



OWNER'S INSTRUCTION MANUAL AND PARTS LIST

INDEX

3-4	.Assembly Instructions
5-6	.Safety Instructions
7	.Routine Care and Storage
7	.Specifications
8-9	.Operation
10-13	.Maintenance
14-19	Exploded views and Part Numbers





20Warranty



HE660 Models

36257 HE660 Deutscher Honda GXV390

36258 HE660 Deutscher Honda GXV390 Electric Start

ASSEMBLY INSTRUCTIONS

HANDLE ATTACHMENT (Pre delivery) (Refer to Figure 1)

- 1. Connect the handles to the side rails of the chassis using four 75mm M8 bolts. Fasten the four nuts securely. Inset rods 'A' through the holes in the levers 'B' and secure with R clips.
- 2. Fully loosen nut `C' and connect rod `D' to the drive clutch lever `E' using a washer and split pin. Retiahten nut `C'.
- 3. Connect the rod 'G' to the foot pedal assembly 'H'using a washer and split pin.
- 4. Connect the height adjusting rod 'J' to the straight lever 'K' as shown, using the bolt 'I' and the nut and washer provided.

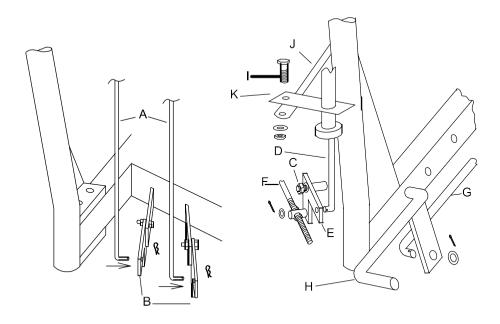


Fig. 1 - Dealer Assembly

ASSEMBLY INSTRUCTIONS

- 5. **See Figure 2.** Place tank straps "3" in the tank bracket "4" slots and bend tabs up and back against the bracket. Place the fuel tank in position and attach the straps at their lower end using two 6mm bolts.
- 6. Connect the fuel line from the engine to the nipple underneath the tank. Use pliers to raise the loose hose clamp to secure the hose to the tank..
- 7. Insert the throttle lever through the slot in the center of the control panel then attach the throttle control to the underside of the control paned using the two screws provided. Ensure both "choke" and "stop" positions are achieved using the throttle lever. Push the "T" shaped plastic knob onto the throttle lever.
- 8. Electric start models. Insert the key-switch through the "D" shaped hole in the rear of the control panel and secure it with the spring washer and nut provided.

Remove the battery from the battery box and fill it with battery acid (not supplied) to 1-2 mm above the plates. Clean any spilled acid from the battery then install the battery in the mower. Ensure that the negative terminal is connected to the frame of the mower (earth). Wait 20 minutes for the battery to charge before attempting to start the mower. You do not need to connect it to a charger.

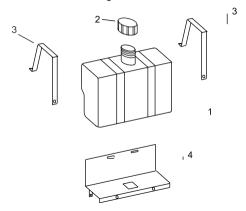


Fig. 2 - Fuel Tank Attachment

ENGINE PREPARATION (Pre delivery)

- 1. Remove the dipstick and check the oil level as per the instructions in the engine manual.
- 2. Add unleaded petrol to the petrol tank.
- 3. Read and abide by the Safety Instructions listed below then follow the starting procedure listed In the Operation section. Check there is no abnormal vibration, and that the gear lever, forward drive lever, height adjustment lever and blade clutch are functioning satisfactorily.

SAFETY INSTRUCTIONS

BEFORE STARTING:



- Know your controls. Read the owners manuals thoroughly. Learn how to stop the engine quickly in an emergency.
- Inspect the area to be mown, remove all debris and obstacles that may be in the path of the mower. Do not attempt to shift obstacles while the mower is running.
- Damaged blades and worn bolts are major hazards. Before starting, always visually inspect to see that blades, blade bolts and cutter assemblies are not worn or damaged.
- Replace worn or damaged blades and bolts in sets to preserve balance.
- Refuel outdoors only and away from all sources of ignition, including pilot lights in gas appliances. Do not smoke while refuelling the engine. Add fuel before starting the engine. Never remove the cap from the fuel tank or add petrol while the engine is running or the engine is hot. If petrol is spilled, do not attempt to start the engine but move the machine away from the area of the spill and avoid creating any source of ignition until the petrol vapours have dissipated.
- Do not allow children or people unfamiliar with these instructions to use the mower.
- With prolonged use, hearing protection should be worn.
- Never mow while barefoot or wearing open sandals, or thongs. Wear long trousers and heavy shoes.
- Apply sunscreen; wear appropriate clothing, a hat and sunglasses to avoid sunburn.
- It is advisable to wear suitable eye protection when operating the mower.

