


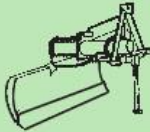










HOWARD

Owner's Manual & Parts List *for* HOWARD



| | | | |
|--|--|---|---|
|  Rotavator |  Fertiliser Spreader |  Post-Hole Digger |  Multiset Grader |
| Made in Malaysia |  Rotaslasher |  Mulcher |  Levelling Bucket |
| |  Rollermower |  Rollerslasher |  Grass Collector |

HOWARD Alatpertanian Sdn. Bhd.

2, Jalan Perusahaan Tiga, Batu 20, 48000 Rawang, Selangor Darul Ehsan, Malaysia.







Tel : 603 - 6093 1010 Fax : 603 - 6092 1010

e-mail : howardmy@tm.net.my www.howardmy.com

SAFETY

In the Owner's Manual accompanying each machine manufactured by HOWARD Alatpertanian Sdn. Bhd., Malaysia, (HOWARD), Safety features and precautions to be taken when operating the various implements are duty described.

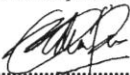
Some or all of the following informtion or warning labels are affixed to the machines.

| Machine model | Label | Warning / Information |
|---|---|---|
| All | Model | Followed by model number embossed on the machine frame.. |
| All | Serial No. | Followed by year of manufacture (alphabet code), and production serial number embossed on the machine frame. |
| All |  | General warning that : a) the machine may pose danger to operator and/or surroundings. b) such dangers are described with precautions to be taken in the accompanying Owner's Manual. c) HOWARD has sought to minimise such dangers in compliance with appropriate safety directives, and maintains technical records accordingly. Name and address of manufacturer (HOWARD) and year of manufacture. Beware of flying objects and stay clear of operating machine. |
| All |  | |
| All |  | |
| All |  | |
| All |  | |
| HR/HS/HFS/PHD/HM/HRM/HSW/HSC/HA/HMC/HTS |  | Affixed to rotating universal drive shaft (U/J) linking tractor with implement. Refer also to the safety and maintenance guidelines as described by the OEM U/J manufacturer supplied with each universal drive shaft. |
| HR/HS/PHD/HM/HRM/HSC/HA/HMC | Hot oil | Gearbox oil may become hot after continuous operation. |
| Various | Others | General informative or safety stickers as oppropriate. |

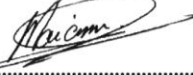
DECLARATION OF CONFORMITY

We declare that HOWAD implements/machines have been manufactured in conformity with EU Council Directive 2006/42/EC - L 157.

Kuala Lumpur, Malaysia - 12th January 2010.



 Mohd Rafi bin Jamlus
 (Production Manager)



 Balasubramaniam Vailu
 (QA - Inspection)



 Diana Bartolome
 (ISO MR)

HEALTH

The safety and health of operators and fitters is generally the responsibility of the owner of the machine. However, HOWARD has strived to design its implements so as to minimise risks. Likewise, in the manufacturing process, employee safety and health is monitored in accordance with Malaysian law and HOWARD's internal production management systems.

ENVIRONMENT

Environmental assesment is carried out on HOWARD's products and manufacturing processes, as described in the company's 9001 ISO management procedures.

WARRANTY

We undertake to supply , free of charge, new parts in place of parts which break or wear excessively through faulty material or bad workmanship within SIX months after delivery, provided such faulty parts are returned to us carriage paid, for examination. But we are not liable for labour, or any loss or damage direct or consequential, nor responsible for any accident, or in any way for the effect of any accident, whether due to defective material, workmanship or otherwise, and our guarantee does not apply to defects which in our opinion are caused by accident, wear or tear, misuse or neglect, including the use of unsuitable or dirty lubricants, or by interference with the construction of the machine as completed by us.

