change and service periods must be established on the basis of individual job conditions.

Miscellaneous Servicing Information

When required:

- Hydraulic Tank Cold Oil Level
- Hydraulic oil dipstick is not used to checked oil it is there to allow the air in the tank to be displaced when filling.
- To add oil, remove red top of filter, pull out filter, and remove dipstick, if low fill through the filter housing until the level is 6mm below the tube in the base of the filter housing.



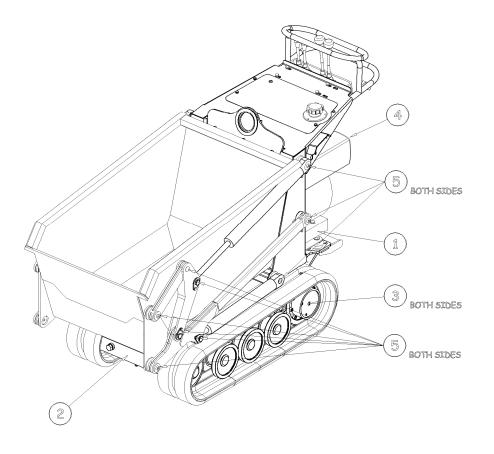
Recommended Lubricants

Note: Do not mix Lubricants

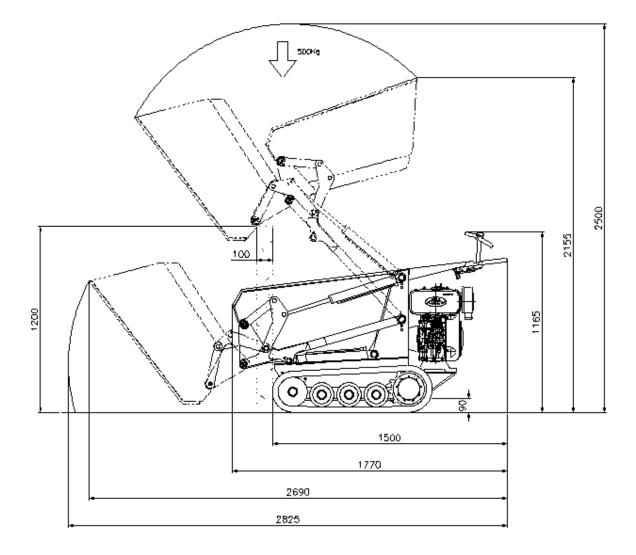
Item No	Component	Lubricant	Specifications	API	SAE	
				Code	Grade	
	Engine	Engine Oil with				
1	Crankcase and	1.85% max.		CC/CD	10W-30	
	Filter	Sulphated ash limit				
	Undroulia		ISO HV32			
2	Hydraulic System	Hydraulic oil	Viscosity Index			
	System		170			
	Hydraulic					
3	Motor	Gear Oil	Viscosity Index		EP90	
	Gearbox		95			
			A.S.T.M. No.2			
		Diesel Fuel Oil	Diesel Fuel at			
4	Fuel tank	with max. Sulphur	sub zero temp.			
		0.5%	blend No. 2 with			
			No.1			
			Stern Tube			
		Extreme Pressure	Grease C/W		No. 2	
5	Grease Nipples	Lithium (No	Extreme		Consistency	
		'Moly')	Pressure			
			Capabilities			

Lubrication Chart (Fig. 5)

N.B. Shown with Engine Enclosure removed.



Lubrication Layout (Fig. 6)



"Basic Overall Dimensions"

(Fig. 7)

General Specification

Hi-T	500	Diesel
Maximum Carrying Capacity	Kg (lbs)	500 (1100)
Skip Volume	Lt (ft 3)	255 (9.0)
Unladen Weight	Kg (lbs)	448 (987)
Width	mm (ins)	700 (28 ins)
Height	mm (ins)	1165 (45.8 ins)
Height Over Skip	mm (ins)	2500 (98.4 ins)
Height Under Skip	mm (ins)	1200 (47 ins)
Length	mm (ins)	1770 (69.6 ins)
Max Gradeability	%	45%
Turning Circle	mm (ins)	2000 (78.5)
Track Ground Pressure	Kg/cm ² (psi)	0.351 (4.99)
Engine (All with Electric Start)	kW (HP)	Kubota OC95 7.1 (9.5)
Speed Forward	Kph (Mph)	4 (2.5)
Speed Reverse	Kph (Mph)	2 (1.2)
Power Take Off	20 lt/m @ 120 bar	Optional
Noise Level	Lwa	99

General Specification (Fig. 8)

Miscellaneous Bolt & Nut Torque Specification

Friction coefficient total 0.14 for screws and nuts without after treatment as well as for phosphate nuts.

Tighten by hand.

If nothing special is indicated select correct torque limits from the following tabulations:

]	Metric I	SO Th	read DIN	13		
Size	Some	6.9 Engine Bolts	8. Standard		10.9 Some Engi		12.9 Standard Caj	o head
	Nm	(Ibfft)	Nm	(Ibfft)	Nm	(Ibfft)	Nm	(Ibfft)
M6	8.5	(6.3)	10	(7.4)	14	(10.3)	17	(12.5)
M8	21	(15.5)	25	(18.4)	35	(25.8)	41	(30.2)
M10	41	(30.2)	49	(36.1)	69	(50.9)	83	(61.2)
M12	72	(53.1)	86	(63.4)	120	(88.5)	145	(106.9)
M14	115	(85)	135	(100)	190	(140)	230	(170)
M16	180	(133)	210	(155)	295	(218)	355	(262)
M18	245	(181)	290	(214)	400	(295)	485	(358)
M20	345	(255)	410	(302)	580	(428)	690	(509)
M22	465	(343)	550	(406)	780	(575)	930	(686)
M24	600	(443)	710	(524)	1000	(738)	1200	(885)
M27	890	(656)	1050	(774)	1500	(1106)	1800	(1328)
M30	1200	(885)	1450	(1070)	2000	(1475)	2400	(1770)

Torque Settings (Fig. 9)

Every 10 hours of operation (Daily Walk Around Inspection)

• Visually check engine for damage, listen for any unusual noises:

- Engine Air Cleaner, Inspect and remove any obstructions from the air cleaner inlet with the engine stopped:
- Check Engine oil level, add oil if low see lubrication chart, With the engine off, the oil should be just over the last thread at filler: (Note do not over fill).

Fabrications:

- Lubrication (greasing) Periodic lubrications of moving parts reduce to a minimum the possibility of mechanical failures:
- Check for any loose bolts or fixings, tighten as per bolt chart:
- Check for any oil leak's securely tighten any loose joints, replenish any loses:

Note:

- Service air cleaners more often when operating under extremely dusty conditions.
- Do not wash the air cleaner element out with detergent replace with new.

After first 50 hours of operating new or rebuilt components:

- With the engine off and body inverted, remove red top of filter, pull out filter.
- Check level refill hydraulic tank as per lubrication chart. Check oil level by remove dipstick if low fill through the filter housing until the level is 6mm below the tube in the base of the filter housing:
- Replace the hydraulic oil filter install new element each time do not reuse.
- Engine crankcase, drain oil replace as per lubrication chart check oil level the oil should be just over the last thread at filler: (Note do not over fill)
- Lubrication (greasing) Periodic lubrications of moving parts reduce to a minimum the possibility of mechanical failures:

Every 100 hours or operation (Monthly)

- Engine crankcase drain oil replace as per lubrication chart check oil level the oil should be just over the last thread at filler: (Note do not over fill)
- Lubrication (greasing): -periodic lubrications of moving parts reduce to a minimum the possibility of mechanical failures:
- General inspection check entire unit for leaks loose bolts and nuts or damaged parts. Examine the body, particularly the chassis, for cracks or broken welds. Repair where necessary.
- Engine air intake. Check air intake system for wear or damage to piping, loose clamps and leaks.

• Drain fuel remove filter screen replace the assemble install new filter screen and refill tank. If contaminated fuel is suspected frequency may need to be increased.