STARTING - Safety Instructions:

- Disengage all blades and drive clutches and shift the gear lever into neutral before starting the engine.
- Start the mower carefully according to the instructions on page 8, with feet well away from blades and not in front of the discharge chute.

OPERATION - Safety Instructions:

- Never mow while people, especially children or pets, are nearby.
- Mow only in daylight or in good artificial light. Stay alert for holes in the terrain and other hidden hazards.
- Never direct discharge material towards bystanders.
- Avoid operating the equipment in wet grass, where feasible.
- Do not put hands and feet near or under rotating parts. Keep clear of the discharge opening at all times.
- Never lift or carry a mower while the engine is running.

SAFFTY INSTRUCTIONS

- Use extreme caution when reversing or pulling the mower towards you. Ensure your footing is stable and be especially careful in uneven terrain.
- Do not attempt to ride the mower.
- Walk, never run.
- Slopes:

Do not mow excessively steep slopes.

Exercise extreme caution when on slopes.

Mow across the face of slopes, never up and down, and exercise extreme caution when changing direction on slopes.

- Use low throttle settings when engaging the ground drive, especially in "high" gear.
- Reduce speed on slopes and in sharp turns to prevent overturning or loss of control.
- Stop the blades when crossing surfaces other than grass and when transporting the mower to and from the area to be mowed.
- Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
- Stop the engine:

Whenever you leave the mower, even for an instant. Before re-fuelling.

- Stop the engine and disconnect the spark-plug lead, or turn off and remove the key (if fitted):
 Before clearing blockages or unclogging chute
 Before checking, cleaning or working on the mower
- *After striking a foreign object, inspect the mower for damage and make repairs before restarting and operating the mower. If mower starts to vibrate abnormally, stop the engine immediately.
- Watch out for traffic when crossing or near roadways.
- Before leaving the operator's position:
 Disengage the cutter engagement lever.
 Change into neutral and set the parking brake.
 Stop the engine and or remove key.

Do not modify the mower in any way, or use the mower without the shields and guards in place. They are for your protection.

ROUTINE CARE & STORAGE

- Keep all nuts, bolts and screws tight to ensure the equipment is in a safe working condition.
- Do not use pressure-cleaning equipment.
- Never store the equipment with petrol in the tank inside a building where fumes can reach an open flame or spark.
- Allow the engine to cool before storing in any enclosure.
- To reduce the fire hazard, keep the engine, silencer, battery compartment and petrol storage areas free of grass, leaves, or excessive grease.
- Replace worn or damaged parts for safety;
- Replace faulty silencers.
- If the fuel tank has to be drained, do this out-doors and away from all ignition sources.
- Do not change the engine governor settings or over speed the engine. Operating an engine at excessive speed can increase the risk of personal injury and cause premature engine failure.
- Be careful during adjustment of the mower to prevent entrapment of the fingers between moving blades and fixed parts of the mower.
- Store fuel in a cool place in a container specifically designed for the purpose. In general, plastic containers are unsuitable
- Lower the cutting deck when the mower is to be parked, stored or left unattended.

SPECIFICATIONS:

ENGINE: Honda GXV390 recoil start or GXV390 electric start engines are used. See engine owner's manual supplied with the mower.

GEARBOX: Deutscher gearbox houses two forward gears, a reverse gear and a differential in an oil bath alloy housing.

Recommended oil: EPX 85w/140

Capacity: 750ml

SPEED RANGE: Low gear: 2.2 kph @ 2500rpm.

High gear: 3.6 kph @ 2500rpm. Reverse gear: 1.7 kph @ 2500rpm.

TYRES: Rear: 13-500-6 Pressure, 20psi

Front 250 x 4 Pressure, 20psi

CUTTING HEAD: 660mm cut, 2 x blades,

6 cutting height positions from 25mm-85mm.