Your obligation as the Owner is to give the machine proper attention and care, in accordance with the guidelines given in this OWNER'S MANUAL PARTS LIST>

We reserve the right to make changes in design, and changes or improvements upon our product, without imposing any obligations on us to install the same on products there-to-fore manufactured.



Howard Tarmac Sweeper HTS



Serial Number

The Serial and Model numbers are stamped on the frame of your TARMAC SWEEPER.

For future reference record the numbers.

ALWAYS quote them when ordering spareparts.

MODEL No : _____

SERIAL No : _____

Date Purchased : _____

We hope you will be happy with your **HOWARD** Tarmac Sweeper.

Treat it well – and it will serve you diligently for many years to come.

Should you encounter problems – or have questions in respect of road or compound cleanliness maintenance – please feel free to contact us or consult our dealers.

Nota:

- i) *Continuous R & D may result in the technical contents of this Manual not always identical to the specifications for the latest model delivered. **HOWARD** in ASIA since 1962.*
- ii) *For more details and technical support, consult our web-page:
www.howardmy.com*

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Talian terus Bahagian Alatganti: (6 03) 6093 6363

BELI BARANGAN MALAYSIA



BUATAN MALAYSIA
PILIHANBIJAK

! SAFETY PRECAUTIONS & OPERATING INSTRUCTION !

Before use

#Ensure operators have read and are familiar with the instructions contained in this publication.

#Consult the Tractor Manufacturer's Manual for instructions on mounting implements and safe working methods.

#Ensure the TARMAC SWEEPER is standing on firm level ground and its properly supported.

#Ensure the TARMAC SWEEPER is set parallel to the ground, when looking from the side-this is to ensure even brush wear.

#Avoid excessive brush contact with the ground-if necessary make an adjustment with the help of the Height Adjuster directly above the two Castor Wheels.

#Make certain that all guards, covers, warning labels and safety devices are correctly fitted and operative.

#Ensure the work area is clear of bystanders.

#Inspect the work area for obstructions which may constitute a hazard.

#Disengage all clutches and shift into neutral prior to starting the tractor engines.

During use

#Lower the TARMAC SWEEPER to the ground, then engage the PTO drive before moving forward at a speed suitable for prevailing conditions.

#As a general guide, the more unfavourable the conditions are, the SLOWER the tractor forward speed should be.

#Observe all safe driving procedure such as reducing speed on slopes and sharp turns.

#Avoid working on ground where there is a risk of the tractor overturning.

#Do not operate across the face of slopes.

#ALWAYS lift the brush assembly clear of the ground when reversing.

#When making sharp turns, while operating the SWEEPER, ALWAYS lift the brush clear of the ground and disengage the PTO drive.

After use

#Disengage the PTO drive when transporting the SWEEPER or not in use.

#Inspect the SWEEPER for damage and that it has not become clogged with string or other debris.

#Check that all bolts, nuts and fasteners are tight.

#Carry out lubrication and maintenance as detailed in this publication.

Always

- Wear substantial or safety footwear.
- Avoid loose clothing which may be caught in moving parts.
- Wear earmuffs or earplugs. Prolonged exposure to noise can cause impairment or loss of hearing.
- Wear gloves when handling worn implements or parts with sharp edges.
- Use the implement only for the purposes for which it was designed, tested and in accordance with the instructions contained in this publication.
- Interpret “left” or “right” as the left or right hand of the operator when sitting on the tractor seat and facing forward.
- Ensure the SWEEPER is not operated by children or untrained persons.

NEVER!!!

- Touch any moving parts of the implement or parts which may be hot from operation .
- Allow passengers on the tractor or implement when operating.
- Carry out cleaning, lubricating, adjustments or repairs to a mounted implement unless the tractor engine is stopped and the implement firmly supported or lowered to the ground.
- Leave the tractor seat unless the implement is lowered, the PTO drive disengaged, the gear shift in neutral, the brake applied, the engine stopped and the ignition key removed.