Every 300 hours of operation:

- Drain fuel and replace fuel filter.
- Lubrication (greasing): -Periodic lubrications of moving parts reduces to a minimum the possibility of mechanical failures.

Every 1000 hours of operation (6 Months):

- Lubrication (greasing): -Periodic lubrications of moving parts reduces to a minimum the possibility of mechanical failures.
- Replace hydraulic oil filter install new element each time do not reuse.
- Drain and replace track motor gearbox oil.

Every 2,000 hours of operation (Annually):

- Lubrication (greasing):- Periodic lubrications of moving parts reduces to a minimum, the possibility of mechanical failures.
- Hydraulic Oil Tank:-Drain oil, remove and clean filter screen assemblies. Reinstall filter screens and refill tank.
- Hydraulic Oil Filter Clean filter housing and install new element after a year or 2,000 hours of operation whichever comes first.

All information contained in the 'Lubrication and Service Chart' is extracted from the relevant manufactures Operators Manual and was correct at time of publication. User should ensure that information contained in this chart, regarding engines and hydraulics, reflect the information shown in the relevant manufacturers Operators Manuals, supplied with the machine. Maintenance procedures should be carried out in conjunction with any additional procedures contained in the relevant manufacturers 'Operation and Maintenance Manual', at the intervals specified.

Lubrication and Miscellaneous Servicing:

Small circles on the illustration represent points at which lubrication or servicing must take place, at the intervals indicated on the left-hand side of the lubrication chart.

Note:

- 1. The use of low viscosity oils, such as 10W or 10W 30, can be used to aid in starting the engine and providing sufficient oil flow at ambient temperatures below -5°C (23°F). Continuous use of low viscosity oils can decrease engine life due to wear.
- 2. Operation below the minimum temperatures listed for the oil used without proper preheats or warm-up results in greatly reduced life. Proper warm-up requires 20 minutes minimum (with engine at part throttle) before operating.
- 3. Hydraulic Oil meeting specification is the only oil suitable for use in this hydraulic system.

IMPORTANT NOTE

IN THE EVENT OF ANY HYDRAULIC COMPONENT (INCLUDING HOSES) BEING REMOVED, PLEASE REFER TO THE TECHNICAL BULLETIN (TB-2364) AT THE END OF THIS MANUAL.

^{6.} Maintenance and Replacement Parts

Full access to the engine can be achieved by opening the right and left hand engine enclosures; this can be achieved as follows:

- 1. Remove air cleaner cover and filter.
- 2. Release and remove the three M8 bolts securing the air cleaner body and intake extension to the engine.
- 3. Release the enclosure clips.
- 4. Right hand enclosure will now swing outwards.
- 5. Should the need arise both enclosures can be removed.
- 6. Release and remove the 8no M6 Countersunk Head screws that attach the enclosures hinges to the chassis.

Do not release the screws that attach the hinges to the enclosures.

7. Re-assemble in the reverse order of the above, replacing gaskets and filter as necessary.

DO NOT RUN ENGINE WITH THE AIR CLEANER REMOVED.

ALWAYS REFIT THE AIR CLEANER SHOULD IT BE NECESSARY TO RUN THE ENGINE.

Replacement of Rubber Drive Track

In the event that the drive Track being displaced during operation follow the procedure listed below.



Typical view of displaced track



Support lower chassis along its length



Remove blanking plugs





Insert jacking bolts adjust equally

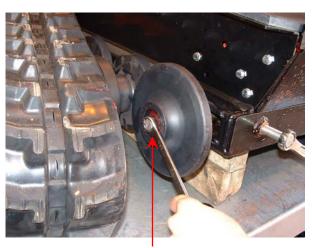
lubricate jacking bolts (supplied)



Adjust until idler is in line with roller DCA 00256



Remove blanking plug



Remove securing bolt



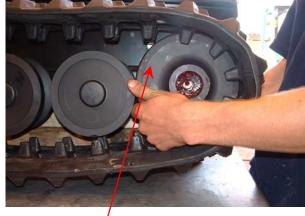


Place Idler in drive track



Insure Idler is fully home

Remove Idler



Slide drive track and Idler on shaft



Replace blanking plug



Install securing bolt (torque 49Nm)





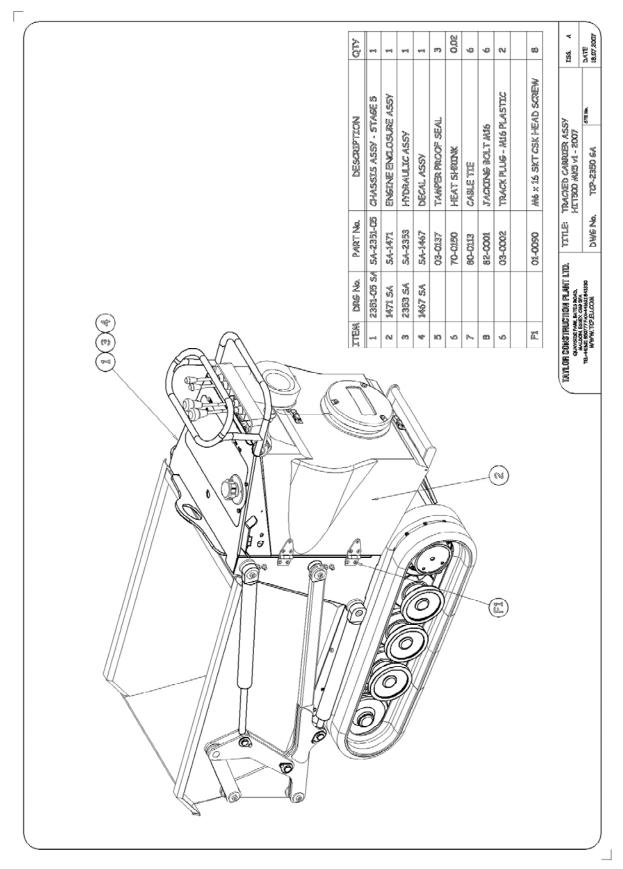
Remove jacking bolts

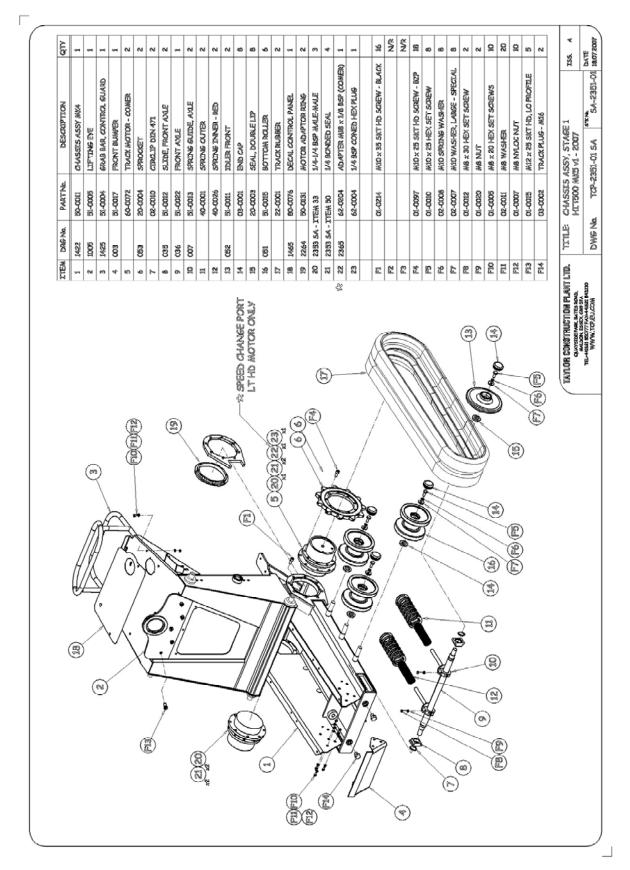
Replace blanking plugs



Remove any blocking under chassis run and test.