GENERAL: Length:1600mm

Width: 640mm Height: 960mm Weight: 120kg

OPERATION

CONTROLS:

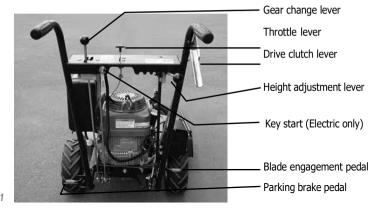


Illustration 1

PRE-START CHECK

Your Deutscher Mower comes to you tested and ready to operate, with engine and gearbox filled with oil.

- Read all safety instructions and know how to stop engine quickly in any emergency.
- Know your controls Where they are and their function.
- Use fresh unleaded petrol. Do not mix oil with petrol.
- Ensure drive and cutter mechanisms are placed in neutral or disengaged.

OPERATION:

TO START THE ENGINE (Manual start):

- When engine is cold, move throttle lever to CHOKE position.
- When engine is hot, move throttle lever to high throttle position.
- Slowly pull starter cord until starter pawls engage and rope stops, then pull with force to turn the engine over. Repeat this procedure if the engine does not start.

Once the engine is running shift the throttle lever to the desired operating position

TO STOP THE ENGINE (Manual start):

• Push throttle lever to the STOP position.

TO START THE ENGINE (Electric start version):

- When the engine is cold, move throttle lever to the CHOKE position.
- When the engine is hot, move the throttle lever to the FAST throttle position.
- Turn the key fully clockwise to the start position and release the key as soon as the engine is running.
- Once engine is running, shift throttle lever from Choke position to desired operating position.

Note: If the mower fails to start first time, allow the starter a short time to cool before re-trying.

TO STOP THE ENGINE (Electric start version):

• Turn key fully anticlockwise.

OPFRATION

TO DRIVE MOWER (See Illustration 1 on Page 8):

- · Release park brake.
- Select gear (See Illustration 2)

Low forward: Pull lever backward. High forward: move lever forward. Reverse: Move to right, then forward.

Note: Pushing the mower forward slowly while operating the gear lever may improve the ease of gear selection.

Grasp the drive clutch lever with your right hand and slowly raise it to the hand grip.
 Release to stop.

WARNING! Use low throttle settings when engaging the drive-clutch lever, especially in high gear.

TO ENGAGE CUTTER DRIVE:

- Set the throttle to at least a mid range position to prevent stalling when the cutter is engaged.
- Place your right foot on blade engagement lever and press down slowly until the pedal locks into position.
- To release, lift the lever up with right foot.

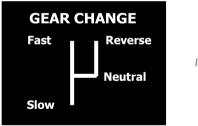


Illustration 2

MOWING ACROSS SLOPES AND REVERSING:

- As mentioned in the Safety Instructions, reduce speed on slopes and in sharp turns to prevent overturning and loss of control. Mow across the face of slopes, never up and down.
- Wear suitable boots for the terrain. Do not continue mowing if you are slipping while walking. Exercise extreme caution if the grass is damp.
- Do not mow an area with a slope greater than 10 degrees to the horizontal.
- When parking a mower on a slope, ensure the engine is turned off AND THE PARKING BRAKE IS ENGAGED, before leaving the mower. This applies even if you leave the mower for an instant.
- Be extremely cautious when reversing. This is particularly important on slopes. Wear non slip footwear and keep well back from the mower to ensure your footing is steady. Instantly release the drive lever if you feel yourself slipping.

TRANSPORTING AND LIFTING THE MOWER:

It is far safer to use ramps or a lifting device to put the mower onto a trailer or utility tray, rather than attempting to lift it. Never attempt to lift the mower on your own.

MAINTENANCE

MAINTENANCE

LUBRICATION CHART				
	Lubrication	Daily	20hrs	100hrs
Engine	Refer to Engine Manual			
Gearbox Check			X	
Gearbox Change	Gear Oil	EPX 85w/140		X
Kingpins	Oil		Х	
Cutter Deck slides	Grease		Х	
Gear Control linkages	Oil	Х		
Clutch Control linkages	Oil	Х		
Height Control linkages	Oil	Х		
Throttle Cable	Oil		Х	

GEARBOX

Use gear oil 85w/140

Capacity = 750ml

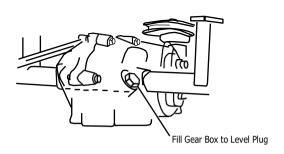


Illustration 3

MAINTENANCE

GEARBOX BELT (Replacement): (See Illustration 4)