**BE A SAFE OPERATOR
BY THINKING – BEFORE ACTING**

| Specifications | HTS180 | HTS205 |
|----------------------------------|--|--|
| Sweeping width, cm | 180 | 205 |
| Tractor, Hp | 15 – 55 Hp | |
| Mounting | CAT 1 / 11 | |
| PTO/Universal Driveshaft | A4 with Shearbolt Limiter | |
| Brush Operating Speed at 540 rpm | 282 rpm | |
| Transmission | Sidedrive by chain and sprockets | |
| Brush Fitment | | |
| Standard | 41 pcs Polypropylene | 47 pcs Polypropylene |
| Optional | 21 pcs Poly ; 20 pcs Wire 41 pcs Wire | 24 pcs Poly ; 23 pcs Wire 47 pcs Wire |
| Machine Position | Center, Left and Right | |
| Weight, Kg | 340 | 360 |

UNIVERSAL / PTO DRIVESHAFT

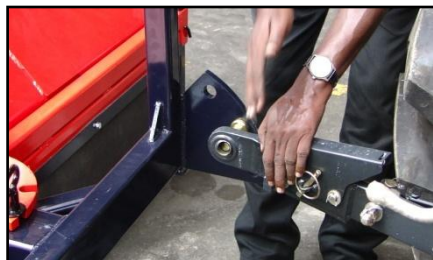
BEWARE!!!!

- Raising and lowering of the SWEEPER will result in the telescopic movement of the PTO Drive Shaft Assembly. Please ensure that it does not jam or become disengaged.
- As a general rule, the Outer Cardan Tube and the Inner Cardan Tube must be at least half engaged (minimum 40 cm).
- The more the Outer and Inner Cardan Tubes are engaged, the longer the service life of the PTO Drive Shaft Assembly is , besides ensuring optimum power transmission.

Fitting of the Universal Drive Shaft

- Periodical oiling will ensure easy operation of the Lock Pin Kit sitting at the side-end of the PTO Yoke Assy of the Drive Shaft.
- When fitting this Drive Shaft, ensure that the Lock Pin Kits are properly seated in the grooves of the PTO SHAFT of the tractor and the INPUT SHAFT of the SWEEPER.
- Also ensure that the Safety (Plastic) Guard of the Drive Shaft does not foul the tractor PTO Guard.

COMMISSIONING OF YOUR PTO DRIVEN HOWARD SWEEPER



Fit the lower arm, starting from the left side.



Fit the top link for stabilize the machine.

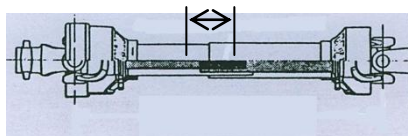


Fit the right lower arm and use hydraulic arm adjuster at the tractor to fit in the bottom pin.



Lastly, fit the PTO till its lock automatically..