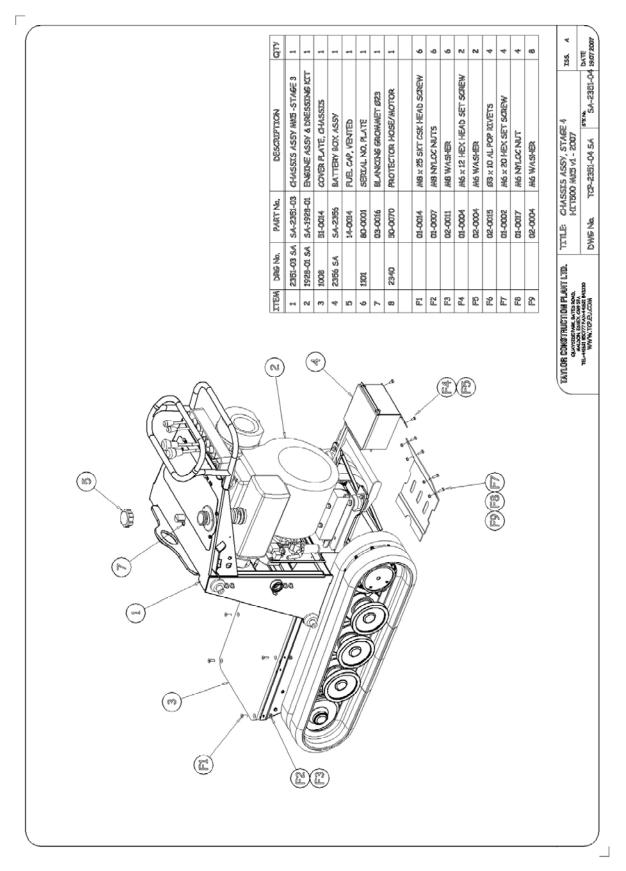
Assemblies and Parts Listings:

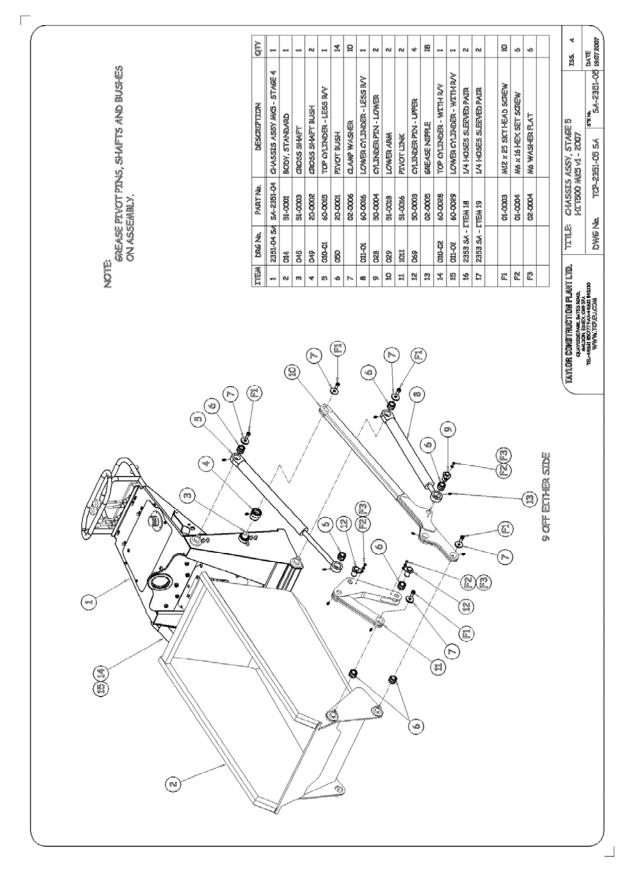




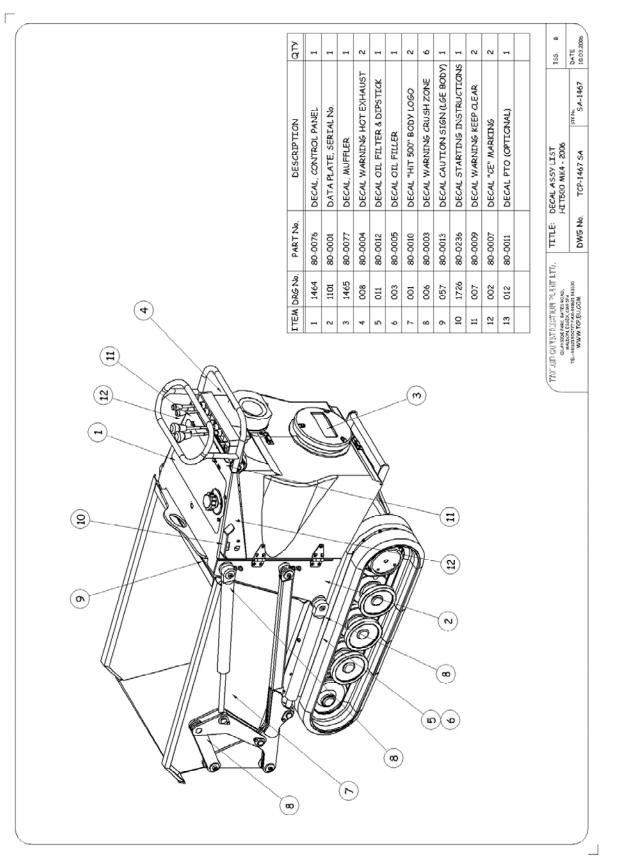
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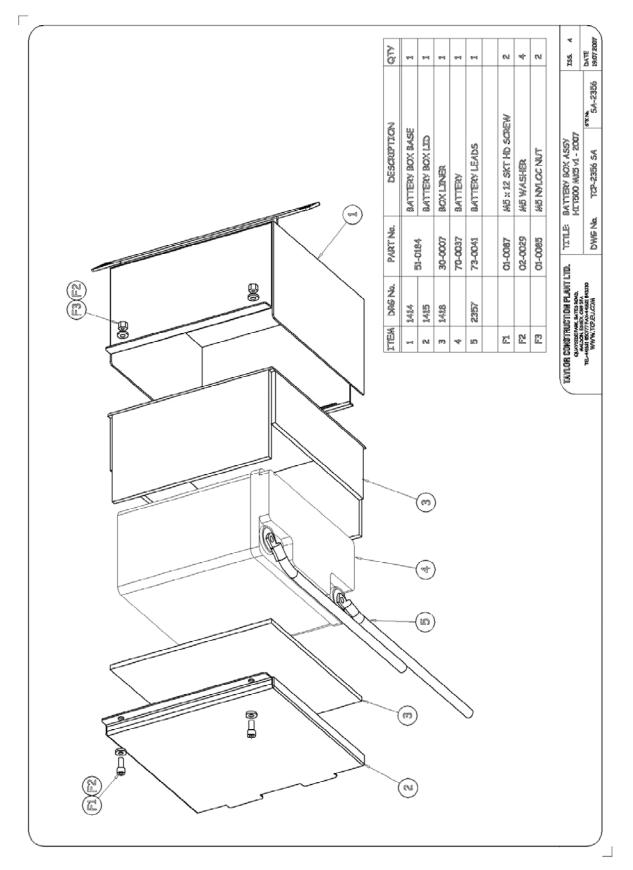
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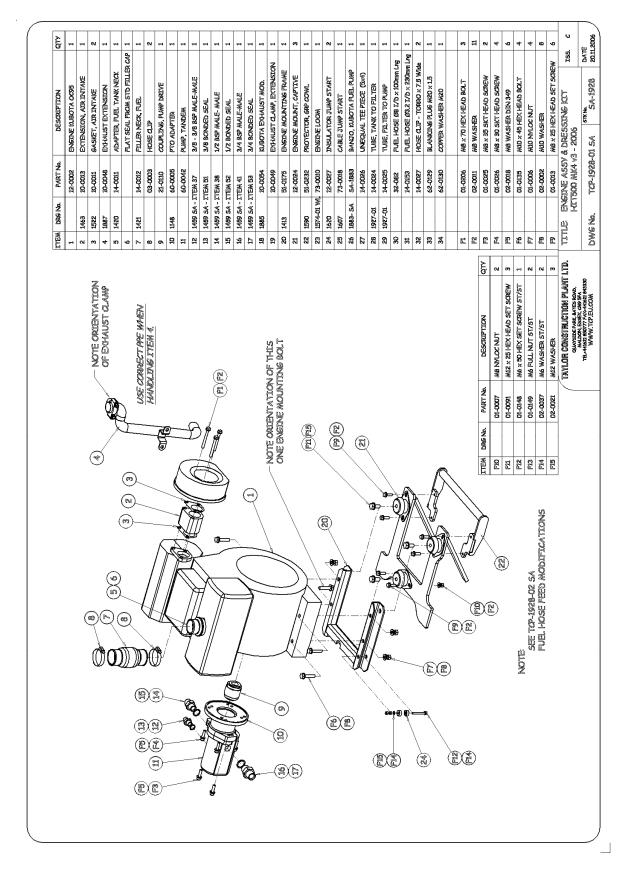