- Before any inspection or replacements of the belts and associated parts, turn engine off and pull spark plug lead off the spark plug.
- Be careful during adjustment of the mower to prevent entrapment of the fingers between moving blades, pulley's and fixed parts of the mower.
- Remove belt guide. (Part No 3228) by fully unscrewing the 8mm bolt shown in illustration 4.
- Remove nut "A" from the adjustment pivot and release the rod from the crank arm.
- Remove the belt from the pulleys and slide it over the clutch adjustment rod.
- To fit a new belt, place the belt over the clutch adjustment rod and wrap it around the gearbox, idler & engine pulleys.
- Reconnect adjustment pivot to crank arm and tighten nut "A".
- Refit belt guide. (ensure guide is bolted on the inside of the engine mounting plate)
- · Adjust clutch: See below.

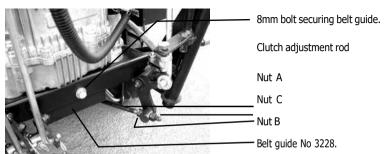


Illustration 4

CLUTCH ADJUSTMENT FOR TRANSMISSION: (See Illustration 4)

- To Increase belt tension, loosen nut "C" and tighten nut "B".
- Make sure the belt is entirely free when the clutch lever is disengaged and that the lever requires little force to hold against the handgrip.
- DO NOT OVER-TIGHTEN THE BELT. ONLY A LIGHT TENSION IS NECESSARY FOR DRIVING THE MOWER.

CUTTER BELT (Replacement) (See illustrations 1, 4 and 5):



- Before replacements of the belts and associated parts, turn the engine off and pull the spark pluq lead off the spark pluq.
- Be careful during adjustment of the mower to prevent entrapment of the fingers between moving blades, pulleys and fixed parts of the mower.
- Remove belt guide, P/No 3228, by unbolting it from the engine mounting plate.
- Remove the gearbox belt from engine pulley as described above.
- Ensure the blade engagement pedal is disengaged.
- Move the cutter height lever to mid height position.
- Loosen "D" nut and the 6mm nuts on the brake arm, to ensure the belt is loose. (See illustrations 5)
- Remove the old belt and replace with a new belt, feeding it around the pulleys and keeping the belt on the inside of the guide pins under the engine plate.
- Place the blade engagement pedal in the engaged position and adjust the belt tension by adjusting nuts "D" & "E".

MAINTENANCE

- Adjust the cutter brake to ensure the cutter spindle stops when the belt is disengaged. (See next section)
 - Replace the gearbox belt and refit the belt guide. (Note: Belt guide is bolted the inside of the engine mounting plate (See illustration 4).
 - Run and test, to ensure all adjustments are correct.

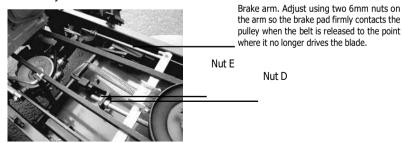


Illustration 5

CUTTER BRAKE (Adjustment): (See Illustration 5)



- Before replacement of belts and associated parts, turn engine off and pull spark plug lead from the spark plug.
- Be careful during adjustment of the mower to prevent entrapment of the fingers between moving blades, pulleys and fixed parts of the mower.
- Loosen the 6mm nuts on the brake arm and adjust the rod forward until the brake pad prevents cutter pulley from rotating when cutters are disengaged.
- Make sure the brake pad is 1-2mm clear of the cutter pulley when the blade drive pedal is engaged.
- Tighten the 6mm nuts on the brake arm against both sides of the pivot that protrudes through the chassis.

BLADES:

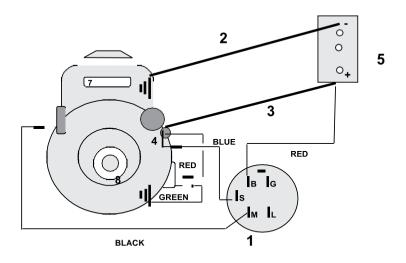


- Before any inspection or replacements of the blades and associated parts, turn the engine off and pull the spark plug lead off the spark plug.
- Be careful during adjustment of the mower to prevent entrapment of the fingers between moving blades and fixed parts of the mower.
- It is important that you visually inspect the blades, bolts and nuts to ensure that they are in a safe operating condition; this should be done before each mowing period.
- Always replace blades and bolts in kit form to prevent any vibration that may damage the mower and cause personal injury.