Telescopic movement is 40 cm minimum



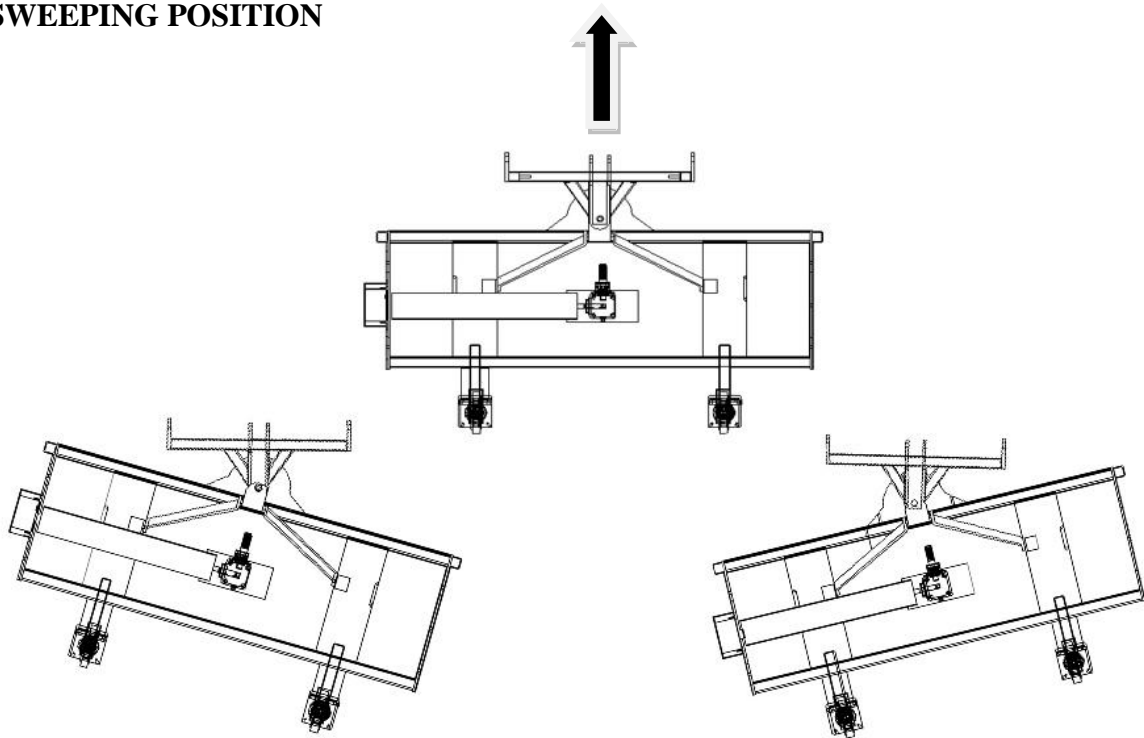
Adjust tractor linkage to level the Tarmac Sweeper. Attach stabilizer bars or check chains to limit sway to

Finally check that during transport and use, the PTO Drive Shaft does not “bottom” or separate and that the maximum height of 23cm is not exceeded.



SHOULD IT NOT BE POSSIBLE TO OBTAIN THE AFOREMENTIONED SETTING WITH YOUR TRACTOR, PLEASE SEEK AN ADVICE

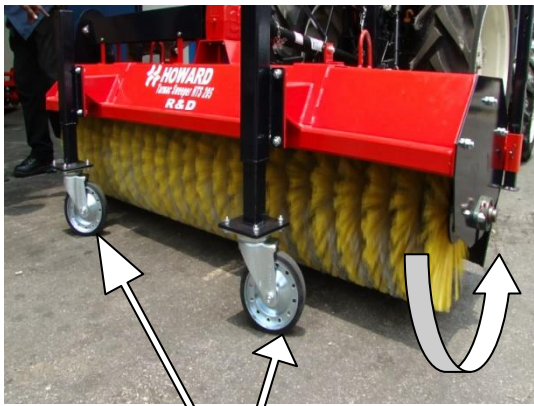
SWEEPING POSITION



DISPOSAL/SWEEPING AT THE RIGHT HAND SIDE OF TRACTOR

DISPOSAL/SWEEPING AT THE LEFT HAND SIDE OF TRACTOR

ADJUSTMENT OF BRUSH HEIGHT



- With the SWEEPER standing on a level surface, adjust the tractor lower links and/or the rear mounted castor wheels so that the bristles are just resting on the ground evenly along the length of the brushes.
- Keep the tractor stationary, set the brushes in motion, lower the brushes by adjusting the height of the castor wheels until the brushes leave an evenly marked strip of 5 cm to 7 cm on the ground.
- This setting will give optimum performance.
- REMEMBER: Excessive brush contact will not do any good.
- Gauge your tractor travelling speed according to your ground conditions.