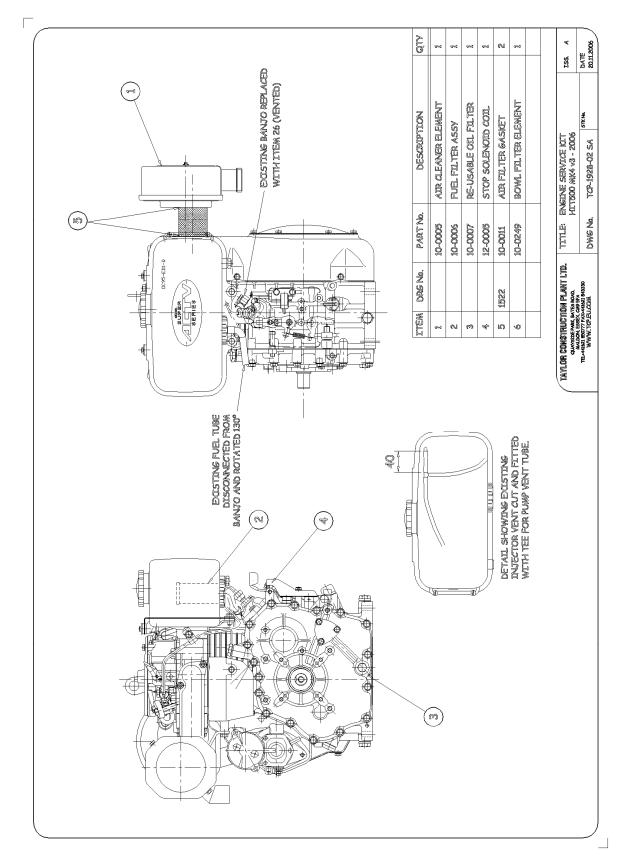


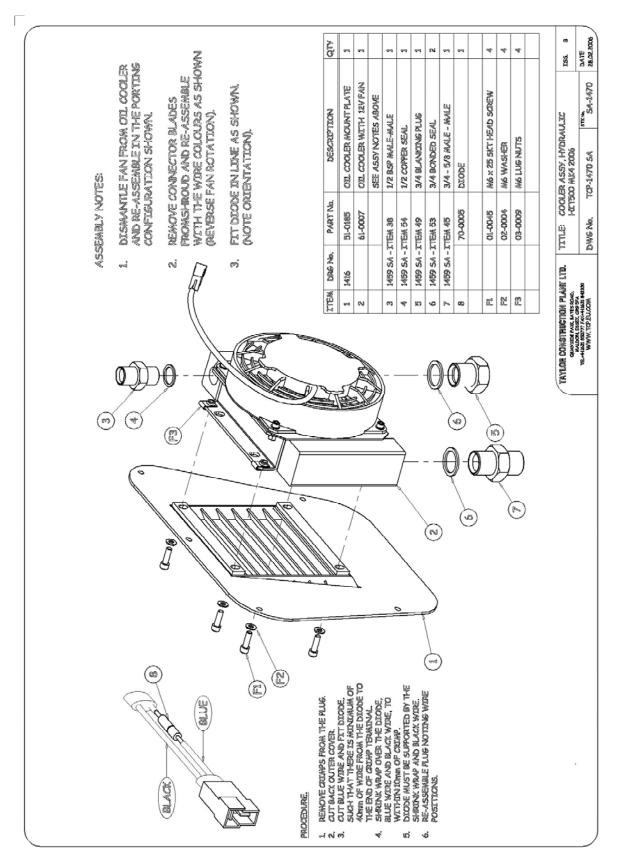
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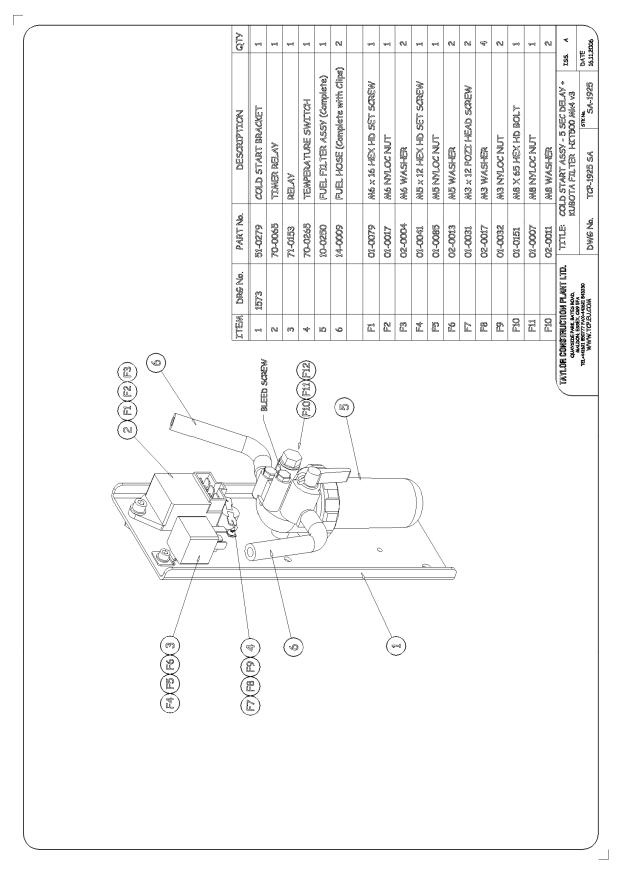