WIRING DIAGRAM

HONDA GXV390 RT1 DAEU

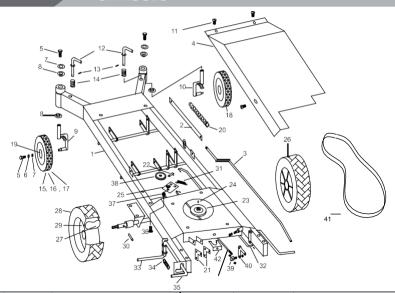


Item	Part No.	Part Description
1	1261	Key Switch
2	1368	Battery lead 330mm
3	1373	Battery lead 250mm
4	3415	Loom assembly
5	H315	Battery 12 Volts
6	3406	Battery Box

WARNING: Incorrect wiring may result in damage to the engines electrical system. Only qualified and or competent electrical technicians should attempt any repairs or alterations.

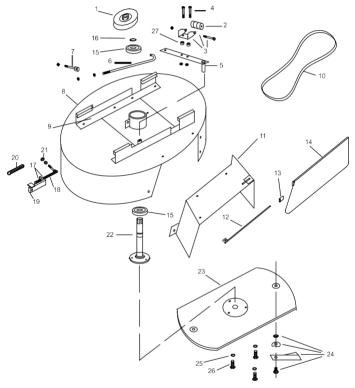
THE MANUFACTURERS RESERVES THE RIGHT TO ALTER, CHANGE OR VARY THE SPECIFICATIONS OF THE MOWER OR ANY OF THE COMPONENT PARTS AT ANY TIME WITHOUT NOTICE.

CHASSIS



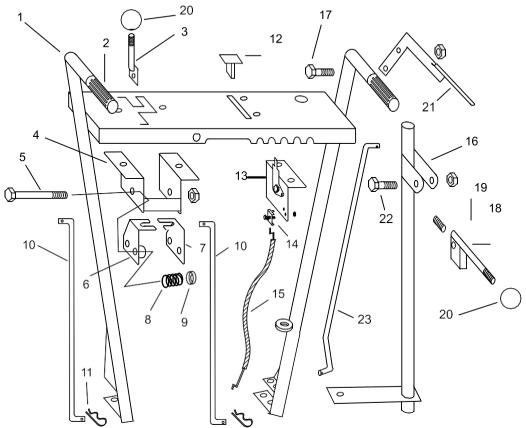
Item No.	Part No	Part Description	Item No	Part No	Part Description
1	3339	Chassis Assembly	23	3337	Pulley, engine
2	1463	Connecting rod, front	24	1492	Key
3	3371	Raise & lower rod, rear	25	1523	Plate, clutch pulley
4	3307	Top cover.	26	1350R	Wheel complete (Bar tread)RH
5	1017	Bolt 8mm x 20	26	1350L	Wheel complete (Bar tread)LH
6	1018	Spring washer 8mm	27	1497	Tube 13-500-6
7	1019	Washer, Flat M8	28	1732	Tyre 13-500-6 (Bartread)
8	3015	Flanged Bush	29	1535	Rim assembly
9	1472	King pin & stub axle LH	30	1501	Pin, axle drive
10	1477	King pin & stub axle RH	31	1846	Spring
11	3372	Flat head screw	32	3370	Rod, cutter engage
12	1478	Lock pin	33	3092	Brake rod
13	1479	Roll pin	34	1846	Spring
14	1480	Spring	35	3090	Brake pedal, parking
15	1481	Tyre 250-4	36	1495	Bolt
16	1482	Rim & bearings	37	1781	Stepped bush
17	1483	Tube 250-4	38	1518	Pulley (Clutch)
18	H616	Wheel complete	39	1514	Pin, pivot
19	1484	Bearing 6203	40	3087	Arm, crank
20	1487	Spring	41	1579	Gear box belt (A33)
21	3312	Gear change right angle	42	3328	Belt guard
22	1488	Belt guide, idler pulley	43	1515	Clutch Rod