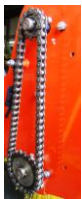
SERVICE GUIDE



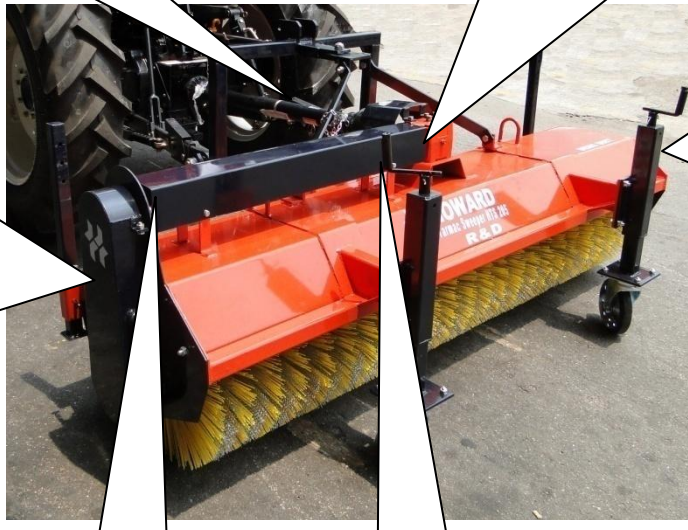
DAILY
Grease splines and cardan tubes



EVERY 250 HOURS
Drain, flush and refill with SAE 140 gear oil.



DAILY
Grease chain, sprockets and flanged bearing.



Once a week
grease the height adjustment.



DAILY
Grease bearings



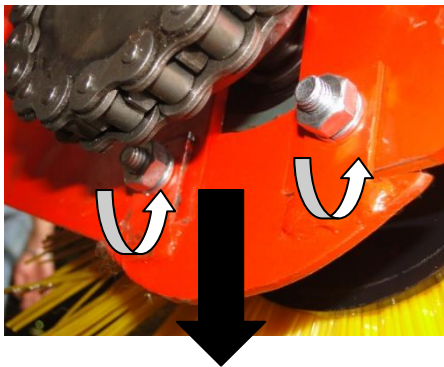
DAILY
Grease Spider Kits

ALWAYS CLEAN THE ROTOR SWEEPER AFTER OPERATION

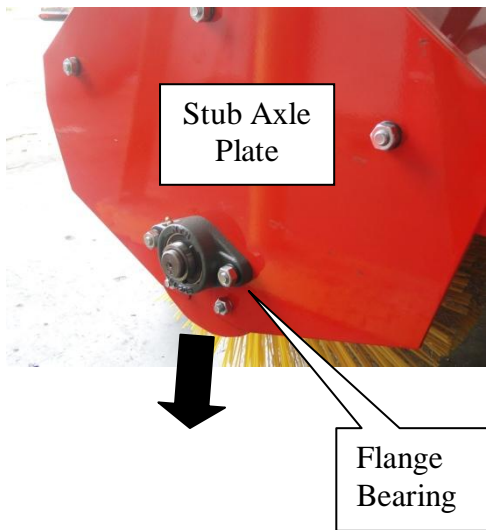
BRUSHES REPLACEMENT



- Remove the chaincase and disconnect the Roller Chain.



- Remove the bolt and nut.
- Pull down the bracket side plate.



- Same method at the stub axle side.
- The brush assembly will drop down and remove the 3 countersunk Allen Screws and the side flange (on the left hand side)
- Remove the WORN BRUSHES and re-assemble the NEW BRUSHES.