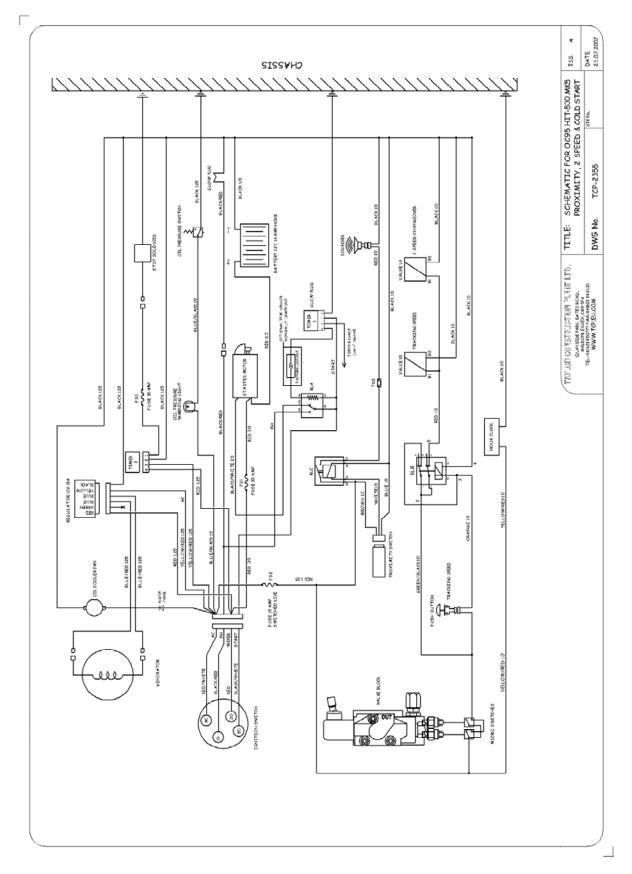


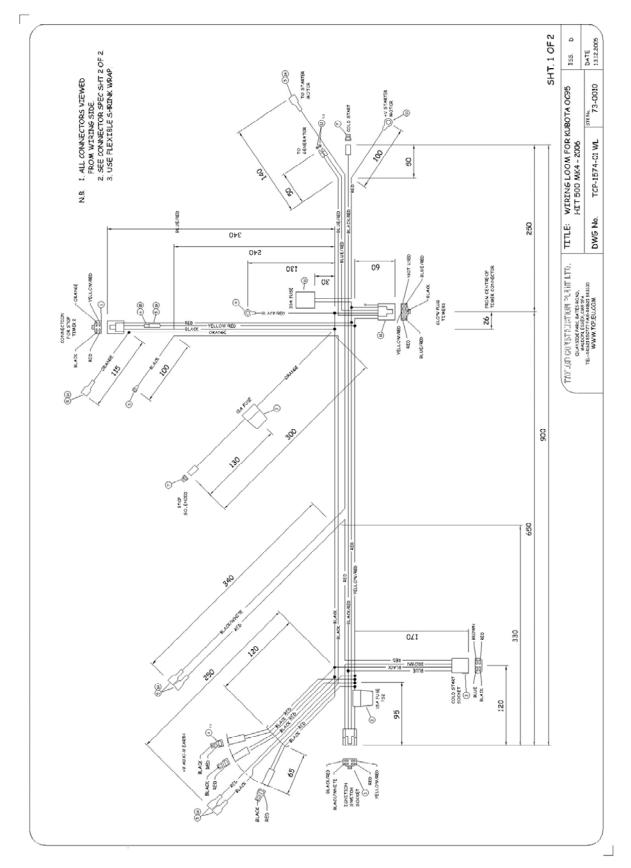




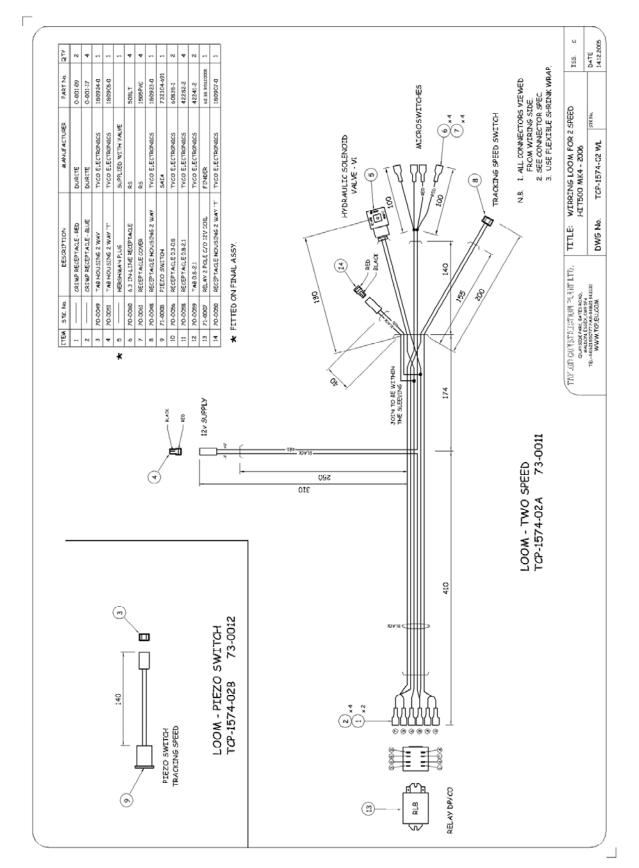


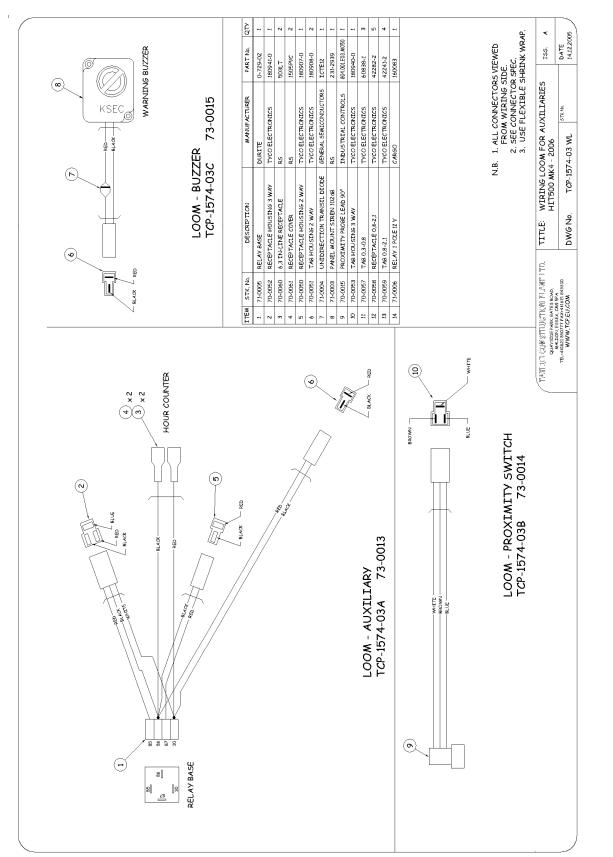


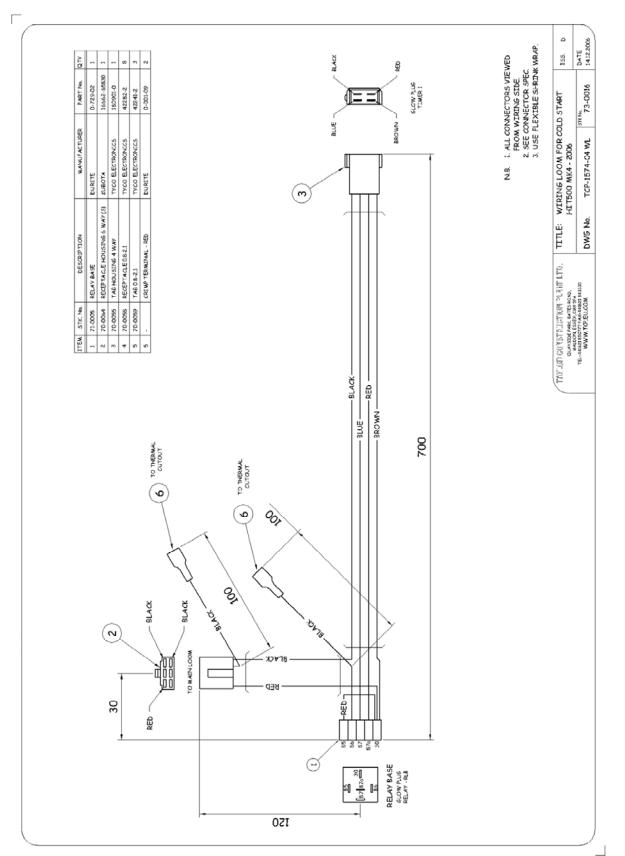


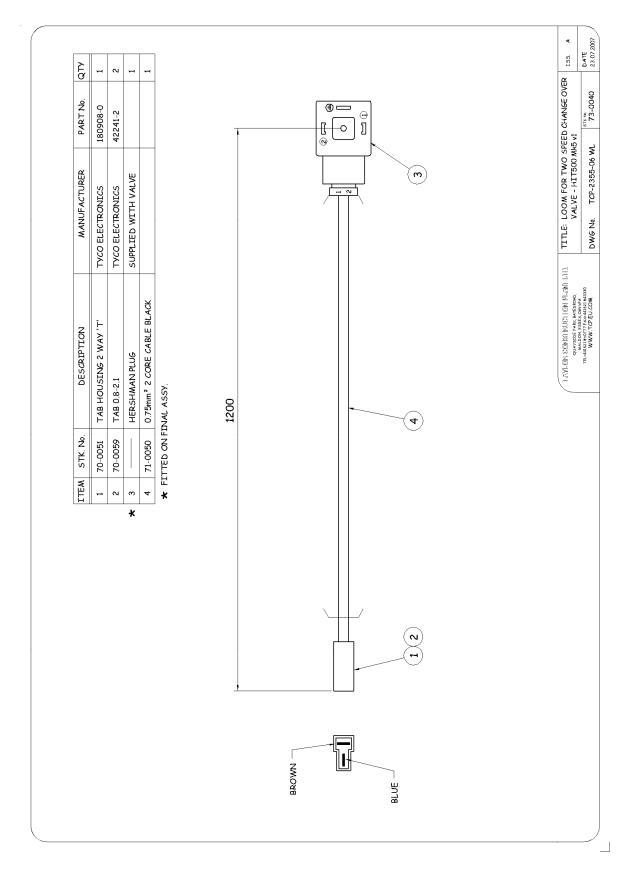


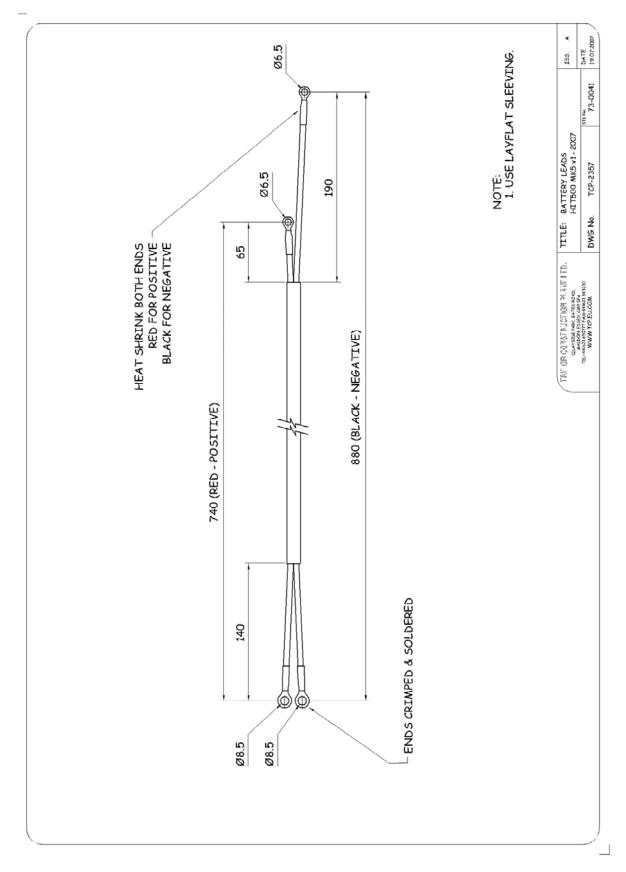
																							SHT 2	10095 ISS D
																								OR KUBOTA
																								WIRING LOOM FOR KUBOTA 0095
ΥŢ	2	~	1	e	7	-	~	1	1	1	1	2	1	7	1	10								TITLE: N
P.ART No.		0-376-90	180900-0	180907-0	503LT	DOM6.3-2.5LT		0-001-02						1505PVC	1504PVC	42282-2	0-375-15							
CTURER	ENGINE		ICS	ICS			ENGINE		ENGINE	ENGINE	ENGINE	ENGINE	ENGINE			ICS								TOM SONST PLET ON PLET