CUTTER ASSEMBLY



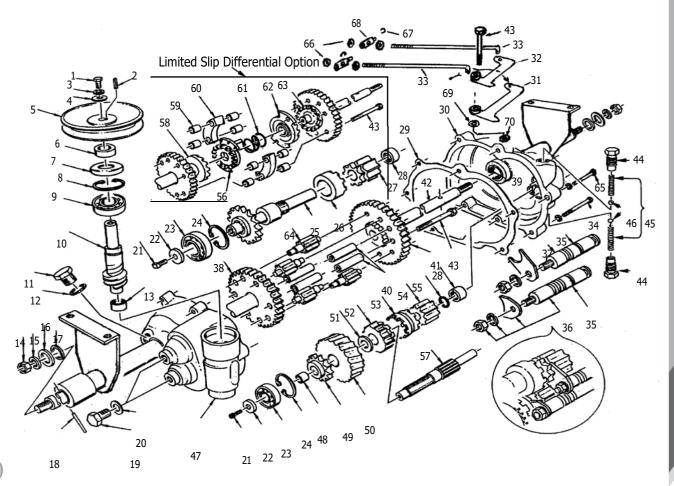
Item	Part No	Part Description	Item	Part No	Part Description
1	1646	Pulley	16	1897	Circlip
2	2092	Brake disc x 4	17	1244	12mm nut
3	2093	Brake pad assembly	18	1558	Push Rod
4	3355	Bolt	19	2007	Push rod connector
5	3295	Brake lever Assy.	20	1487	Spring brake return
6	1986	Brake lever rod	21	1016	Nyloc nut 12mm
7	3255	Brake rod pivot	22	3340	Spindle & flange
8	3379	Cutter deck	23	1576	Blade plate
9	3380	Lift frame & spindle tube	24	H650	Blade, nut, bolt, washer X 2
10	1578	Cutter belt		H652	Nut, bolt & washer x 2
11	3333	Side chute assembly	25	1060	Spring washer
12	1541	Hinge bar	26	1304	Bolt Blade plate attach
13	2095	Plastic bush		HE661	Main Guard Inc chute & flap
14	3305	Discharge flap		3500	Cutting deck complete
15	1898	Bearing, spindle 6205	27	2013	Spacer bush

HANDLE BARS & CONTROLS



Item	New No.	Part Description
1	3334	Handle Bar assembly
2	1586	Handle Grip
3	3322	Gear lever (Hand)
4	3393	Gear lever cage
5	1334	Bolt
6	3396	Gear Selector plate LH
7	3310	Gear selector Plate RH
8	3021	Spring
9	3398	Plastic Cup
10	3318	Vertical Rod
11	1184	"R" Clip

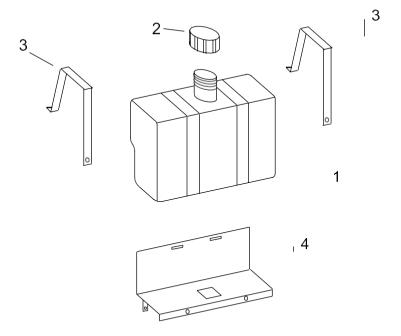
New No.	Part Description
1148	Throttle Knob
3423	Throttle Control
1154	Cable Clamp & Screw
3417	Throttle Cable
3377	Vertical height rod
1495	Special bolt
3301	Height lever
3332	Spring
1618	Knob
1587	Clutch lever
1098	Bolt, M8 x 30
1590	Vertical Clutch Rod
	1148 3423 1154 3417 3377 1495 3301 3332 1618 1587 1098