STOP THE TRACTOR ENGINE

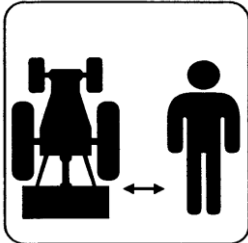
Safety Sticker



**-BE CAUTION WHEN OPERATING
-READ AND UNDERSTAND THE OWNER'S
MANUAL BOOK
-ALWAYS MAKE CERTAIN THAT ALL GUARD,
COVER, WARNING LABELS AND SAFETY
DEVICE ARE CORRECTLY FITTED AND**



**-ENSURE THE WORK AREA IS CLEAR OF
BYSTANDERS**



-KEEP A SAFETY DISTANCE

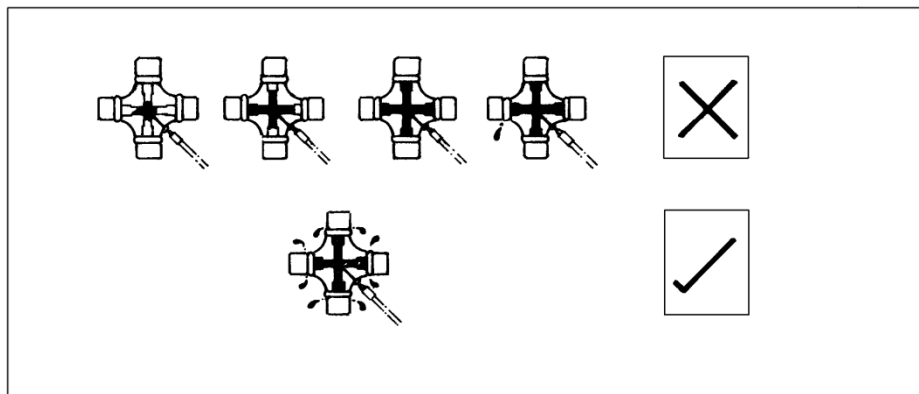


Service Diagnosis

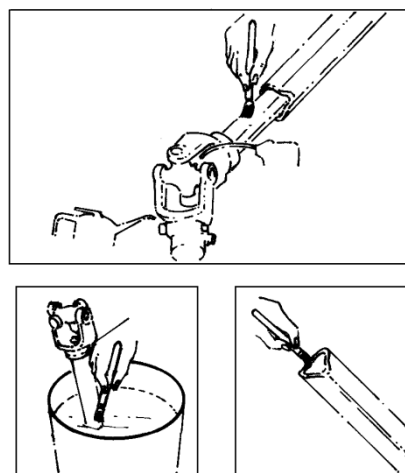
| ASSEMBLY | DEFECT | POSSIBLE CAUSE |
|----------------------------------|---|--|
| PTO Drive Shaft | <i>Vibration</i> | -Due to twisted inner or outer shaft. -Collapsed needle rollers in Cross Journal -Lifting machine too high when PTO Drive Shaft still engaged. |
| Shear Bolt Torque Limiter | <i>Frequent Shearing of Shear Bolt</i> | -Due to incorrectly torque setting; use original HOWARD Shear Bolts & Nuts to ensure correct torque setting. -Due to excessive shock load; operate TARMAC SWEEPER at FULL SPEED before slowly lowering it on to the ground. |
| Gearbox Assembly | <i>Excessive noise</i> <i>Oil leaking from gearbox</i> <i>Insufficient oil in gearbox</i> | -Due to incorrect backlash between crownwheel and pinion. -Worn or loose bearings on pinion shaft. -Due to worn or damaged oil seal input shaft. -over fill the gearbox oil. -Due oil leaking from gearbox |
| Chaincase | <i>Excessive noise</i> | -Due to chain and sprocket worn - 'chain skid' worn - 'Bearing' collapsed - Loose chain tension |
| Castor Wheels | <i>Excessive noise</i> | - Due to worn wheels |
| Transmision shaft | <i>Shaft is not turning</i> | - Spiral pin at yoke broken |
| Rotor & Brushes | <i>Not evenly sweeping</i> | -Height adjustment are not correct -Worn bristles -Rotor bent -Obstacles entangled between/in bristles |

MAINTENANCE OF UNIVERSAL DRIVESHAFT

1. Recommended use high quality grease LITHIUM BASE (type NL G2).
2. Make sure to pump grease into the cross journal nipple until the grease came out from all caps.