MANUFACTURER	SUPPLIED WITH ENGINE	DURITE	TYCO ELECTRONICS	TYCO ELECTRONICS	RS	RS	SUPPLIED WITH ENGINE	DURTE	SUPPLIED WITH ENGINE	SUPPLIED WITH ENGINE	SUPPLIED WITH ENGINE	SUPPLIED WITH ENGINE	SUPPLIED WITH ENGINE	RS	RS	TYCO ELECTRONICS	DURITE							MAIL
DESCRIPTION	RECEPTAGLE HOUSING 4 WAY (S)	IN-LINE FUSE HOLDER	RECEPTAGLE HOUSING 4 WAY	RECEPTAGLE HOUSING 2 WAY 'T'	6.3 IN-LINE RECEPTACLE	6.3 BLADE	RECEPTAGLE HOUSING 1 WAY (S)	M5 RING CREMP TERMENAL	M6 RING CREMP TERMINAL	FUSE HOLDER (S)	RECEPTAGE HOUSING 6 WAY (S)	Ø4 CREMP MALE BULLET	M8 RING CREMP TERMINAL	RECEPTAGLE COVER	BLADE COVER	RECEPTAGLE 0.8-2.1mm	BLADE FUSE 15A							
STK No.		70-0149	70-0054	70-0050	70-0060	70-0062								70-0061	70-0063	70-0058	70-0193							
ITEM	-	N	m	4	ß	Ŷ	7	8	6	ũ	Ħ	23	[3	14	15	16	17							