GEARBOX ASSEMBLY

Item No.	Part No.	Part Description	Qty	Item No.	Part No.	Part Description	Qty
1	1100	Screw, pulley	1	37	1695	Selector tappet reverse	1
2	1640	Key	1	38	1739	High crown gear	1
3	1641	Spring washer	1	39	1699	Bearing, needle, axle	4
4	1642	Washer	1	40	1700	Spacer, diff.	4
5	1643	Pulley	1	41	1701	Low crown gear	1
6	1650	Spacer	1	42	1702	Axle	2
7	1651	Seal 25x40x7	1	43	1704	Bolt, diff	5
8	1652	Circlip 40mm	1	44	1705	Spring holder	2
9	1484	Bearing 6203	1	45	1706	Spring	2
10	1653	Input spindle	1	46	1707	Ball	2
11	1654	Plug Filler	1	47	3336	Housing R.H.	1
12	1655	Fibre washer ¾"	1	48	1714	Sleeve, bearing	1
13	1656	Bearing roller B128	1	49	1715	Reverse gear 13 teeth	1
14	1657	Nut, axle 5/8" UNF	2	50	1716	Bronze worm gear	1
15	1658	Spring washer	2	51	1717	Washer, hardened	1
16	1315	Flat washer	2	52	1740	High gear pinion & clutch	1
17	1659	Seal, axle 7/8"	2	53	1719	Double clutch	1
18	1501	Pin, axle drive	2	54	1720	Pinion, low gear	1
19	1661	Plug, 1/2" BSF	2	55	1721	Circlip, 14mm	1
20	1662	Fibre washer 1/2"	2	56	1722	Sliding clutch with pins L.H.	1
21	1663	Screw	2	57	1723	Forward spindle	1
22	1637	Washer	2	58	1724	Axle & clutch L.H. LSD	1
23	1664	Bearing 6202	2	59	1725	Spacer	8
24	1665	Circlip 35mm	2	60	1726	Clutch spreader bar	2
25	1666	Reverse spindle & gear	1	61	1727	Spring	1
26	1669	Reverse clutch	1	62	1728	Sliding clutch R.H.	1
27	1670	Reverse sliding gear	1	63	1729	Axle & clutch R.H. LSD	4
28	1671	Bearing, roller B98	2	64	1730	Diff spider gear	4
29	1672	Gasket	1	65	1639	Bolt, 1/4"x1-1/4"	1
30	3335	Housing L.H.	1	66	1072	Nut M8	4
31	3422	G/box lower lever	1	67	5028	"""E"" clip"	2
32	3421	G/box upper lever	1	68	3172	Stepped bush	2
33	3319	Gear selector rod Hor.	2		3425	Gearbox complete	1
34	1689	Bolt, housing, ¼"x2"	6		3430	Gearbox LSD	1
35	1690	O-ring	2				
36	1691	Selector tappet Forward 1					

FUEL TANK / SUNDRY PARTS



Item No.	Part No.	Part Description	Item No.	Part No.	Part Description
1	1746	Tank, 6.5lt	-	3343	Decal set
2	1329	Cap, fuel tank			
3	1747	Strap			
4	1748	Bracket, tank			

WARRANTY POLICY

- DEUTSCHER MOWERS PTY. LTD. will repair or replace, free of charge, any mower or part of a mower that is defective in materials or workmanship (or both) for a period of 24 months from the date of purchase. If parts or units are replaced, the replacement period will be no longer than 3 months.
- This does not cover normal wear, abuse or servicing procedures not in accordance with the user's manual. Parts such as blades, blade bolts, tyres and v-belts, that can be subject to use beyond their normal intended working limits, are also excluded.
- This warranty is void if parts other than genuine parts have been used or if repairs or modifications have been made without the manufactures written authority.
- This warranty does not obligate the manufacturer, agents or dealers to cover transport costs incurred in the repair or replacement of any defective part. It does not obligate the manufacturer, agents or dealers to cover any other costs associated with making the warranty claim. (eg telephone calls)
- The engine on this mower is covered by the engine manufacturer's warranty supplied with the mower. For your nearest engine dealer,

Phone: Honda M.P.E.: 1800 241173

To claim a warranty the owner must return the mower (at the owners expense) to an authorized dealer , then give the authorized dealer a clear explanation of the defect. A list of authorized dealers can be found on the Deutscher Mowers website or the location of the nearest authorized dealer can be determined by telephoning the telephone number listed below.

Our goods come with guarantees that cannot be excluded under Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

The benefits to the owner given by this warranty are in addition to other rights and remedies of the owner under a law in relation to goods or services to which the warranty relates.

FOR YOUR RECORD

Model:	HE660	
Serial Num	ber:	Date of Purchase:
Mower Pur	chased From:	

Remember: Proof of purchase is the responsibility of the owner and is necessary prior to warranty work being undertaken. Only warranty work performed by an authorized dealer using genuine spare parts will be eligible for payment, and claims may not be accepted if abuse or other damage has occurred that is not considered as normal wear and tear.

Manufactured in Australia by: **DEUTSCHER MOWERS PTY LTD**, 731Creswick Rd, Ballarat, 3350

Telephone: 03 5339 5708 Fax: 03 5339 3189 www.deutschermowers.com.au