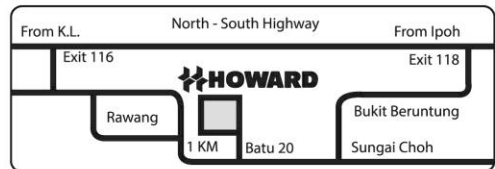
3. Make sure to dismantle both shaft assembly and then to brush at surface of the inner and outer shaft with GRAPHITE POWDER OR MOLYBDENUM DISULPHIDE GREASE.
4. Difficult to move the inner and outer shaft when operation will cause the serious damage to the shaft or output tractor shaft. If the surfaces of the inner and outer shaft are dirty, we advise the customer to clean it twice per day.



5. Please refer to the PTO owner's manual for further understanding.

HOWARD DEALERS & SPARE PART STOCKISTS

| | | | | |
|---|--|---|--|--|
| <p>PERLIS</p> <p>PPN Perlis, Kangar Sin Keat Seng, Kangar PPK Mata Ayer, M.Ayer</p> <p>KEDAH</p> <p>Nafas Jentera, A.S. Pertanian Utara, A.S. Sime Darby Ind, A.S. Hock Lean, Jitra TAE, Jitra TAE, Pendang Utara Agritrak, A.S.</p> <p>PULAU PINANG</p> <p>Eik Seng, B'worth Kien Seng, B'worth Sime Darby Ind, S. Prai Sime Kubota, B'worth TCIM, B'worth UMW, B'worth</p> <p>PERAK</p> <p>Benefarm, Ipoh Felera Process, Kg. Gajah PPN Perak, Ipoh Kej. Pertanian, T. Intan Overseas Union, T. intan Sime Kubota, T.Intan Sime Darby Ind, Ipoh TCIM, Ipoh UMW, Ipoh</p> <p>SELANGOR</p> <p>BH Agri, K.L. Palm Mach, Kepong Yik Soon, Kepong Teck Seng, Sg. Besi Puncak Emas, B. Caves S.J.I, Klang Asia Turfquip, P.J. Bar Formula, P.J. Mareqsue, P.J. Nafas Jentera, P.J. Eurostar, Puchong Minda Agri, Puchong Sime Darby Ind, Puchong Sime Kubota, Puchong Sin Hup Hin, Sekinchan MZS Power, Shah Alam TCIM, Shah Alam UMW, Shah Alam</p> | <p>SABAH</p> <p>LSC K.K. Kong Seng, K.K. Lensoon, K.K. Palm Mach, K.K. Sime Kubota, K.K. Sin Ngiap, K.K. TCIE, K.K. Sime Darby, K.K. UMW, K.K. Wilpors, K.K. Win Hin, K.K.</p> <p>Sime Darby, Lahad Datu All Planters, Lahad Datu ATSB, Lahad Datu Benefarm, Lahad Datu Eurostar, Lahad Datu Palm Mach, Lahad Datu Nafas Jentera, Lahad Datu Sime Kubota, Lahad Datu Solid Firm, Lahad Datu TCIE, Lahad Datu</p> <p>Sime Darby, Labuan All Planters, Sandakan ATSB, Sandakan Benefarm, Sandakan Bri-Trail, Sandakan Eurostar, Sandakan Hup Seng, Sandakan Intan Karang, Sandakan TCIE, Sandakan Sime Darby, Sandakan Sime Kubota, Sandakan UMW, Sandakan Wilpros, Sandakan</p> <p>ATSB, Tawau Eurostar, Tawau LP Tractors, Tawau Sime Darby, Tawau UMW, Tawau</p> <p>NEGERI SEMBILAN</p> <p>Bahau Auto, Bahau Emdek, Seremban TCIM, Seremban</p> | <p>MELAKA</p> <p>CS Agriparts, T.M. Jaya TCIM, T.M. Jaya Sime Darby, T.M. Jaya PPN Melaka, Melaka Segamat Agri, Krubong</p> <p>JOHOR</p> <p>Asia Turfquip, J.B Hock Guan