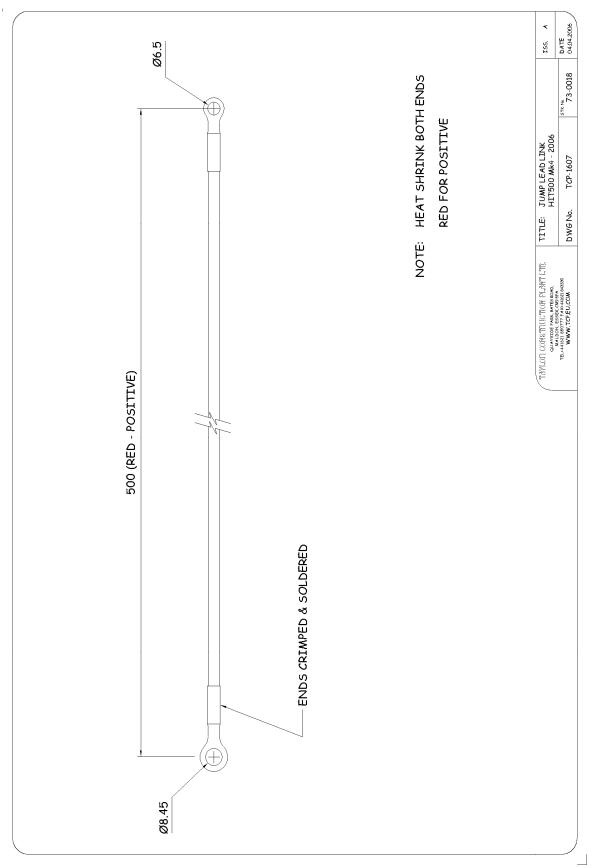


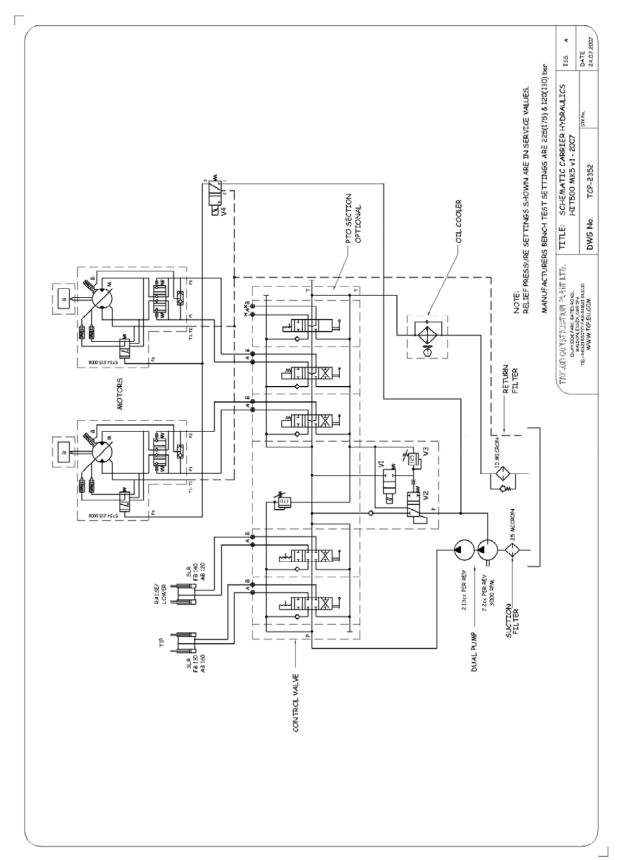


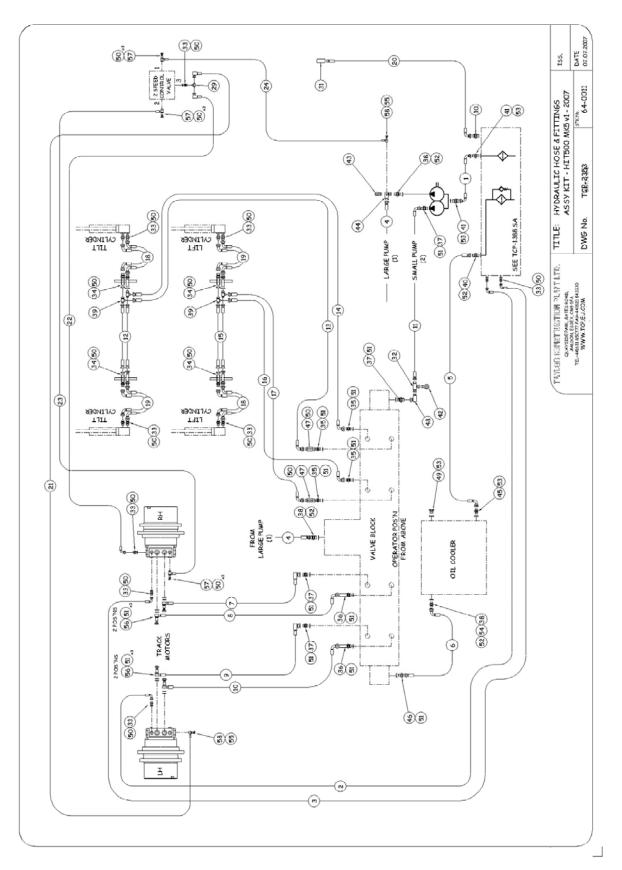




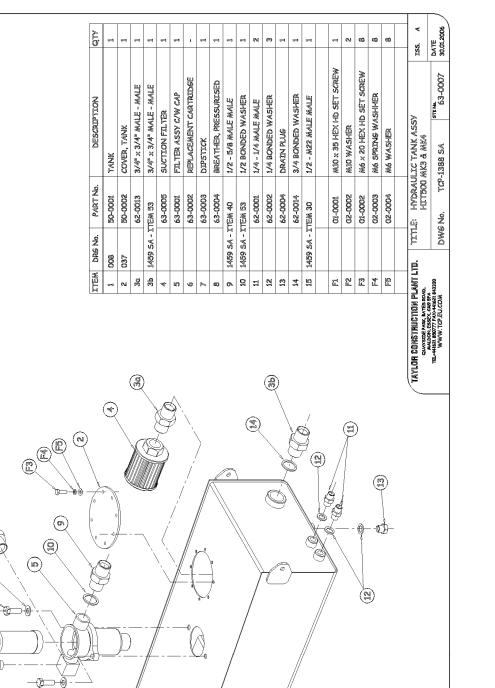








ITEM	DESCRIPTION	WHERE USED	STK No	QTY	15.5,
		T			
	3/4 1w 380 Cut Length 90°C-90°S @ 60°	Tank Suction To Pump	62-0090	1	
	1/4 1w 320 Cut Length 90°S-90°C @ 350° (Lefthand Motor)	Drains From Track Motors	62-0091	1	HYDRAULIC HOSE & FITTINGS
	1/4 1w 320 Cut Length 90°S-90°C @ 270° (Righthand Motor)	Drains From Track Motors	62-0092	1	Ŭ Z
	1/2 2w 640 Cut Length FM-FM	Large Pump To Valve Block	62-0034	1	IE.
5	5/8 1w 540 Cut Length 90°C-ST Female	Oil cooler to Return Filter	62-0093	1	
	1/2 1w 460 Cut Length 90°S-90°C @ 180°	Valve to Oil cooler	62-0094	1	19 19
	3/8 2w 1325 Cut Length 90°C-3/8 Banjo @ 270°	Righthand Track Motor	62-0190	1	05
8	3/8 2w 1295 Cut Length 90°S-3/8 Banjo @ 270°	Righthand Track Motor	62-0191	1	드 도
9	3/8 2w 1325 Cut Length 90°C-3/8 Banjo @ 270°	Lefthand Track Motor	62-0190	1	Ĕ
10	3/8 2w 1295 Cut Length 90°S-3/8 Banjo @ 270°	Lefthand Track Motor	62-0191	1	SAL
11	3/8 2w 680 Cut Length 90°S-Fm	Small Pump To valve	62-0035	1	۲ų,
	1/4 1w 430 Cut Length 45° B/E @ 0°	Cross Over Top Cylinders	62-0018	2	E
	1/4 1w 450 Cut Length 45°–90°S @ 90°	Valve To Cylinder	62-0099		<u>ن</u> ن
	1/4 1/4 450 Cut Length 45°–90°C @ 135°	Valve To Cylinder	62-0120		ппе
	1/4 1w 450 Cut Length 45° B/E @ 0°	Cross Over Bottom Cylinders	62-0120	2	F
	1/4 1w 740 Cut Length 45°–90°S @ 180°	Valve To Cylinder	62-0019	1	
	1/4 1w 740 Cut Length 45°–90°C @ 180° 1/4 1w 740 Cut Length 45°–90°C @ 180°	Valve To Cylinder	62-0121		Ē
	1/4 1w 550 Cut Length 90°C-90°S Opposite To Lay @ 270° Sleeved In Pairs	,			
		Chassis To Cylinder	62-0123		1
	1/4 1w 550 Cut Length 90°C-90°S Opposite To Lay @ 90° Sleeved In Pairs	Chassis To Cylinder	62-0124		Ny na manana kanasi Ju
20	1/2 1w 550 Cut Length 90°S-Male	Air Breather Extension	62-0125	1	0110
	3/16 R7 420 Cut Length 1/4 BSP 90°C-1/8 Banjo @ 335°	Lefthand Track Motor	62-0192	1	
	3/16 R7 350 Cut Length 1/4 BSP 90°C-90°S @ 225°	Righthand Track Motor	62-0193	1	33
	1/4 1w 580 Cut Length 1/4 BSP Banjo-1/4 Banjo @ 0°	C/O Valve to Tank	62-0194	1	8
24	1/4 1w 660 Cut Length 1/4 BSP Banjo-1/8 Banjo @ 0°	Pump to C/O Valve	62-0195	1	VED NYARA NGUNAUNAUN NYARANA NYARA
29	1/4 BSP Male-Male-Female Swivel Tee		62-0196	1	- (š
	1/2 - M22 Male-Male		62-0190		\sim
	1/2 - 5/8 Barrel		62-0081	1	
	3/8 Male-Female-Female Tee		62-0082	1	
	1/4 BSP Male-Male		62-0001	11	
	1/4 Extended Bulkhead C/W Nuts		62-0005	8	
	3/8 -1/4 Male-Male		62-0031	4	
	3/8 BSP Male-Male Bulkhead (No Nuts)		62-0083	2	
	3/8 BSP Male-Male		62-0007	4	
	1/2 BSP Male-Male		62-0009	3	
39	1/4 BSP Male-Female-Male Swivel Tee		62-0003	4	
40	1/2 - 5/8 BSP Male-Male		62-0010	N/R	
41	3/4 BSP Male-Male		62-0013	1	
42	3/8 BSP Test point		62-0015	1	
	1/8 BSP Test point		62-0084	1	
	1/2 Male-Female Block Elbow (Modified - See TCP-2344)		62-00??		
	3/4 - 5/8 BSP Male-Male		62-0086		
	3/8 - 1/2 BSP Male-Male		62-0087		
	1/4 BSPP - 1/4 BSPP Male-Female Extended		62-0087	2	
				_	
48 49	3/8 BSP Male-Female Block Elbow 3/4 Blanking plug		62-0113 62-0118	1	
	or country pag		52 0110		
50	1/4 Bonded Seal		62-0002	27	
51	3/8 Bonded Seal		62-0008	24	
52	1/2 Bonded Seal		62-0011	3	
	3/4 Bonded Seal		62-0014	3	
	1/2 Copper Seal		62-0089	1	
55	1/8 Bonded Seal		62-0003	4	
56	3/8 Banjo Bolt		62-0197	4	
	1/4 Banjo Bolt		62-0198	3	
	1/8 Banjo Bolt		62-0199	2	
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Operation - Safety – Maintenance TCP-2430 Issue B