Hin, J.B. Seriintan, J.B. TCIM, J.B. Teck Seng, J.B. Sime Darby Inds, J.B. UMW, J.B. Ah Bee, Kluang Hiap Thye, Kluang Kang Sang, Kluang Kluang Berjaya, Kluang Maju Estate, Kluang Nafas Jentera, Kluang Palm Mach, Kluang Sime Darby Inds, Kluang Eurostar, Segamat Kian Huat, Segamat Segamat Cycle, Segamat Wabco, Skudai JVR, Ulu Tiram</p> <p>KELANTAN</p> <p>Bogam, K.B Hock Hoe Hin, K.B. K.B. Jaya, K.B. Eurostar, G. Musang Palm Mach, G. Musang Lea Thong, K.B. Minda, K.B. Nafas Jentera, K.B. Sime Darby Inds, K.B. PPK K. Sepat, P.Mas Sime Kubota, W. Bharu</p> | <p>TERENGGANU</p> <p>J & J Machinery, K.T. KPT Peladang, K.T. K.T. Inds, K.T. Nafas Jentera, K.T. TADC, K.T. UMW, K.T.</p> <p>PAHANG</p> <p>Yi Cheng, Gambang Eurostar, Kuantan Nafas Jentera, Kuantan Sime Kubota, Kuantan TCIM, Kuantan Tractors M'sia, Kuantan UMW, Kuantan M'tab Agri, Mentakab</p> <p>SARAWAK</p> <p>Benefarm, Miri Sime Kubota, Miri TCM, Miri Sime Darby, Miri UMW, Miri Intan Karang, Bintulu Pan Sarawak, Bintulu Sime Kubota, Bintulu Sime Darby, Bintulu UMW, Bintulu Benefarm, Kuching JN Inds, Kuching Sime Kubota, Kuching TCIM, Kuching Sime Darby, Kuching UMW, Kuching Pan Sarawak, Sibul Sime Kubota, Sibul TCM, Sibul Sime Darby, Sibul Pansar, Sibul UMW, Sibul</p> | <p>BRUNEI</p> <p>Hock Hung Hing, BSB MPS Trading, BSB Tractors M'sia, BSB</p> <p>INDONESIA</p> <p>Agrisarana Altrak 1978 Bina Pertiwi Pioneer Trading Probesco SAHABAT Agritama Satriindo Traktor Nusantara Capella, Medan SAHABAT, Medan</p> <p>SINGAPORE</p> <p>ATS Tractors S'pore UMW</p> <p>PHILIPPINES</p> <p>Alpha Machinery KAMPI Major Tractors, Davao Sime Darby Up-Town, Pasig City</p> <p>THAILAND</p> <p>Phong La-or Patana Suptawee</p> <p>INDIA</p> <p>Farm Implements</p> <p>SRI LANKA</p> <p>Brown & Co. Hovael</p> <p>BANGLADESH</p> <p>TAIWAN</p> <p>PAKISTAN</p> <p>VIETNAM/ CAMBODIA</p> |
|---|--|---|--|--|



HOWARD is here to serve you

SALES & SERVICE



Noormah
Export & Shipping



Wan Ramli
Sales



Shafiq
Sales



Bala
Service Manager



Ismail
Service



C.K. Lim
Parts Manager

PARTS & PRODUCTION



Rafi
Production Manager



Ibrahim
Foreman Production



Maarof
Foreman Assembly



Keshal
Engineer



Yamin
Engineer



Samsol
Training & Demo

ADMINISTRATION & QA



Diana
Purchasing



Zamary
Store



Shukri
Draughtsman



Mustafa
Material QC



Haliza
Accounts



A. Nielsen
Managing Director

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HOWARD



In Southeast Asia since 1962



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