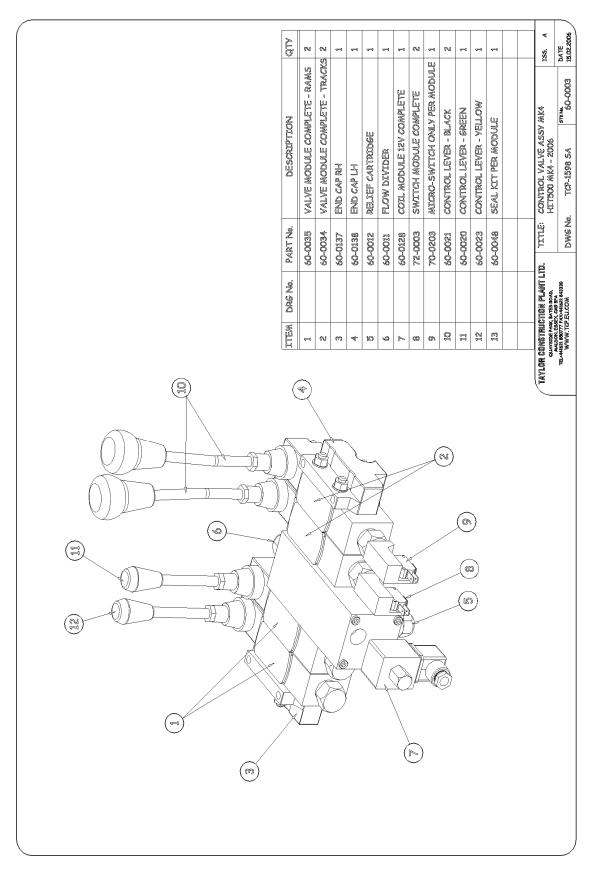
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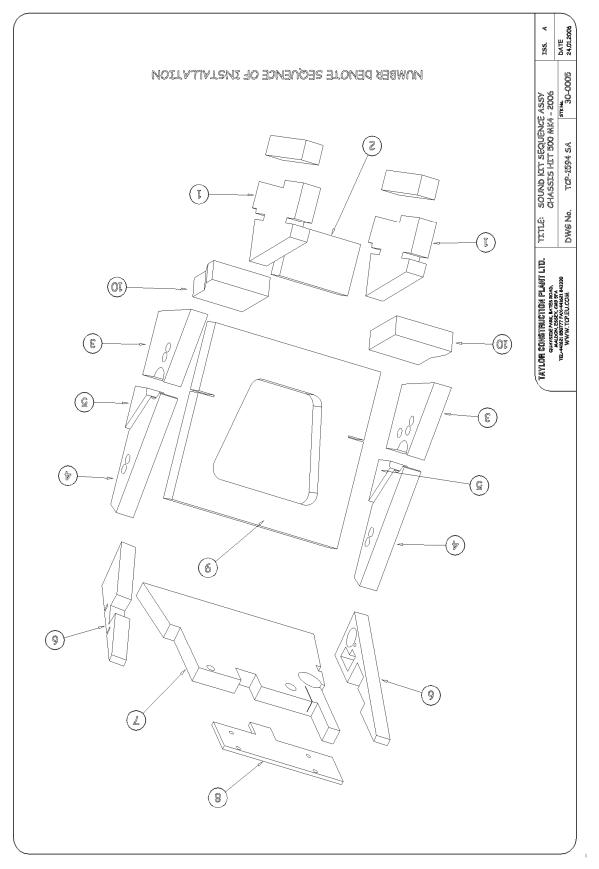
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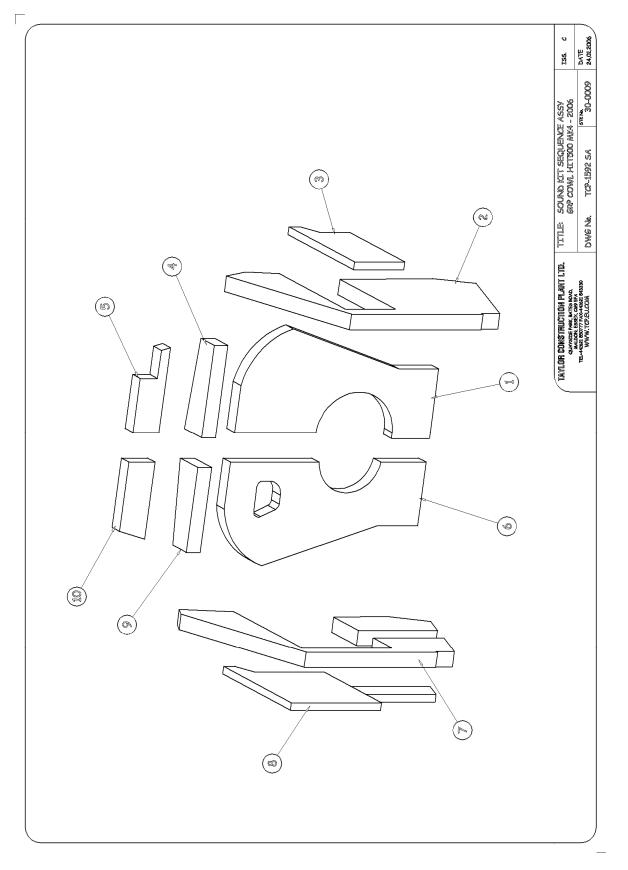
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8	Technical Bulletin
7	THIS TECHNICAL BULLETIN APPLIES ONLY TO HIT500 Mk5 v1 MACHINES, FITTED WITH 'COMER' HYDRAULIC DRIVE MOTORS.
6	THE FOLLOWING PROCEDURE APPLIES TO ALL NEW BUILD MACHINES AND TO ALL MACHINES WHERE ANY PART OF THE HYDRAULICS HAVE BEEN REMOVE OR REPLACED DURING SERVICING, THIS INCLUDES HOSES.
5	 START ENGINE AND ALLOW TO IDLE FOR THREE MINUTES, DO NOT ENGAGE THE DRIVE MOTORS AT THIS STAGE. TO CIRCULATE THE HYDRAULIC OIL THROUGH THE SYSTEM; RAISE, LOWER AND TIP BODY FOR A FURTHER ONE MINUTE. AT LOW SPEED ONLY MOVE THE TRACKED CARRIER BY ENGAGING FORWARD AND THEN REVERSE DRIVE. REPEAT THIS 5 TIMES.
4	4. THE TRACKED CARRIER IS NOW FULLY OPERATIONAL.
3	
2	
	PRODUCT GROUP: HIT500 Mk5 v1 SCOPE: COMER MOTORS, PRE OPERATING PURGE PROCEDURE
1	A B C D DWG No. A A B C D

NOTES: